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Mental Illnesses

Understanding, Prediction and Control

Edited by Luciano L'Abate



MENTAL ILLNESSES – UNDERSTANDING, PREDICTION AND CONTROL

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Meet the editor



Luciano L'Abate, Ph.D., is Professor Emeritus of Psychology at Georgia State University in Atlanta, GA where he developed the first Ph.D., Family Psychology Program in the world. He is a Diplomate and former Examiner of the American Board of Professional Psychology and Fellow and Approved Supervisor of the American Association for Marriage and Family Therapy, author and coauthor of over 300 papers, chapters, and book reviews in professional and scientific journals. He is also author, co-author, editor, and co-editor of over 50 books with 5 other books at various stages of production. His work has been translated in Argentina, China, Denmark, Finland, French-Canada, Germany, Italy, Japan, South Korea, and Poland. In 2003, he received a Silver Medal from the President of the University of Bari and the Renior Prize from the University of Lecce in Italy for Outstanding Achievement. In 2009, Dr. L'Abate was the recipient of the Award for Distinguished Professional Contribution in Applied Psychology from the American Psychological Association.

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Preface

If the purposes of any science is to understand, predict (correctly), and control (positively), then this volume fulfills these purposes well. Mental illnesses, in their various intensities and types, are indeed beginning to be understood from a variety of viewpoints, most of them contained in this volume. If we can all predict how and when they will occur, in addition to understanding them generally (Section I) and specifically (Section II), so much the better. We are not perfect in predicting their course, but we are getting there. If we can also learn to improve them and reduce suffering in those affected by mental illnesses and their dear ones (Section IV), one giant step toward an improvement in their control has been taken.

One aspect of understanding mental illnesses includes the general, cultural and societal background in which they occur. In the first chapter of the introductory section, Adrian Furnham and Kate Telford reviewed three areas of research about public attitudes toward mental health and illness. Specifically, schizophrenia and depression, lay theories of mental health about the nature, causes, and treatments for mental illness, and level of mental health literacy, that is, public knowledge and recognition of mental disorders.

In Chapter 2, John E. Berg gives an overview of the existing scientific literature and his own research pertaining to immigrants needs in their psychosocial functioning, distress, and psychiatric diseases among different groups of immigrants to Western Europe. Immigrant groups are composed of refugees according to UN rules, asylum seekers, and other immigrants, such as economic immigrants and family reunions. The complexity of this area covers an relatively new specialty: trans-cultural psychiatry.

In Chapter 3, Vesna Švab defines stigma as an extreme of prejudices, with all their myths and blatant discriminations. Stigma occur everywhere: at work, in the family, in neighborhoods, with friends and partnerships, and in many other settings and relationships. The outcome of stigma is disability. if they cannot be overcome, one has to fight to overcome them. Fortunately, stigmas are a current area of substantive research that is paying dividends in many cultures and societies. Nonetheless, a great deal of work (and fighting) is still necessary to eradicate them from the face of the earth.

In line with the importance of stigmas in many societies, in Chapter 4, Arabinda Narayan Chowdhury emphasizes that the study of culture and its clinical applications are important aspects of mental health services. Anthropological, sociological, and cross-cultural research has clearly demonstrated that the causes, course, and outcome of major psychiatric disorders are influenced by cultural factors. Naturally, there are wide variations of psychiatric disorders across geographic regions and ethnocultural groups that have been documented in a great many publications.

In Chapter 5 of Section II, Aline Drapeau, Alain Marchand and Dominic Beaulieu-Prévost give the readers basic information about the widespread existence of mental illnesses. In their critical review of the literature on psychological distress, the authors argue that this is a common mental health problem, consisting mostly of depression, and anxiety linked to somatic and behavioral symptoms. It is usually used in the literature as a non-specific indicator of mental health functioning. Indeed, age and gender differences in psychological distress have been observed worldwide. If one were to extrapolate from their own country to other countries, depending on different cultural and psychiatric criteria, one could easily reach an estimate of 5% for severe mental illness and 15 to 20% for personality disorders overlapping with criminal behaviors. This essentially means that the whole statistical notion of “normality” flies out the window, since this notion does not also include superior functioning.

Section II of Chapter 6 is dedicated to understanding etiological factors in mental illnesses. Tsuyoshi Hattori, Shingo Miyata, Akira Ito, Taiichi Katayama, and Masaya Tohyama argue that adhesion molecules such as cadherins and integrins are a superfamily of proteins that regulate many cellular functions, including cell adhesion, cell-matrix adhesion, and migration. These molecules are important for neuronal development and synaptic formation, with many members of these families being expressed in the brain. Moreover, recent reports have shown that members of the adhesion molecules are associated with psychiatric disorders. In this chapter, these authors focus on the role of adhesion molecules in psychiatric disorders, especially schizophrenia and depression.

In Chapter 7, Javier Contreras argues that schizophrenia and bipolar disorder, though unique illnesses, may share common genes. Both are major public health burdens whose biology is still largely unknown. Identifying genes that contribute to the risks should provide critical information that might lead to the development of new diagnostics and therapeutic strategies. The author reports on a study in Central Valley of Costa Rica that supports the joint influence of both genetic and environmental factors in the genesis of both disorders.

In line with internal antecedents of mental illnesses in Chapter 8, Špila Božena and Urbańska Anna found numerous reports substantiating connections between stress and neurological changes observed in mental disorders. This research concentrates on the role of the hypothalamus-pituitary-adrenal axis (HPA) system as the marker of organism response to stress. An additional transmitter of feedback inhibition of

pathological lesions also plays a significant role in adaptation processes of organisms to stressful conditions. HPA axis enables an organism to adapt to diverse physiological and psychosocial changes in the environment.

In Chapter 9, Dalvi Madhusudan reports that there are 700,000 people in the UK living with dementia. This statistic has prompted the UK government to publish the first National Dementia Strategy, making dementia a national priority. Dementia has a huge impact on physical, psychological and social aspects of care and also poses ethical challenges. One major ethical challenge is the difficulty faced by clinicians in disclosing the diagnosis of dementia.

In Chapter 10, Rosó Duñó, Klaus Langohr, Diego Palao and Adolf Tobeña argue that despite the proven efficacy of antipsychotic drugs, approximately one third of all schizophrenic patients show poor response, or remain resistant to pharmacological treatment. Poor response to treatment has been associated with several clinical and demographic factors, including males with early age of illness onset, poor premorbid adjustment, and a greater social and cognitive impairment compared to treatment-responsive patients. In spite of these difficulties, Clozapine is recommended for treating refractoriness in schizophrenia.

Moving from internal pathogenic factors to the interaction with external ones, in Chapter 11, Monica Uddin, Erin Bakshis and Regina de los Santos support the position on childhood maltreatment and county-level deprivation. They believe that the two aspects jointly modify the effect of serotonin transporter promoter genotype on depressive symptoms in adolescent girls.

A growing body of work indicates that genetic variation, in combination with adverse life experiences, shape the risk for mental illness. Recent work also suggests that macrosocial contextual influences can contribute to this risk. Nevertheless there has been little consideration of the joint and/or interacting effects of how these risk factors, operating at multiple levels, shape the risk for mental illness. To address this gap, these authors assessed whether genetic variation, childhood maltreatment, and macrosocial context interact to shape risk for depressive symptoms in a U.S. adolescent population.

In Chapter 12, John Matthews updates the differential diagnoses of schizophrenia from schizoaffective disorder, bipolar disorder, depressed type with psychotic features, major depressive disorder with co-occurring substance use disorders, and borderline personality disorder with trauma. He also reports on the psychiatric manifestation of medical disorders and on the prevalence based on the age of onset and treatment settings. He also reports on the course, as well as on the biology of major psychotic depression, including treatments, such as pharmacological interventions, electroconvulsive therapy, and neuromodulation therapies.

In Section III, prediction of mental illness can occur according to different pathways. For instance, in Chapter 13, Maja Rus-Makovec analyzed different effects of therapy,

taking into account a self-estimated level of depression either as a covariate, being measured in each time point of therapeutic and after care treatment, or as an additional factor in a two – factorial research design (time points x self-perceived depression). Different indicators were chosen as criterion of a therapeutic effect, among them intensity of “cravings” as the most central dependent variable.

In Chapter 14, Zikrija Dostović, Dževdet Smajlović, Ernestina Dostović, and Omer Ć. Ibrahimagić attempted to determine the precipitating factors for delirium in patients in the acute stage of stroke. Delirium is a common behavioral disorder in patients with acute stroke (AS) who falls within the province of clinical emergencies. According to these researchers, the main cause of delirium is a disturbance in the neurotransmitter acetylcholine system.

In Chapter 15, Mary Ditton wonders why the interaction between employment and mental health or illness has not been subject to greater scrutiny, considering the amount of time we spend at work in our lifetimes and the risks to mental health that working environment provides. A possible explanation could be that the stigma of mental illness from the point of view of the employee, and the financial concerns about liability from the point of view of the employer link together to hinder the exploration of the topic. Nevertheless, contemporary views of health promotion and the Social Determinants of Health recognize the impact of employment on health, mental health, and various strategies.

Chapter 16 is in line with the previous chapter, as Charl Els, Diane Kunyk, and Harold Hoffman outline the common psychiatric conditions encountered in occupational settings, both safety-sensitive and others. These authors discuss impairment and disability, and the non-linear relationship between both. They also address the main pitfalls associated with fitness-for-duty evaluations- an aspect professionals in non-forensic settings may find challenging. This chapter provides templates for conducting the evidence-based assessments, as well as a pragmatic approach to treatment matching.

Section IV is concerned with how mental illnesses can be controlled and changed from illness to healthiness. Chapter 17 concerns the history of psychiatry. Mamdouh El-Adl suggests that psychiatry has advanced a great deal within a relatively short life span. In 18th Century, some documentation in the *Journal of the Liverpool Psychiatric Club* demonstrated how psychiatry was practiced at that time. In a great step forwards, Benjamin Rush invented a tranquilizer chair. He believed that mental illness is due to irritation of blood vessels in the brain, and his treatment method included bleeding, purging, hot and cold baths and mercury. We have certainly gone a long way forward, but we have still a long way to go.

In Chapter 18, Mónica Figueira, Inma Fuentes, and Juan C. Ruiz aim at describing the concept of social cognition, analyzing how different aspects of the concept may be affected in Asperger syndrome, and exploring how social functioning may be

impaired in this clinical condition. Its characteristics are social impairment, social cognition, or the ability to understand the social world around us. Both conditions go hand in hand and appear to be affected. Nonetheless, the relationship between social cognition and social functioning in Asperger syndrome still remains unclear.

In Chapter 19, Yang Wang explores the efficacy of bibliotherapy as a coping method and a form of social support for patients with depression during the course of rehabilitation.

In Chapter 20, Adeyi A. Adoga outlines the association between suicide and cut throat injuries, and describes the management of patients presented with these types of injuries in Nigeria. As most readers know, suicide is a known worldwide leading cause of death with psychiatric illnesses listed among the strongest predictors. Other predictors listed are familial trouble and poverty. These self-inflicted injuries are obvious with transection of the hypopharynx, larynx, or trachea, and involvement of other parts of the body in some occasions. Cut throat injuries with suicide as the motivating factor usually require rapid and interdisciplinary treatment in countries where weapons are either forbidden and controlled by laws or too expensive to obtain. The anesthetist and psychiatrists working in conjunction with the otolaryngologist should manage these patients.

In the conclusive Chapter 21 of Section V, in their attempt at integrating understanding with prediction and control, Luciano L'Abate and Mario Cusinato introduce a theory-derived relational model. This model includes superior functioning with mental illnesses, with application in self-help, health-promotion, sickness prevention, and psychotherapy through written, interactive practice exercises. This chapter is concerned with explaining and expanding on the basic theoretical derivation of this model, its relational quality, and its integrative view of both mental illnesses. In addition, functionality, research to validate construct, convergent, and predictive validities of the model with its clinical and preventive applications of programmed writing are also explored.

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Part 1

Introduction – General Background

Public Attitudes, Lay Theories and Mental Health Literacy: The Understanding of Mental Health

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1. Introduction

There is a large body of research into public conceptions of mental illnesses and disorders going back over 50 years (Star, 1955). This chapter seeks to review the complex literature on this topic scattered over a wide range of disciplines including anthropology, psychology, psychiatry and sociology. The aim is to provide the researcher in social psychiatry and allied disciplines the opportunity to have a comprehensive and critical review.

Over the years there are *three* slightly different but overlapping research traditions with regard to this topic: public attitudes, lay theories and mental health literacy. The first concerns studies of *attitudes towards people with mental disorders* (Nunnally, 1961), that is, beliefs about what people with mental illness are like and also, how they should be treated. These studies may be about specific mental disorders, such as schizophrenia (Siegler & Osmond, 1966) and depression (Rippere, 1977, 1979) or more generally about mental illnesses. These are nearly always large survey based studies typical of market research or attitudinal studies. These studies are important as they can offer an explanation for negative and stigmatising attitudes towards mental disorder (e.g. Nunnally, 1961; Link, Phelan, Bresnahan, Stueve, & Pescosolido, 1999), and why so few of those diagnosed, seek help (Lin, Goering, Offord, Campbell & Boyle, 1996; Andrews, Hall, Teesson & Henderson, 1999).

Secondly, studies relating to *lay theories* of mental illness have been conducted primarily by Furnham and colleagues (i.e. Furnham & Lowick, 1984; Furnham & Manning, 1997; Furnham & Haraldsen, 1998), focusing specifically on the nature, causes, and treatments of disorders, such as heroin addiction (Furnham & Thompson, 1996), and schizophrenia (Furnham & Rees, 1988). These studies are concerned with the structure of beliefs about aetiology and cure and the relationship between them. They originate in social attribution theory in psychology and are concerned with the extent to which lay people endorse biological, psychological or sociological theories for the causes of various illnesses. They are also concerned with the extent to which there is a clear logical correlation between perceived cause and recommended cure for specific individual illnesses.

The third approach is the term '*mental health literacy*' introduced by Jorm and colleagues (Jorm, Korten, Jacomb, Christensen, Rodgers, et al., 1997b) to refer to public knowledge and more specifically recognition of mental disorders. This encompasses theories of mental

disorders, as well as other important issues such as knowing how and where to seek help (i.e. pathways to professional help). There are now well over two dozen papers that fall into this field. Most (but not all) are based on large population surveys and the ability of people to identify mental illnesses specified in vignettes of hypothetical situations of people suffering from the mental illnesses.

This chapter will concentrate on the topic of lay theories of mental illness.

2. Lay theories of mental disorder

As Furnham and Cheng (2000) described, researchers have distinguished between three types of everyday theories that may be deployed to explain phenomena: *lay* theories which are thought of as personal and idiosyncratic; *folk* theories which are thought to be shared by certain subgroups; and *scientific* theories which are usually thought to be empirically and observationally derived and tested. Furnham (1988) noted that research about lay theories is usually concerned with one or more of six different issues:

1. *Aetiology* (How do these theories develop? What factors seem to lead to the development of particular ideas?);
2. *Structure* (What is the internal structure of these theories? How is the mental architecture arranged?);
3. *Relationships* (How are various theories about different topics grouped or linked? What is the underlying structure of lay theories in different areas: health, economics, education?);
4. *Function* (What function do theories hold for individuals themselves? What are the implications for change?);
5. *Stability* (Do these theories change over time? What influences them?);
6. *Behavioural Consequences* (How is social behaviour related to these different theories?)

Most lay theory studies adhere to the following methodology. Once a particular disorder is identified, be it ADHD, anorexia, autism or alcoholism to sexual disorders, schizophrenia or suicide, a questionnaire is constructed based on interviews with, and reports from non-experts. The questionnaire is usually structured around three issues: the cause of the problem; the behavioural manifestation of the complaint, and the optimal cure of the problem. The analysis usually follows a pattern: beginning with a multivariate analysis of the structure of the three parts of the questionnaire, followed by correlations between cause, manifestation and cure factors and then possibly regressions with the belief factors and the criterion variable and various individual variables (demography, personality, ideology) as the predictor variables.

Recent studies into lay theories have focused specifically on beliefs about the causes and treatments of mental disorders and the relationship between them (e.g. Furnham & Thompson, 1996; Furnham & Buck, 2003), in order to find possible links between negative attitudes and erroneous beliefs. These studies have produced a number of interesting findings. For example, lay theories are not arbitrary or incoherent, but can be classified into categories such as 'psychological' or 'social' in the same way as academic theories (Furnham & Rees, 1988; Furnham & Thompson, 1996). This suggests that lay persons have a basic, possibly implicit, understanding of the different levels of explanation for mental disorder. Studies have shown that the structure of the categories of lay and academic theories overlap to a certain extent, for example 'biological' and 'psychological'. However, some may differ. For example, 'external' which includes beliefs about the roles of luck and religion in the aetiology of mental illness (Furnham & Buck, 2003).

There are also differences between the content of lay theories and academic theories of mental disorders. The main finding is that lay people place more emphasis on psychological, social, and familial causal factors (Sarbin & Mancuso, 1972; Angermeyer & Matschinger, 1996; Furnham & Thompson, 1996), which can be compared to primarily biological and genetic academic theories. However, lay beliefs about causes vary depending on the disorder. For example Jorm and colleagues (1997a) found that schizophrenia was more likely to be attributed to genetic factors than depression, and autism was more likely to be biological than theories of obsessive-compulsive disorder, which were more likely to be psychodynamic (Furnham & Buck, 2003). It is therefore necessary to investigate the structure and content of lay theories of bipolar disorder, as previous studies show that it is difficult to generalise across disorders. Notably, the finding that lay theories are generally psychosocial, rather than biological, has been frequently replicated and can therefore be used to make predictions about lay theories of bipolar disorder.

Lay theories about the treatment of mental disorders show marked differences from current practices in the mental health service, which involve drug treatment for mental disorders and/or psychotherapies such as Cognitive Behavioural Therapy (CBT). It has been found that lay people generally prefer psychotherapy to drug treatment (Angermeyer & Matschinger, 1996; Angermeyer & Dietrich, 2006) due to the perceived side effects (Angermeyer, Daumer, & Matschinger, 1993; Priest, Vize, Roberts, Roberts & Tylee, 1996; Fischer, Goerg, Zbinden, & Guimon, 1999). There is also a common lay belief that 'will power' can effectively facilitate recovery from mental disorders (Knapp & Delprato, 1980), such as agoraphobia and anorexia nervosa (Furnham & Henley, 1988). However, medication is believed to be the most effective treatment for disorders with a higher perceived severity (Furnham & Rees, 1988; Furnham & Bower, 1992), thus showing that lay and academic theories of treatment overlap to an extent. It is unclear how these findings may relate to bipolar disorder, especially since the perceived severity of the disorder is not known. However, it is predicted that psychotherapies will be preferred to drug treatment.

Other studies have focused on assessing whether there is a logical relationship between lay theories of cause and treatment. For example, it is expected that if cause is attributed to biological factors, medication should be endorsed as treatment. This has been found in a number of studies which show a strong relationship between similar cause and treatment theories (Furnham & Buck, 2003), and those which are "sensibly" linked (Furnham & Haraldsen, 1998, pp. 696). However these findings are not always replicated. To demonstrate, medication was the preferred treatment for schizophrenia, despite participants attributing the cause to psychosocial factors (Furnham & Bower, 1992; Furnham & Rees, 1988). However, in this case it is predicted that there will be a coherent relationship between theories of causes and treatments of bipolar disorder due to the predominant findings of previous literature.

Two general models of lay beliefs have been proposed. The 'medical' model (Rabkin, 1974), which suggests that mental disorders are like any other illness with symptoms caused by an underlying biological pathology and a treatment which addresses this. This has positive implications as it suggests that people with mental disorders should not be viewed differently than those with a physical illness. The second model is the 'psychosocial' model (Sarbin & Mancuso, 1972), which suggests that causes of mental disorder are psychological and environmental. This has positive implications for treatment as it advocates social and community support rather than hospitalisation. However, it has been found that people

with beliefs which correspond to this model are less trusting of ex-psychiatric patients than ex-medical patients (Sarbin & Mancuso, 1972). These models can therefore be used to classify lay theories and have wide implications for attitudes towards those with mental illnesses, causal beliefs and treatment preferences.

3. Determinants of lay theories and mental health literacy

Attempts have been made to determine why particular theories are endorsed more than others. A number of studies have found that lay theories are predicted by demographic variables. Specifically, studies show that both younger and more educated people have more informed beliefs about mental disorders (Shurka, 1983; Hasin & Link, 1988; Yoder, Shute & Tryban, 1990; Fisher & Goldney, 2003). Significant effects of gender (Furnham & Manning, 1997), political persuasion (Furnham & Thompson, 1996), and religiousness (Furnham & Haraldsen, 1998) have also been found. This suggests that demographic variables may have some value in predicting many lay theories.

In relation to familiarity with, and knowledge about, mental disorders, it has been found that participants with less knowledge of autism endorse external theories of cause, such as luck and religion, rather than academic theories (Furnham & Buck, 2003), whereas correct recognition of schizophrenia predicts more informed causal beliefs (Jorm et al., 1997a). A large increase in recognition of mental disorders has also been found for mental health professionals compared to the general public (Jorm, Korten, Rodgers, Pollitt, Christensen et al., 1997d). These studies suggest that informed beliefs about the nature, causes and treatments of mental illness come from diverse reading, academic study and/or extensive contact with people affected by mental disorders. Therefore, these variables should have some predictive value for both recognition and theories of mental illness.

4. The studies

Table 1 summarises the results of two dozen studies on over a dozen mental illnesses. The table shows, in essence, the method and results of the studies which will not be repeated here. All were completed in western developed countries and participants were generally better educated and younger than the population as a whole. This would suggest that they probably have more sophisticated lay theories

Disorder	Authors	Study
Alcoholism	Furnham & Lowick (1984)	<p>265 participants completed a questionnaire in which they rated 30 explanations for their importance in explaining the causes of alcoholism.</p> <ul style="list-style-type: none"> Findings indicated a gender effect: females, more than males, believed alcoholics to be socially inadequate and anxious and held the belief that there is too much social pressure and not enough prohibitions against drinking. Furthermore, there was an age effect: middle aged rather than younger or older tended to explain alcoholism in terms of poor education, social and cultural pressures and biological and genetic mechanisms.

Disorder	Authors	Study
		Factor analysis revealed six factors: psychological stress, personal and social problems, psychoanalytic theories, socio-cultural explanations, biological or genetic explanations and social desirability or pressure.
Anorexia Nervosa	Furnham & Hume-Wright (1992)	<p>168 participants completed a 105-item questionnaire which explored their beliefs regarding the cause, correlates and cures of anorexia nervosa.</p> <ul style="list-style-type: none"> • Findings suggested lay people hold elaborate, consensual and moderately accurate (parallel to clinical theories) beliefs about the description, cause and cures of anorexia nervosa. • Sex, personal experience of eating disorders and being acquainted with an anorexic were significant correlates of a number of factors. • Factor analysis identified clusters of responses that showed underlying factors of family, stress of change, conflict in contradictory social roles, goals and demands, rebellion and security.
	Furnham & Manning (1997)	<p>147 participants completed a 108-item questionnaire, based on Furnham & Hume Wright (1992). The four parts of the questionnaire were individually factor analysed and an interpretable factor structure emerged for each.</p> <ul style="list-style-type: none"> • Results indicate young people (16-19 year olds) hold moderately accurate beliefs about the causes and cures of both anorexia nervosa and obesity. • Participants seemed to see social pressure affecting the development of anorexia as most important; and self-worth as most important for cures. • Sex, actual body size, estimated body size and having experience with an eating disorder were found to correlate significantly with a number of factors. • Factors of cause and cure were not correlated regarding anorexia but were for obesity.
	Benveniste, Lecouteur & Hepworth (1999)	<p>Lay theories of anorexia nervosa using critical psychology perspective (Discourse Analysis) were investigated through 10 semi-structured interviews with 5 women and 5 men aged 15-25.</p> <ul style="list-style-type: none"> • Three discourses emerged: Socio-cultural, Individual and Femininity. • It is concluded that lay theories of anorexia nervosa were structured through these key discourses which maintain separation between socio-cultural and individual psychology in relation to anorexia nervosa. • This reinforces the concept that anorexia is a form of psychopathology.

Disorder	Authors	Study
Autism and obsessive compulsive disorder	Furnham & Buck (2003)	<p>A total of 92 participants were involved in the two studies. In study 1 parental interviews of sufferers were conducted and revealed that, as hypothesised, parents hold predominantly biomedical views regarding autism.</p> <ul style="list-style-type: none"> • Participants then completed the questionnaire with varied levels of experience of autism (no experience-relatives of sufferers) which involved rating a range of theories of aetiology and treatment approaches for each disorder. • Statistical analysis confirmed that lay beliefs about autism were primarily biomedical and beliefs about OCD were primarily psychological. • Multiple regression analyses indicated that a range of individual difference factors (i.e. religiousness and age) predicted beliefs about the importance of the factors derived from factor analysis of the belief statements.
Depression	Furnham & Kuyken (1991)	<p>After a pilot study asking people to list the causes of depression, 201 participants completed a questionnaire which involved rating 32 explanations and 5 current theories of depression.</p> <ul style="list-style-type: none"> • Results indicated reasonable agreement in ratings of importance of causal attributions and with current theories of depression • Factor analysis revealed 6 interpretable factors; social deprivation, interpersonal difficulties, traumatic experiences, affective deprivations, negative self-image and interpersonal loss. • Overall lay people believe experience of loss was the major cause of depression, which is not consistent with clinical theories. • Demographic correlates were present but only accounted for between 10-12 percent of variance.
	Lauber, Falcato, Nordt & Rossler (2003)	<p>Data was collected from 873 interviews from a representative telephone survey. A vignette depicting a man with depression satisfying the Diagnostic Statistical Manual (DSM) III-R criteria was presented.</p> <ul style="list-style-type: none"> • For more than half of respondents (56.6%) difficulties within the family or the partnership are causal for depression. Occupational stress being the second most mentioned (32.7%). • Few correlations were found between causal attributions, labelling and demographic factors. • Attributions are shaped primarily by psychosocial ideas about aetiology; however one third of the sample held biological or disease-related beliefs about the causes of depression.

Disorder	Authors	Study
	Heim, Smallwood & Davies (2005)	<p>128 Students were presented with vignettes describing individuals with symptoms of depression based on the DSM-IV to investigate lay perceptions of depression in terms of perceived severity. Descriptions varied in terms of gender, social status and a self-referent manner of communicating depressive symptomology.</p> <ul style="list-style-type: none"> • When asked to rate on a likert-type scale the degree to which vignette characters were thought to be depressed, a non-self referent style of communicating symptoms of depression, by female vignette characters, was seen as an indication of elevated levels of depression.
	Çirakoğlu, Kökdemir & Demirutku (2003)	<p>The study reports university students' attributions for the causes of and cures for depression in Turkey.</p> <ul style="list-style-type: none"> • Results indicated 6 components for causes: trauma, job-related problems, loss, disposition, intimacy, and isolation. • Seven components were found for cures: hobby, sensation seeking, avoidance, professional help, religious practices, esteem and spiritual activities. • Men rated religious practices as more useful than women did. • No other gender differences were found.
	Budd, James & Hughes (2008)	<p>The study aimed to develop a robust factor structure of lay theories of depression, while more adequately sampling from the full range of hypothesised causes of depression.</p> <ul style="list-style-type: none"> • The reasons rated most important for depression were related to recent bereavement, imbalance in brain chemistry and suffering sexual abuse or assault. • The data was best described by a 2-factor solution, the first representing stress and the second depressogenic beliefs.
Anxiety & Depression	Kinnier, Hofsess, Pongratz & Lambert (2009)	<p>In the study, 3 expert populations were consulted: popular self-help literature (10 books), well-respected therapists (17) and individuals who believe that they have successfully recovered from either anxiety or depression (18) for their recommendations to those suffering from anxiety or depression.</p> <ul style="list-style-type: none"> • Content analysis and descriptive statistics indicated recommendations were for anxious and depressed individuals to actively seek help from multiple people and interventions, as well as to being open to innovative self-tailored interventions. • Affirmations relating to 'not being crazy' in relation to anxiety and that the depression will subside in time were deemed most helpful for recovery.

Disorder	Authors	Study
Gender Identity Disorder (GID)	Furnham and Sen (in press)	<p>124 participants completed a questionnaire based on previous interviews regarding views on possible causes and cures of GID.</p> <ul style="list-style-type: none"> • As hypothesised, participants believed most in biomedical causes and cures of GID. • Factor analysis identified four factors in relation to causes of GID: upbringing and personal, pregnancy and brain abnormalities, environmental, biomedical causes. • Five factors identified in relation to cure were: psychological assistance and personal, extreme medical and behavioural changes, alternative therapies and external factors and medical treatments. • Results indicated participants were unclear of the causes and cures of GID but these beliefs were logically related.
Heroin Addiction	Furnham & Thompson (1996)	<p>144 participants completed a questionnaire examining the structure and determinants of lay people's implicit theories of heroin addiction. They had to rate 105 statements about the causes, correlates and cures of heroin addiction.</p> <ul style="list-style-type: none"> • Factors seemed similar to explicit academic theories; except beliefs about cure which did not show support for most clinical models. • When a higher order factor analysis was performed, four factors emerged: moralistic, psychosocial, socio-cultural and drug treatment which reflect coherent views on the nature of heroin addiction. • The strongest demographic determinant of lay beliefs in these factors was political beliefs. Right wing voters emphasised moralistic and individualistic theory and left-wing voters supporting the psychological and societal ideas.
Neurosis	Furnham (1984)	<p>Three experiments aimed to investigate various determinants of the common-sense conception of neuroticism. In the first experiment subjects completed various standardized psychological tests measuring neuroticism and anxiety, while also estimating the extent of their own anxiety and neuroticism. In the second experiment subjects attempted to detect items measuring neuroticism in a standard personality questionnaire and secondly estimate the extent of their own and the 'average' person's neuroticism. Finally, in the third experiment subjects rated the typicality of various neurotic traits and behaviour which had been supplied by subjects in the previous two experiments.</p> <ul style="list-style-type: none"> • Findings demonstrated some similarities in expert explicit theories and lay-person implicit theories, though there appeared systematic biases in subject's perception of their own neuroticism.

Disorder	Authors	Study
Paraphilia	Furnham & Haraldsen (1998)	<p>The paper examined four types of Paraphilia: fetishism, paedophilia, sexual sadism, and voyeurism. 105 participants completed a four part questionnaire divided into: demographic details, perceptions of etiology, ratings of cure for each Paraphilia and the Eysenck Personality Questionnaire.</p> <ul style="list-style-type: none"> • Factor analysis revealed a clear and logical factor structure for etiology and cure items. • Further, etiology and cure items correlated strongly with each other but only moderately with demographic and personality differences.
Phobia	Furnham (1995)	<p>150 people completed a two-part questionnaire that investigates beliefs about the nature and cure of phobia. Five factors emerged from the 23-item attitude section:</p> <ul style="list-style-type: none"> • The ideas that: certain personality factors related to phobia, there are physical correlates of phobia, observational learning causes phobia, phobias are caused by behavioural pairing, and Freudian ideas of unconscious association. <p>The 13-item treatment section showed four factors:</p> <ul style="list-style-type: none"> • Alternative medical practices, psycho-analytic practices, desensitisation and flooding. • There was a clear and logical relationship between perceptions of the causes and treatment of phobia demonstrating that lay people have coherent theories of the etiology and cure of phobia.
Schizophrenia	Furnham & Rees (1988)	<p>Subjects completed two brief questionnaires, one concerning the description of, and attitudes towards schizophrenia and schizophrenics and the second on the possible cause of schizophrenia. Beliefs about the conceptions of mental illness suggested four factors labelled dangerous, amoral, egocentric and vagrant. The items on the causes factored into five factors labelled stress and pressure, biological, genetic, backward and brain damage.</p>
	Furnham & Bower (1992)	<p>106 Lay respondents (students, nurses, employed and unemployed) aged 18-60 answered a questionnaire examining five identified main academic theories of schizophrenia (medical, moral-behavioural, social, psychoanalytic and conspirational) along various dimensions (e.g. aetiology, behaviour, treatment).</p> <ul style="list-style-type: none"> • No single model was favoured exclusively but seemed to point to a synthesis of several academic theories. <p>Lay subjects stressed the importance of patient environment in the aetiology of schizophrenia rather than a physiological malfunction, but tended to stress the personal rights of the schizophrenic.</p>

Disorder	Authors	Study
	Angermeyer & Matschinger (1994)	<p>Results were obtained from a population survey of 2118 in Germany. Interviews revealed participants showed:</p> <ul style="list-style-type: none"> • A strong trend to revert to social and individual psychological concepts in the search for a reason for the occurrence of schizophrenic disorders; in particular, stress. <p>An unmistakable preference for psychotherapy as opposed to treatment with psychotropic drugs</p>
	Jorm, Korten, Jacomb, Christensen, Rodgers & Pollitt (1997a)	<p>Data from a national household survey of the beliefs of 2031 Australian adults about causes and risk factors for mental disorders was collected.</p> <ul style="list-style-type: none"> • Results indicated that for schizophrenia, social environmental factors (day-to-day problems, traumatic events) were often seen as causes which are a contrast to the weak epidemiological evidence for such a role. • Genetic factors attracted more attention as a cause of Schizophrenia than Depression. <p>Of notable concern was the popular belief (over half) of respondents that weakness of character was a likely cause of both depression and schizophrenia, implying a negative evaluation of the sufferer as a person.</p>
	Furnham & Wong (2007)	<p>The study investigated 200 (101 female, 99 male) British (100) and Chinese (100) participants' beliefs about the causes, behaviour, manifestations and treatments of schizophrenia. Results confirmed the three hypotheses that:</p> <ol style="list-style-type: none"> 1. Chinese would hold more superstitious and religious beliefs towards the causation and treatment of schizophrenia and would prefer the use of alternative medicine. 2. The British emphasised more on internal (biological and psychological) and external (sociological) beliefs for the causes and treatments. 3. Chinese participants held more negative attitudes and beliefs about the behaviour manifestations of schizophrenia than the British.
	Furnham, Raja & Khan (2008)	<p>A total of 305 British, British Pakistani and Native Pakistani medical students completed a questionnaire on general beliefs about people with schizophrenia, causal explanations concerning aetiology and the role of hospitals and society in treating people with schizophrenia.</p> <ul style="list-style-type: none"> • There was strong evidence to suggest Pakistanis possessed more negative beliefs and attitudes about people with schizophrenia, but no evidence to suggest Pakistanis believed more in superstitious causal explanations.

Disorder	Authors	Study
		<ul style="list-style-type: none"> • Pakistanis were more likely to consider seeking help from faith healers, but not God, compared with the British Pakistani and British participants. • Results confirm cultural (European-Asian) difference in the understanding of the cause, manifestation and cure of schizophrenia.
Suicide	Knight, Furnham & Lester (2000)	<p>Attitudes toward suicide were explored in 150 young people.</p> <ul style="list-style-type: none"> • The strongest correlate of these attitudes was psychoticism scores, with the respondents with higher psychoticism scores viewing suicide more positively than those with lower scores.
	Walker, Lester & Joe (2006)	<p>African Americans' lay beliefs and attributions towards suicide were examined in 251 undergraduate college students using the Attitudes Towards Suicide Scale, Life Ownership Orientation Questionnaire, Stigma Questionnaire and Suicide Ideation Questionnaire.</p> <ul style="list-style-type: none"> • Beliefs about stigma were comparable across ethnic groups. • African American students were significantly less likely than European American students to attribute suicide to interpersonal problems and report the individual or government as responsible for life. • African American students were significantly more likely to report that God is responsible for life.

Table 1. Previous studies of lay theories of mental disorder

Table 2 shows the results of various studies concerned with lay theories of the process of psychotherapy. They are concerned with the perceptions of what occurs in a (typical) therapy session, the efficacy of different cures, the prognosis for different problems, and the differing perceptions of lay people and clinicians.

Author(s) "Title"	Study
Furnham & Wardley (1990) "Lay Theories of Psychotherapy I: Attitudes Toward, and Beliefs About, Psychotherapy and Therapists"	<p>Two hundred people completed two questionnaires that concerned their beliefs about what psychotherapy clients experience and their attitudes toward psychotherapy.</p> <ul style="list-style-type: none"> • Overall, the participants appeared to be very positive toward psychotherapy. They expected that psychotherapy clients receive considerable benefits from therapy. • They appeared to have a fairly realistic idea of what occurs in psychotherapy. They tended to

Author(s) "Title"	Study
	<p>agree that psychotherapists aim to help clients achieve self-insight and express emotions.</p> <ul style="list-style-type: none"> • The results of this study suggest that lay people have fairly complex, multi-faceted views of psychotherapy and the experience of psychotherapy clients. This was particularly the case with respect to beliefs about clients of psychotherapists' experiences. • There were no sex differences, but some age differences, which indicated that older people tended to be more sceptical, indeed even possibly cynical about the benefits of psychotherapy. • Education was related predictably to certain beliefs and showed that better-educated people tended to believe less than less-well-educated people in the whole process of psychotherapy. • The most powerful correlates of belief factors were actual psychological experience, exposure and knowledge. The most experienced participants tended to be less optimistic about progress in therapy and more aware that psychotherapy is not entirely about teaching new behaviours or dealing with conflict and emotions.
<p>Furnham & Wardley (1991) "Lay Theories of Psychotherapy II: The Efficacy of Different Therapies and Prognosis for Different Problems"</p>	<p>Two hundred lay people completed two questionnaires, the first examining their perceptions of the efficacy of 22 different types of psychological treatment. The second questionnaire required them to rate the perceived prognosis for 36 different and relative common psychological problems derived from (with definition) the DSM III.</p> <ul style="list-style-type: none"> • Participants perceived cognitive and group therapies as most effective and the physical and surgical therapies as least effective to "cure" a wide range of problems. They were most impressed by traditional psychotherapy but least impressed by primary scream or rebirth therapy. • The more experience participants had the less they believed in the efficacy of most therapies especially regression techniques but also cognitive and psychodynamic therapies to "cure" a wide range of psychological problems.

Author(s) "Title"	Study
<p>Furnham, Wardley, & Lillie (1992) "Lay Theories of Psychotherapy III: Comparing the Ratings of Lay Persons and Clinical Psychologists"</p>	<ul style="list-style-type: none"> • Overall, participants seemed moderately optimistic about the prognosis of certain neurotic disorders especially enuresis, insomnia and agoraphobia, while very pessimistic about the prognosis for epilepsy, dementia, and homosexuality. • The strongest correlate of the prognosis factor was psychological experience. The results tended to indicate that psychological experience tended to be associated with beliefs in the prognosis of problems concerned with general anxiety, but beliefs about the poor prognosis of problems associated with serious cognitive problems. • There seemed to be more belief in, perhaps as a consequence of understanding about, behaviourism and learning theory. <p>Approximately 200 lay people (working adults and students) and over 50 practicing psychologists completed a four-part questionnaire that examined attitude to psychotherapy, beliefs concerning what patients report during psychotherapy, the efficacy of quite different types of psychological treatment, and finally the prognosis for a wide range of psychological problems.</p> <ul style="list-style-type: none"> • The results revealed numerous and consistent differences which showed that, compared to lay people, psychotherapists seemed more skeptical and pessimistic about the efficacy of therapy and the prognosis for various psychological illnesses. • Psychotherapists believed that clients in psychotherapy tended to report more positive, favourable reactions than lay adults and students. • Psychotherapists tended not to believe that therapists teach specific skills but rather that they provide some sort of social support and help vent fears and other negative emotions. • Therapists seem more skeptical in beliefs about the efficacy of different therapies and the prognosis of different problems. Therapists believe that different therapies are suitable for particular problems (and that some therapies are by-and-large fairly useless), while lay people believe therapies are suitable for a wide range of

Author(s) "Title"	Study
<p>Wong (1994) "Lay Theories of Psychotherapy and Perceptions of Therapists: A Replication and Extension of Furnham and Wardley"</p>	<p>psychological problems.</p> <ul style="list-style-type: none"> • Lay people believe the prognosis for a wide range of psychological problems to be better than the therapists. <p>Two hundred and forty undergraduates and 43 non-faculty staff members at the University of Northern Iowa participated in the study. Each participant completed four questionnaires and read a vignette of a part of a psychotherapy session in order to examine the laypersons' perceptions of psychotherapy, the experience of psychotherapy clients, and therapist credibility.</p> <ul style="list-style-type: none"> • The participants appeared to have realistic conceptions about what occurs in therapy and to be quite optimistic about treatment outcomes. Participants tended to disagree with most of the popular stereotypes about psychotherapy (e.g., most clients lie on a couch; women make better therapists than men) and to agree with the goals and techniques of most types of modern psychotherapy (e.g., therapists teach strategies to reduce conflict or frustration; psychotherapists encourage the expression of emotions). They also indicated that the therapeutic experiences and relationship lead to improvements for a variety of problems and client types. • They did endorse some common misconceptions about psychotherapy (e.g., most therapists ask about dreams, believe psychological problems start in childhood, or use personality questionnaires). They also responded neutrally to statements about some important aspects of therapy, such as the client-therapist relationship and the length of therapy. • Males, older individuals, and those with more psychological experience were less optimistic, but perhaps more realistic, about the potential benefits of therapy. However, the more experienced participants, surprisingly, did not differ from the less experienced ones in their beliefs about the experience of clients. As expected, when age, experience, and sex were controlled, the student and staff did not differ in their psychological experience or in their beliefs about psychotherapy.

Author(s) "Title"	Study
<p>Furnham, Pereira, & Rawles (2001) "Lay Theories of Psychotherapy: Perceptions of the Efficacy of Different 'Cures' for Specific Disorders"</p>	<ul style="list-style-type: none"> • Neither participant's sex nor the amount of fee charge affected participants' perceptions. Also, treatment modality (client-centered vs. behaviour vs. rational-emotive) significantly affected ratings of overall, and each dimension of, therapist credibility. • Only a few beliefs about psychotherapy influenced perceptions of (only limited aspects of) therapist credibility. <p>Two hundred and seventeen participants completed a two-part questionnaire in order to study the structure and determinants of lay beliefs about psychotherapy in general and specifically the effectiveness of various therapies for four different disorders.</p> <ul style="list-style-type: none"> • It was clear from the factor analysis of the ratings (across all four conditions) that participants did not distinguish between a range of talk therapies including psychoanalysis, gestalt and existentialist therapies, on the one hand, and group/marital therapies on the other, as well as more social-behavioural therapies like CBT, assertiveness and thought-stopping. To the participants they all appeared to involve talk which aims to change cognitions and emotions. • Participants clearly differentiated between the efficacies of the different therapies. Whether considered to be moderately efficacious (cognitive/talk therapies) or not, participants saw some as being significantly more appropriate than others. <ul style="list-style-type: none"> • Cognition therapy was seen as efficacious for depression and delusional disorders. • On the other hand, physical therapies were perceived moderately useful with anorexia but not at all for depression.
<p>Furnham (2009) "Psychiatric and Psychotherapeutic Literacy: Attitudes to, and Knowledge of, Psychotherapy"</p>	<p>In total 185 British adults, recruited by a market research company, completed a four-part questionnaire, last about 20 minutes to study what lay people think happens during psychotherapy; what the processes and aims are; and the aetiology, treatment and prognosis for mood and psychotic (bipolar, schizophrenia) and two neurotic (depression, obsessive-compulsive) disorders.</p>

Author(s) "Title"	Study
	<ul style="list-style-type: none"> • Participants saw psychotherapy as supportive, creating insight and improving coping skills. However, they do recognize that clients are occasionally required to confront uncomfortable and painful ideas and feelings. • Participants were generally very positive about psychotherapy believing the experience to be highly beneficial. • Schizophrenia was seen to have a biological basis; depression and bipolar disorder were perceived to have family, work and other stress-related causal issues. • Participants thought psychotherapy a very effective treatment but drug treatments more effective for schizophrenia and bipolar disorder. • 'Talking it over' was judged highly relevant, specifically to depression. • Participants believed that depression had a good chance of cure, and remission, but that neither schizophrenia nor bipolar disorder had much chance of an effective cure.

Table 2. Studies on lay theories of Psychotherapy

5. Limitations

The studies shown in Table 1 and Table 2 suffer various limitations. The first is *sampling*. Many studies have sampled relatively small, better educated, Western participants, often with disproportionate numbers of students. Far fewer have looked at the ideas of patients, their relatives or psychiatric staff. Further, very few studies have been conducted in third world or developing countries where it is known that people hold very different lay theories. Ideal studies would use large, representative samples. The second is *method*. Most studies have been questionnaire based after initial testing with interviews. All methods have limitations, and it would be most desirable to use multiple methods to investigate lay theories. It would also be most beneficial to trace theories over time, particularly if some attempts were made to change them via an intervention like mental health education. The third is *topic*. It is clear from Table 1 that only a small number of disorders have been investigated. They are however not arbitrary as the topics covered are often the more common mental illnesses (i.e. depression), as well as those most discussed by the public.

6. Conclusion

It is plausible to draw five conclusions from the scattered literature on lay theories of mental illness. *First*, as many have noted, knowledge of the various mental illnesses is both patchy

and highly varied. Whereas lay people seem relatively well informed about some, like depression, they are surprising ignorant about others, like schizophrenia. This seems to be related to the prevalence of the illness in the population as well as media coverage of the problem, particularly celebrities admitting to being "sufferers". Many hold antiquated and unsubstantiated views on the nature or manifestation of mental illnesses that educators have been trying to correct for years.

Second, when thinking about the cause of mental illness it is common to find five types of explanations: psychological; sociological; biological/genetics; psycho-analytic and moral/behavioural. Most people rate typical psychological explanations seeing the cause to be individual mal-functioning of some system. They are also happy to acknowledge group, societal and structural variables as contributing to illness. To a limited extent, and highly specifically with respect to particular illness, people rate biological (i.e. hormonal, brain damage) and genetic factors as a major causal role in the mental illness aetiology. There is also a surprising number of people who endorse classic Freudian explanations of dysfunctional early relationships with parents or others. For some mental illnesses lay people are happy to suggest the cause is "wickedness" of one sort or another: that is, that the cause is gross moral turpitude. For some people in third world countries the cause is seen to be spiritual: that is the intervention and possible punishment from a "higher force" or "pantheon of gods". The extent to which people appear to endorse one type of theoretical explanation over another is a function of the illness in question, as well as their education and ideological orientation.

Third, lay people seem less certain about cure/intervention/management than cause. Once again, various types of cures are seen to be, at least in part, relevant to many problems. For most problems, the favoured cure, in terms of perceived efficacy, is a variety of the "talking cures": that is, psychotherapy of one sort or another. Cures that are acknowledged, but rated as less appropriate and effective, are behavioural, pharmacological(drugs) or surgical. For some illnesses incarceration or some change in the way society operates is seen as effective.

Fourth, there is often a weak and not always coherent, relationship between perceived cause and the cure of a mental illness. Usually there is a weak positive correlation between psychological causes and cures, though it is recognized that although the cause may be psychological, the effective cure may be drug related. Certainly it does seem that people do not hold very coherent theories for the origin, progression, manifestation and alleviation of mental illnesses.

Fifth, studies that have attempted to identify the demographic and experiential correlates of mental health knowledge or literacy have shown some predictably and explanatory results. Thus, those that are younger, better educated people know more; those with training on psychology/psychiatry know more; and those with personal experience (self/relatives) are better informed. However, the significant effects are very weak.

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The Psychology of Immigration, Relief or a Burden? Immigrant Need and Use of Psychiatric Care

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1. Introduction

The diversity we meet both in the group of immigrants and in the recipient countries is bewildering. In areas, both in Europe and further away from Europe or North America, the emigration rates were higher from areas where the welfare of the individual's nuclear family was the deciding economic factor[1]. Such a decision was driven by a sense of hopelessness and lack of prospect of a better future. When the family no longer could feed all the members, there was an exodus in great numbers. This inability to concert activities beyond the immediate family may aptly be called amoral familism, which for instance in remote areas of Italy was produced by three factors. They were, acting in combination to achieve such a state: a high death rate, certain land tenure conditions, and the absence of the institution of the extended family. During much of the 19th century almost a million people emigrated from Norway to the US (similar numbers also for Ireland). A Norwegian psychiatrist investigated large groups of these emigrants, and found increased incidence of severe mental illness after some years, thus indicating that the emigration process had its costs [2].

The big colonial powers of the 19th and 20th century had rules giving citizens of the colonies easier access to the mother country. Great numbers of people from Surinam in the Netherlands, Indians in Great Britain and Algerians and people from colonies in Sub Saharan countries in France are examples of a special type of immigration. Psychiatric needs of these immigrants compared to other immigrants have not been studied. Today the big colonial powers have restricted the access of citizens from the colonies.

1.1 Conflicts within emigrating countries are chaperons after immigration

Scandinavians, Germans and Japanese immigrants to the US were mainly rural whereas Irish, Chinese and Italians were urban [3]. Immigrants to Western Europe today are similarly divided, and give rise to different challenges as most are settled in urban areas. This meant and means a change also for the people already present in the host country. During the 1820th immigration of German Ashkenazi Jews to the US changed the situation for the then settled Sephardic Jews. The newly arrived Ashkenazi did not accept the Sephardic synagogues and several new synagogues had to be built. Discrimination in home countries led to emigration, but when immigrated the new group maintained a

discriminatory attitude towards others within the same faith. Coping skills including the necessity of discrimination were perpetuated in the new setting. German and Irish Catholics did not immediately commute with the American Catholic communities. Refugees from Viet Nam were divided between those who escaped because they had supported the Americans, and others because they had fought against the government in the south. Several groups of Muslims repeat the divides from their home countries by entering non-cooperating helping facilities representing their Muslim faith. Help with adaptation and your religious or ethnic compatriots may thus not be as straightforward as you would expect after exodus.

1.2 Multiculturalism as a solution?

Multiculturalism is one conceptualisation of society with many diverse ethnic groups. The recipient countries in the Western world differ greatly in this respect. Australia, Canada and the US are countries based on immigration from all over the world, to such an extent that the existing cultural rules are a mixture of all foreign influences. Canada seems to be the country where the immigration process has led to less criminality, less interracial conflicts and a great flexibility in accommodating new entrants. Countries as Finland and Norway are more homogenous societies with little influx of immigrants. They are met by publicly organized affluent facilities catering for housing, language skills and health care, but with a backdrop of xenophobia in the population. The double communication from the host country may be bewildering [4]. Present immigrants are starting to reshape the countries in a more accepting and multi-ethnic direction, although far-right ethnocentric groups exist and grow. Fear of foreigners (xenophobia) is greater in such countries and will drip down on the immigrants as part of their identity adjustment challenges. This is aptly described in immigrant novels covering the apparently contradictory impulses of class, privilege and standing [5].

2. Immigration as relief

Emigration from hardship, poverty and small prospects of change was a relief for groups leaving Europe from Ireland and Norway during the 19th century. Arriving in USA they were investigated thoroughly and only the “fit and able” were accepted. Though starting at bottom level, a majority managed to attain a level of living conditions exceeding the one they left. Emigrating persons from Turkey, South West Asia and India today may be of the same category, whereas immigrants of African or Roma decent have greater hardships after entering countries as Spain, Greece and Italy. Whether the last groups in the end feel that emigrating was a relief has not been studied yet.

2.1 Why do some refugees conquer extreme hardship with intact mental balance?

It is observed that the capacity of humans to adapt to new environments and rules is high. Sufficient clarifications of who will adapt are not given by observable characteristics of the persons as educational level, age and somatic and mental health status. The American sociologist Aaron Antonovsky developed a theory of salutogenesis after encounters with survivors of concentration camps during World War II. His point of departure was the observation that some people seemed to adapt well to life after the traumatising and death threatening experiences, often combined with loss of several members of own family. He

wanted to advance the understanding of the relations between life stressors, coping and health [6]. An emphasis on pathogenic (disease giving) factors has been and is still in use to explain lack of health and behaviours in biomedical as well as social science disease research. Antonovsky's salutogenic model looks to find signs of adaptive coping. According to the model this is the secret of movement towards the healthy end of the sick - healthy continuum. People develop resistance resources, and this is a perfect frame to understand the process of the psychology of emigration. The resources were wealth, ego strength, cultural stability and social support [7]. After immigration many people have little wealth, cultural instability and lack the former, natural social support, even if they maintain ego strength. An example is the observation that immigrant minorities in New York in the US have higher cancer rates than the majority population [8]. The authors explain this by stating: "immigrants face cancer care and research access barriers, including economic, immigration status, cultural, and linguistic barriers".

Notwithstanding, some maintain that people emigrating often constitute a resource rich and rather healthy part of the population in the country they left. The poor and feeble do not have the strength or endurance to flee or move. Those who fared well after immigration or great trauma had according to Antonovsky the ability which he called Sense of coherence. The construct encompasses more than concepts as self-efficacy, internal locus of control, problem oriented coping, or the challenge component of hardiness. The sense of coherence concept has been shown to be less bound by particular subcultures, thus useful in an immigration context [7]. When sense of coherence is low, the future risk of morbidity and mortality in drug abusers increase [9] [10]. In order to counter the effect of low sense of coherence in immigrants German researchers advocate the establishment of a complementary system of health care in order to give a sustainable medical care for small migrant groups or not optimally integrated immigrant populations [11].

3. Immigration as a burden

Forced emigration during conflicts, either internally in own country or to a neighbour country is initially a burden. Depending on experiences before an emigration, during the flight and the reception in a new country, disease may develop and the immigration may pose grave problems in accommodating to a new life.

An Australian initiative organised multidisciplinary primary healthcare for newly arrived humanitarian entrants [12]. The clinic achieved to see and investigate the refugees within a median of five days. GPs were present at the clinic, but later transfer of the patients to outside GPs in the community remained problematic.

Goth et al studied whether the engagement of GPs is sufficient. She studied immigrants' use of primary health care in the form of contact with general practitioners or emergency services in two recent papers from Norway [13, 14]. Immigrants to Norway tend to use emergency primary health care services more than the registered GP, despite the fact that every citizen by law has a designated GP. There is lack of relevant information in several languages; immigrants use key informants from their own group to partly overcome this. There is also a reluctance to accept the democratic attitude of Norwegian GPs, who involve the patients in decisions of treatment, and even a lack of confidence in the quality of the doctor if he/she consults handbooks or colleagues. Her most striking finding is, however, that the group of immigrants is very diverse both in health literacy, attitude towards peers and language skills.

3.1 The different generations of immigrants

Several generations of a family may emigrate. Either at one time point, or as a result of family reunion some time after the immigration of a part of the family. There are often strong bonds between the generations and they depend on each other. Eventually the oldest generation needs more support from their children or grandchildren. The meaning of family support among older Chinese and Korean immigrants to Canada has been studied [15]. The authors found that the immigrants above 60 years had the following perspectives on the family life:

1. They had become more peripheral family members
2. Parents were no longer authority figures in the family
3. The older generation was more independent in the sense that they had a changed economic environment, were living alone and had a social network beyond the family

This all promoted a move to biculturalism. A statement of one of the participants underscores this: "I believe we should not depend on them...I suggest we should save enough money for our future when we are young...if you had better apply for living in senior houses so that the children can drop by when they are free". Such a view is in contrast to what cultural obligations from the emigration country would prescribe. In another small study from Australia aging Chinese immigrants valued financial security and an active lifestyle as the most important aspect of getting old, whereas the Anglo-Australians regarded growing old gracefully and accepting the limitations of life as important aspects of successful aging [16].

Internet-usage of immigrants may enhance the intercultural adaptation when they accommodate to host country sites [17]. Thus it is important to guide immigrants to local sites where knowledge and understanding of the new host country may be established.

Immigrants from certain countries have a low acceptance rate for mental health problems. This is a cultural question, but also a question of possible access to mental health care. Number of psychiatrist per 100,000 inhabitants is for instance around 8 within the European Union, 35 in Norway, but only 0.3 in India. Integration of primary health care and psychiatry for immigrants may improve acceptability to receive mental health guidance and treatment, as shown by Yeung et al. in Boston [18]. They used a specially trained nurse to bridge the patients between primary care and the psychiatric services, thus increasing the number of patients turning up at the mental health clinic after referral.

One expression of felt strain in life may be suicidal ideation. This was studied in adolescents in the Netherlands [19]. Turkish adolescents had higher levels of suicidal ideation than both the majority and other minority group adolescents. Turks and Moroccans enjoyed being at home less than the Dutch. On the other hand, having a good relationship to mother and father had a protective effect against suicidal ideation. Many factors play a role here. The authors also concluded that discussing their problems at home increased suicidal ideation in Turkish adolescents, but had a protective effect in Dutch and Moroccan adolescents. Having a friend was a buffer. Different coping strategies in families may be the important factor, whether or not the family and its surroundings is of native or foreign descent.

4. Understanding illness behaviour in a new culture

Transcultural psychiatry is difficult. Understanding the verbal and social aspects of people in need of psychiatric care demands knowledge of aspects of culture, race, religion and expectations in both the caregivers and the recipients of care, as described in for instance

Fernando “Mental health, race and culture” [20]. The Western European psychiatric tradition in most countries receiving immigrants may be less understanding when exposed to spiritual healing, Chinese medicine and the use of the family group as a treatment arena.

4.1 Case

An Albanian woman from Macedonia was referred to the acute psychiatric facility with a diagnosis of psychosis. She told the doctor on duty that her aunt had put an evil spirit in her body, and she could not get rid of him. The psychiatrist in training categorized her notion of an evil spirit as a sign of a paranoid psychosis. Later it turned out that she only was in severe conflicts with her family members. Treating her with antipsychotic medication only made her very tired, her opinion of evil spirits did not subside.

Immigration is a risk factor for developing mental disorders. This risk can be viewed as a combination of a demographic divergence from the host population, increased psychosocial stress, and environmental factors as housing and cultural difficulties in giving a proper diagnosis to the patient. Torture survivors may be prone to post-traumatic stress disorder. Immigrants from Surinam and Morocco to the Netherlands were shown to have a fourfold relative risk of schizophrenia, purportedly due to the rapid change in lifestyle [21, 22]. On the other hand, immigrants seem to have a lower rate of substance abuse than the host population [23]. This was also corroborated in a cohort study from a Norwegian acute psychiatric facility [24].

4.2 Referrals of migrants to psychiatric acute resident care

Most immigrants, as most other inhabitants are not referred to acute psychiatric care. Acute onset of mental illness may illuminate special problems brought to an extreme level. Some aspects of extreme behaviour would be cultural, socioeconomic or religious in origin. By studying specifically referrals to acute care, many general aspects of differences between immigrants and native populations could be demonstrated. Two papers from Norway are described in the following in some detail.

All patients referred during a year were grouped as immigrants or native Norwegians [24]. There were more men among the immigrants (68.8% versus 43.3%), they were somewhat younger, but more referrals under compulsion (75.5% versus 51.9%) according to the Mental Health Act. Suicide attempts or suicidal ideation were equal between immigrants and native Norwegians. Multiple referrals were not different as shown in the table below.

	Immigrants (N=80)	Other referrals (N=335)
<i>Referrals in one year</i>	<i>Patients (% of 80)</i>	<i>Patients (% of 335)</i>
2	12 (15.0%)	50 (14.9%)
3	4 (5.0%)	14 (4.2%)
4	1 (1.3%)	5 (1.5%)
5	1 (1.3%)	2 (0.6%)
6	0	4 (1.2%)
9	0	1 (0.3%)
Total	18	76

Table 1. Multiple referrals during a year of individual patients to an acute psychiatric facility in Oslo according to ethnicity

The clinicians had an impression that relatively more immigrants were referred. As shown in the table below this was not the case. The rate of referrals from the catchment area, three boroughs in the capital, was 0.0049 for immigrants and 0.0052 for native Norwegians ($X^2 = 0.1$; $p = 0.74$), i.e. the same fraction of the immigrants and the native population were acutely referred to the hospital.

Borough	3	5	6
	Number (%)	Number (%)	Number (%)
Total population	28678	26857	25682
Non-Western immigrants	1993 (6.9)*	6144 (22.9)*	8038 (31.3)*
Other immigrants	1854 (6.5)	1442 (5.4)	1196 (4.7)

*) The material for the study was from three boroughs, where borough 3 was more affluent, and thus with a lower rate of immigrants.

Table 2. Population in the catchment area for an acute psychiatric facility in Oslo and number of immigrants according to borough

4.3 What may explain these findings?

Slightly more women than men are in general referred to acute psychiatric care and to ambulatory psychiatric treatment in Western societies. How come that more men were referred to the clinic in Oslo? There are several possible explanations to this. More men than women emigrate; men or young boys are the vanguards for later family reunion. Accept or even recognition of mental disorders is less among immigrant groups. Thus men, who are frequently the breadwinner in the family, must conform to the standards of working life in the host country, whereas the women, who stay at home, only are referred to psychiatric treatment when they cannot fulfil their homely tasks. The expression of severe mental illness is non-conform to the host culture, often with gesticulating and noisy or culturally awkward behaviour. That may be the reason for the clinicians' impression of more severe illness among immigrants.

Psychometric tests at entry to an acute facility may improve diagnosis and subsequent treatment [25]. Such tests are seldom employed in Norway, and even less so among immigrant patients, probably due to language barriers and culturally biased tests.

Immigrants have different expectations of the future depending on their status when emigrating; as asylum seeker, refugees or more or less a poverty-driven exodus [26]. A significantly higher proportion of asylum seekers than refugees had nightmares, feelings of guilt and feelings of hopelessness. Similarly asylum seekers had more sleeping problems, nightmares and reduced appetite than immigrants. More asylum seekers than refugees maintained that life would be better over time. Surprisingly, more refugees than asylum seekers indicated problems judging life ten years from now.

Involuntary psychiatric admissions are widespread among patients with an immigrant background, although the exact rules by law are different from country to country [27]. In Norway some 75% of immigrants are referred under compulsion, whereas 50% of ethnic Norwegians. In a three-year follow up of referrals to two psychiatric clinics in two different cities 32% of the immigrants were involuntarily admitted. The characteristics of these admissions were: significantly higher in men than in women, 73% versus 27%. The mean

length of stay was shorter for the voluntarily admitted immigrants. Not at all surprising, immigrant patients with psychotic disorder were involuntarily admitted to a greater extent than non-psychotic patients, and even greater than in ethnic Norwegians. Many of the misunderstandings and attitudes interpreted as aggressive or violent behaviour in immigrant patients may decrease if the treatment of the patient both outside the hospital and at referrals gave him a feeling of getting through to staff with his message.

In another study the level of non-Western immigrants' use of acute psychiatric care compared with ethnic Norwegians was studied over an 8-year period [28]. One of the purposes of the study was to test the impression among clinicians in the wards that an increasing number of immigrants were referred for treatment in an acute setting. In table 3 below the total population in the catchment area is shown for each year, and also the proportion of non-Western immigrants calculated in two ways. There were relatively fewer women among the non-Western immigrants compared to the ethnic Norwegians, 6% versus 50%, respectively. The table shows that no increase in the proportion of non-Western immigrants was observed.

	2000	2001	2002	2003	2004	2005	2006	2007
A - Total population	94581	95080	96260	96716	98086	100824	103670	107848
B - Non-Western immigrants	19481	19593	19558	20048	20315	23020	21729	-
B / A %	20.6	20.6	20.3	20.7	20.7	22.8	21.0	
B / (A-B) %	25.9	30.9	25.5	26.1	26.1	29.6	26.5	

B/A shows the proportion of non-Western immigrants as a percentage of the total population

B/A-B shows the proportion of non-Western immigrants as a percentage of the ethnic Norwegian population in the catchment area

Table 3. Total catchment area population and non-Western immigrants as a percentage of the total population and total minus non-Western immigrant population

The number of referrals changed from year to year, as can be seen in table 4 below. 19 patients were referred in year 2000, whereas 40 in 2007, but the increase in proportion was not so impressive as can be seen from the two lowest rows in the table.

	2000	2001	2002	2003	2004	2005	2006	2007
A - Ethnic Norwegian	122	89	107	148	128	193	246	184
B - Non-Western immigrants	19	17	21	25	30	34	41	40
C - Other immigrants	3	8	3	2	6	2	11	14
B / A %	15.6	19.1	19.6	17.0	23.4	17.6	16.7	21.7
B / (A+C) %	15.2	17.5	19.1	16.7	22.4	17.4	16.0	20.2

Table 4. Number of referrals to acute psychiatric care in a sector of Oslo according to status as non-Western or other immigrant

The age of the immigrants was lower in all years, table 5. This is a consequence of the observation that people who emigrate usually are young, and if older people emigrate, then they come with a larger family group.

	2000	2001	2002	2003	2004	2005	2006	2007
Ethnic Norwegian	38.1	36.7	39.4	37.0	39.1	41.1	38.6	43.4
Non-Western immigrant	35.2	32.7	35.2	35.1	30.6	35.6	34.8	36.5

Table 5. Mean age of ethnic Norwegians and non-Western immigrants among patients referred to an acute psychiatric care facility in Oslo

Mean length of stay in the acute department was lower for ethnic Norwegians, indicating that at least no discrimination of immigrants occurred. They all seemingly got a length of stay commensurate with the illness they had at referral. As the fraction of psychotic illnesses among non-Western immigrants was higher, a longer stay may very well be good treatment. If the prevalence of mental disorders is the same or higher in immigrants than in the original population, this study indicates that they are under-represented among referred patients from the catchment area population. This seems to be the case especially for women.

Immigrants may have problems accessing psychotherapeutic treatment in an outpatient setting, as a prerequisite for psychotherapy would be sufficient language skills. It would be expected that immigrants to a greater extent get pharmaco-therapeutic treatment, but this question has not been studied in Norway.

5. Who should or could adapt within a new setting

What do we know about the ability of diverse groups of immigrants to integrate and assimilate a new culture? Is multiculturalism a positive solution or a cul-de-sac?

In a large group of Puerto Rican, Cuban, Mexican and other Latino immigrants to the US a registration of psychiatric disorders during the past year was done by Alegria et al. [29]. When adjusting for age, sex, nativity and age of arrival of immigrants, there were no significant differences between the four Latino groups. On the other hand, family conflict and burden were consistently related to the risk of mood disorders.

Successful adaptation into the US society is a multidimensional process. It includes maintenance of family harmony, integration in advantageous US neighbourhoods, and positive perceptions of social standing.

5.1 Ghettoization

Letting immigrants settle in urban disadvantaged areas, as is often allowed or specifically wished by the immigrants, may contribute to slower integration. Language skills and knowledge of health care systems and rules of everyday life are not learned. You may in many such areas meet immigrants who have spent several years there without being able to communicate in the language of their new home country. Such instances of ghettoization you find with people from many countries, not at all only among disadvantaged groups. Examples are Chinatowns, Italian or Greek district, Jewish or Muslim settlements, or

Moroccan or African dominated areas. Although the integration may be slow, such areas also contribute to a more diversified culture, which is used to a great extent by the native population.

Spreading the newly arrived immigrants to more remote areas, with very few immigrants at each place is done in Norway. The effect is controversial. The small immigrant groups may or may not be readily accepted at the new dwelling, and over time there has been a movement back to urban areas. It is not settled whether the adaptation of immigrants must be any different from the adaptation of young, not well-to-do natives during the first years.

5.2 Case

A Palestinian young man seeks asylum in a European country. His background is education at college level and he was the only family member getting an education above high school. His asylum application was rejected, but he appealed. He had to live in a special camp for asylum seekers as long as the decision was pending. His frustration ended in a referral to an acute psychiatric clinic for purported psychosis and suicidal ideation. Initially his mental status was difficult to evaluate and staff had diverse hunches. After some weeks observations and psychotherapeutic evaluations, including psychometric testing, no severe mental illness or post-traumatic stress reactions could be confirmed. His frustration at the unresolved situation, and the probable expulsion was understandable. Given an asylum, he would most probably find a job and assimilate as an immigrant.

5.3 Is there a healthy migrant effect?

Stafford et al. [30] have studied a purported healthy migrant effect in Canada. Immigrants to Canada report less depression compared to the non-immigrant population. The likelihood of depression decreased with increasing percentage of immigrants in the area for visible minority persons but not for white minority persons. A corollary to this finding would be not to press immigrants to settle in remote areas of the country.

6. Unreturnable asylum seekers

The burdens described above give special problems for asylum seekers who cannot be returned. Either because there is doubts about the identity of the asylum seeker or because returning these people to countries where they could be threatened with life sentences or a death penalty, is not accepted in the country of dwelling. The mental problems they have accrued are perpetuated, as shown for instance by Mueller et.al in *European Journal of Public Health* 2010; 21: 2. Taking care of unreturnable asylum seekers is an unsolved problem in Europe. Different solutions for other groups of the "sans papier" have been tried out.

6.1 Case

A mullah from Northern Iraq fled to Norway with his family because of threats of persecution, as he had been the leader of an opposition group to the then government in Iraq. If returned to Northern Iraq, where his group had its main action area, he would certainly be detained and probably sentenced because of the violent actions of his group. Thus with the civilized rule of not returning people who would get a life or death sentence, he is staying. However, he is continuing his work of splinter group action over the Internet,

editing a site the content of which would have been illegal in Iraq. And he is also threatening politicians in his country of residence. This is an example of stalemate immigrant policy.

7. Work as a means of inclusion in the new society

Work and educational experience and level among immigrants are not always appreciated. This has been studied in a large sample (N=2685) from Canada [31]. Four years after they arrived in Canada 52% of the immigrants were judged to be overqualified for their jobs based on their educational levels, with a lesser extent being overqualified based on experience, 44%, or their expectations, 43%. When the authors included job satisfaction and perception of employment situation in their calculations, over-qualification increased mental health problems. Asian Americans report similar results for mental, but not for physical health with a negative relation between increasing employment frustration and self-rated mental health [32]. The mainstay of American immigration policy has been giving or demanding work from the new citizens. This policy has probably increased the speed of adaptation and integration, and at the same time reduced the risk of mental illness. Immigrants from some countries have differing views on what they can do, and some have problems getting their former qualifications accepted, and develop a negative or paranoid attitude to the country of residence. Some cultures do not allow women to take on work, which would be in contrast to the expectations of the host country. On the other hand, when young girls are allowed to take an education, they perform better in schools and universities than their young brothers. Mental illness has a great impact on labour supply [33]. It is an established fact that mental illness negatively influences labour market performance, especially in cases with long-term psychotic and some neurotic diseases. In the study by Ojeda et al. with recent US data, she shows that mental illness is associated with lower rates of work among US-born males but not immigrant males and females. This is contrary to the belief of health and social care workers and researchers alike. Most people with mental illness work, but symptom severity reduces labour supply among natives especially. A more solid family and social network among natives may be the reason why labour supply with mental illness is reduced. Another adaptation is indicated in the next section.

The use of precarious employment in illegal immigrants, which abounds in countries like Spain, Italy and the US, is a greater threat to the workers [34]. Even when they initially do not have mental health problems, many develop this during the time with work where they are grossly exploited. The illegal immigrants to Spain were from Romania, Morocco, Ecuador and Colombia.

7.1 Cases

After the coup against president Allende in 1973, many politically active persons had to flee. A group came to Norway via the help of the Norwegian embassy in Santiago. One year later I saw, as a then high school teacher, three Chileans washing the school windows on long ladders. They had got this job at the public job centre. One was an architect, the other two astrophysicists. More qualified jobs were not attainable at the time.

Immigrants often start their work career with precarious jobs and meagre employment conditions. In a sample of more than 2000 workers a Spanish group observed that immigrant workers in Spain were present at work also when sick, i.e. sickness presenteeism compared to Spanish born workers [35]. Among the immigrant workers men, those with a

stay < 2 years, with a university degree and salaries between 750 -1200 € per month had higher rates of sickness presenteeism. The authors conclude that immigrant workers should have the same standards of social security as Spanish born workers. This is not always easy to achieve. Polish construction workers in Norway often work as subcontractor employees with the firm based in Poland. Despite fierce protests from Norwegian trade unions, this way of giving immigrants lower pay is difficult to eradicate. The clandestine workers in Italy and Spain for instance fair even worse on the labour market.

The unemployment rate of immigrants is higher than for native born, as seen in the figure from the Economist. In Spain and Belgium the rate is much higher, whereas in the US it is fairly equal. The situation in the former East-European countries Hungary and Czech Republic is special. They have attracted few low skilled immigrants, and the small group of immigrants are specially invited high-skilled labour. The disadvantage of being immigrant is not very high, judged by the numbers in the figure, thus lending hope for many over time. From the Economist July 16th 2011, page 89



Fig. 1.

8. Adaptation to copious social welfare systems

Some countries in Northern Europe have copious social welfare systems as the result of social democratic achievements in Parliament and Unions over the last hundred years. The basis of these welfare systems has been for instance that sickness leave with up to full pay for up to a year is regarded as a right. It is cumbersome enough to be sick as you still would need your salary for your daily life. Everybody is a member of the public health care and social security system. You get what you need of treatment and contributions as a solidarity action from all. In some countries you would call this socialism. The confirmation of an existing illness is the joint responsibility of the patient and his medical doctor. The rules did not foresee that someone would present a non-existent illness to the doctor, and for the doctors some symptoms are not readily observable. Thus he has to rely on the patient telling the truth.

Some groups of immigrants accept such welfare payments without any of the urge to do your best and not exploit the system, as has been the main axis in the use of the welfare systems in host countries. Especially people coming from countries with an anomic culture, easily accept being financially supported for longer periods of time through public means. The solidarity aspect of public arrangements and entitlements may be forgotten.

8.1 Case

Somali man, age 37, arrived five years ago, married with three children. He has not learned any usable Norwegian, despite compulsory language courses over several hundred hours. Public agencies have subsequently not found any work or other activity for him giving more access to adaptation to the Norwegian society. On the contrary he is according to his family obligations doing well as long as he gets monthly transfers from the social welfare system. He and his family would get even more if he pro forma divorced his wife. Then she would get higher allowances as a single mother. Such behaviour is, however, not found in all Somali or other refugees to Norway.

8.2 Cases

The Norwegian health care system gives allowances to women giving birth every month for each child into to the teenage period. Single mothers also get an allowance for the extra costs of upbringing. There have recently been several cases among people of Roma decent and others presenting birth certificates and other documentation of non-existing children. The rules do not readily disclose this, so allowances have been paid for many years. Such cases are unwanted effects of a public social welfare system built on solidarity and truthful interaction with treatment and welfare staff. These cases amounted to fraud against public sources of more than 1 million euro.

8.3 Addendum

This chapter has not given a clear answer to the question in the title “the psychology of immigration, relief or burden?”. Depending on the group of immigrants we look at, the answer may be both yes and no to both the immigration process being a relief and a burden.

- Some leave their home country to save the life of one self and family. Getting accepted in the new country gives relief. After some years, a few return because they miss the good side of their country of birth. The mental health of this group is fairly good, despite symptoms of PTSD in some.

- Some leave because there is no chance of a job or a decent life in the home country. The immediate relief depends on getting a more acceptable life in the host country. Illegal immigrants (sans papier) are an example of people who have to endure further hardship. The mental health of this group is unresolved and some develop more signs of disease than before emigrating.
- Some leave to join the family or to get married (of free will or forced by family). Older immigrants miss the routines and respect of life in birth country. Forced marriage is a route to undiscovered depression and somatoform disease. The old may be, also undiscovered, depressed.

Emigration is a significant step in the life of every person. Many factors must be in place to make good living in the new country. The fact that so few emigrated persons return permanently and that it is doubtful whether emigration in its own right increases the rate of mental illness, we may conclude that emigration is an important, but positive change in life. It is a challenge for the host country to get most out of their immigrant groups. US and Canadian experiences are the good examples, as those countries are built on emigration.

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Stigma and Mental Disorders

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1. Introduction

Stigma is recognised as a major obstacle to recovery and integration of people with mental health problems. In this chapter the definitions of cognitive, emotional and social aspects of stigma will be presented, as well as origins, main representations and coping strategies. The research on stigma is presented, beginning with Goffman's work (Chapter History) and followed by contemporary research and critical overview. This work follows the International Study of Discrimination and Stigma Outcomes (INDIGO) led by professor Graham Thornicroft (UK), which was a cross-sectional survey in 27 countries, in centres affiliated to the INDIGO Research Network, by use of face-to-face interviews with 732 participants with schizophrenia. This research was followed by the creation of Antistigma European Network, with further research goals and a strong mission to overcome or at least reduce the consequences of mental disorder stigma in Europe. Each country participated in this projects produced additionally locally specific answers and solutions. Some of them are listed below-these are comments on stigma made by patients with schizophrenia in Slovenia. Each country involved in these research projects also produced locally specific answers and solutions to the stigmatization and particularly to discrimination problems. The intent of this publication is, besides giving an overview of stigma research, to provide some additional insight into real life experience of people with severe mental illness.

2. Definitions

2.1 Stigma

Stigma is a term that applies to labelling certain people as different and inferior. It is a mark of shame, a sign of worthlessness applied to the stigmatized. Its consequence is avoidance and even expulsion from society. It can be described as a form of social monitoring or omission of minorities from certain competitive areas, working as a form of intangible control over groups of people with mental disorders (Goffman, 1963).

Its influence is in proportion to social, economic and political forces that make possible the creation of stereotypes, destruction of reputation, and other forms of discrimination (Link & Phelan, 2001). Stigma is obviously a wide concept, one that binds aspects of labelling, stereotyping, cognitive rejection, emotional reactions and discrimination - therefore, it has cognitive, emotional and social components, whose final result is the loss of social status for the person affected. Social status here refers to an individual's position in society and to an individual's reputation and influence. A high social status guarantees material goods,

freedom, space, comfort, time and the feeling that one is appreciated. The fight for status is a fight to expose our inner wealth.

2.2 Stereotypes

Stereotypes are knowledge acquired by the majority of a social group so that knowledge of other social groups can be categorized. A stereotype is a collective agreement, needed for quick orientation as far as expectations and impressions are concerned. They are dynamic constructs, dependent on social judgment. Having a stereotypical opinion of a patient with mental health disorder would be thinking of him as dangerous and severely behaviourally disturbed. These stereotypes do not fit the facts. A typical patient lives in the community, his behaviour socially managed. A typical person with mental disorder has far less trouble in social adaptation than the usual hospitalised patient. Patients who must be treated regularly throughout their lives are a minority in the mentally ill fringe group. They function according to the severity of the illness, associated disabilities, the level and quality of available support and treatment capabilities. Patients who have recovered are usually invisible to professionals and public, as they generally hide their illness from others, because of stigma. They avoid institutions and social services so that they can pursue their careers, education or other personal goals. A diagnosis only describes the part of a person that the symptoms fit. A person with schizophrenic symptoms is not a schizophrenic, as these symptoms are only a part of his personality at the moment of diagnosis. A diagnosis is used to set treatment goals and methods and to estimate the illness' course. It is only to be referenced correctly in medical classification and professional assessment. Any other use of a psychiatrist's diagnostic terminology is considered to be stereotyping, aimed at discriminating against people with mental health disorders. Psychiatric diagnoses are often carelessly used to discredit political or other opponents, which is hurtful to people who have been diagnosed and have to live with illness and disability.

People do not always agree with stereotypes. Belief in them forms prejudice.

2.3 Prejudice

Prejudice is a wrong conviction, an ideological construct based on stereotyping and oversimplification. It motivates an authoritative bearing, hate and exclusion. In Nastran Ule's (1999) opinion, prejudice is simply a set of evaluations passed by privileged groups. Their main trait is helping repression. She defines repression as dominion of the strong over the weak, with the strong never allowing the weak to question the fairness of this arrangement. People are always very interested in learning how to have more power than others. If prejudice is collective, as those surrounding people with mental disorders are, people adapt to it. The general opinion is that people with mental disorders are less capable and that they require constant monitoring and care, which is followed by disdain and patronizing.

Almost every paper on stigmatization mentions prejudice as hard to change, relatively stable and spontaneous, affecting us no matter our will. This thesis introduced a certain amount of pessimism in all attempts to reduce stigmatization and rationalised poor results of anti-stigmatization campaigns. Social and psychological research, on the other hand, refuses this conclusion and proves that stigmatization is easily manipulated and very changeable in nature, as seen in Jew and women discrimination history (Henriquez et al., 1984) and the quick minimalisation of racial prejudice in the last few decades. It therefore

follows historical experience that prejudice can be changed swiftly and successfully, if appropriate social circumstance and political goodwill exist. Politics can achieve position changes and improve tolerance through media access. But prejudice can not be created or stopped only with conviction. A complex social movement is required, one that provides both moral and financial consequences for those that break the rules. It has been proven repeatedly that the behaviour of people with mental illness even when completely normal is considered »weird« because of prejudice (Link & Cullen, 1986; Link et al., 1987, Link et al., 1999). Their behaviour is not incorrectly interpreted only by the general public, but also by professionals. In 1974 Langer and Abelson made an experiment in which two groups of analytic psychotherapists were shown a video interview with a young man. One group was told that this was a job interview, whereas the other was told that the man was a psychiatric patient. Despite watching the same tape the second group described his behaviour as abnormal, whereas those in the first group didn't see many problems at all (in Corrigan, 2005).

Prejudice means a poor life quality for the affected. It generates strong emotional responses, of which fear is the most important.

2.4 Fear

Most people are afraid of people suffering from mental illness. They fear »infection« despite it being general knowledge that mental illness can't be transmitted. For example, a common effect of fear are complaints from mental health staff about how hard it is to work with psychiatric patients, not because of the workload, but rather because they fear projective identification that could influence a staff member's mental health. This fear originates in prejudice of danger and unpredictability. People with mental health disorders may be dangerous, but only very rarely and always under foreseeable circumstances. Studies show that the percentage of patients with an affinity for violence is less than 10% in men and significantly less among women. Even this small percentage is not dangerous constantly, but only when they're under influence of psychoactive substances like alcohol and alternatively, when their psychotic symptoms are left untreated or poorly treated. Less severe mental disorders like depression and anxiety are not connected to violent behaviour. Research shows that 75% of the population believes that the mentally ill are dangerous, the number of people with this belief doubling over the last 40 years (Corrigan, 2005: 165). The rise of the danger myth can be explained by deinstitutionalization, meaning less access to hospitals and other social institutions; and primarily by media reports (Wahl, 1995). There was a series of papers published in the USA that "proved" psychiatric patients were dangerous. This research is methodologically dubious and its results were interpreted haphazardly at best. It was best refuted by the following statement: Mental illness has little connection to violence. This connection is used for discrimination of people with mental disorders and their families. People with mental disorders must be guaranteed quality treatment. The occurrence rate of criminal acts done with full awareness is much higher than of those who are motivated by illness.

Today, 6% to 15% of the American prison population are people with mental disorders. This number saw a 150% increase over the last 10 years. The reasons for this fact can be found in poor service accessibility, public fear, legislation that prevents hospitalization and lack of education. In the USA, officers of the law seem to have a role of doormen to the medical system, for which they are not educated. Furthermore, in the US, the number of psychiatric hospital beds is evidently over reduced.

Any behaviour that is caused by prejudice is discrimination (Corrigan & Watson, 2002, Corrigan et al., 2003).

2.5 Discrimination

The behavioural manifestation of “applied prejudice” is discrimination. Affected people are discriminated against by being marginalised, avoided and being victims of violence. Even though discrimination can be an upfront protest against the mentally ill, it more often takes the form of avoidance. Openly ridiculing patients is no longer acceptable due to rising awareness. Hostility or (at least) ambivalence is nowadays expressed more subtly.

But, many patients report feeling lonely, losing friends, not being in contact with their families, losing their jobs and being delegated to lower positions in their workplace. Discrimination is not authoritarian and directly aggressive anymore (Corrigan et al., 2001), most likely due to anti-stigmatization movements, which managed to influence the way discrimination is exhibited, but not what it's about. An Australian study researching nurses' relationships with their patients (Happel et al., 2002) showed that most of nurses agree with anti-stigmatization programs, yet wouldn't allow a mentally ill individual to be part of a job screening procedure in their workplace. 40% of them were found to believe that even though a users' view on mental illness is important, lectures on this topics should be given by nurses.

Social distance raises the levels of disability amongst the mentally ill and significantly worsens the illness. Stereotyping, prejudice and discrimination can thus stop people from realising their ambitions and life goals.

3. History of stigma

Any discussion of mental illness is accompanied by strong emotion. Psychiatrists are still considered to be modern witches, capable of both help and harm. The general population's view of psychiatry and psychiatrists is coloured by emotions such as fear, shame, guilt, hostility, admiration and ultimately, confusion. It is for this reason that most mental health disorders are only discussed and treated in a close circle of friends, family and acquaintances and professional help only being sought in extreme circumstances.

Throughout history, society constantly changed its treatment of people with mental disorders. Rejection, punishment and avoidance was replaced, in certain times, by relative tolerance and attempts at integration, but this trend was never exclusive, as different viewpoints coexisted, sometimes obviously in mutual opposition. The general consensus is that the more the group was removed into specific institutions and the edge of society, the more negative society's attitudes were. In Europe, the relationship between marginalised groups and public opinion had been primarily defined by the church, its own attitudes subject to change from acceptance to rejection. For instance, when the predominant belief was that people with mental disorders were possessed by demons, they were either jailed or banished from society, whereas when mental illness was seen as a gift from god, they were protected and respected. In 1486, the book *Malleus Maleficarum* (The hammer of the witches) was published, ushering in 150 years of persecution of people with mental illness. Women with hysterical or psychotic symptoms were labelled as witches and torture was used for making them admit their guilt. The subsequent executions and other extreme violence were not put to a stop until 1656, when, under the influence of more tolerant ideas, asylums were first opened in the French monarchy. During the next century, people with

mental illness were joined in these buildings by orphans, prostitutes, homosexuals, the chronically ill and the elderly. The same century saw the first attempts to classify mental illnesses and understand them as medical disorders. There were attempts to improve the quality of care by the reformists Vincenzo Chiarugi (1759-1820) in Firenze, William Tuke (1732-1822) in York, and finally Jean Baptiste Pussin (1745-1826) and Philippe Pinel (1745-1826) in France. The removal of shackles from the Parisian hospital Bicêtre marks the start of moral treatment. Pinel classified mental illnesses as being melancholy, mania, idiocy or dementia and claimed they were caused by both environmental and hereditary factors. He used education and persuasion as his methods and provided a comfortable environment for patients to heal in, but it wasn't until the 19th century that psychiatry became a branch of medicine, which brought about significant advances. In England, Tuke influenced the removal of restraints from hospitals. America saw a reform of psychiatric institutions, initiated by Benjamin Rush. The Kraepelin classification of mental disorders provided an accurate enough description of psychiatric symptoms. In 1920 electroconvulsive therapy was introduced.

Sigmund Freud (1856-1939), the founder of psychological interpretation of mental disorders, initiated the development of psychotherapeutic treatment through his personality, dream interpretation, sexuality and other theories. Social psychiatry began to evolve, using as its tools both clinical and social theory knowledge. It dealt with the problems of poverty, racial prejudice, war and mass migration, even if it was apparent that no profession can solve them. The anti-psychiatry movement originated within social psychiatry, explaining mental disorders through social and family influences.

From 1954 to 1956, Ervin Goffman, the author of the famous *Asylums* (1961), was doing research in psychiatric hospitals and other institutions, precisely describing life in these »total institutions« (hospitals, prisons, homes for the elderly etc.) meant to hold patients away from society. He reasoned that any »total institution« has the same characteristics: the presence of a large number of people, group management and a clear structure of activities meant to institutionalise. In its essence a »total institution« was about controlling a large population with a bureaucratic institutional organisation, in which obedience was expected from both the population and the staff that oversaw it. A rift between the staff managing the asylum and the patients using it became apparent. The social distance between the superior, displeased staff and the weak, inferior patients was immense, with most of the staff's energy being directed at stopping patient to doctor (or any other staff member with more responsibility) communication. The simple effect of this was that patients were excluded from deciding their own fate. The secondary effects ranged from extreme boredom, the cause of which was that the patients were not trusted with anything, to post-treatment social exclusion. Upon leaving the hospital most patients had no established contacts with the outside world, as being institutionalized severed their bonds with the world. The mere entry into a psychiatric hospital was highly indicative of permanent loss: washing, disinfection, hair cut off, a personal search, listing of personal belongings and receiving instructions. In this way, a patient's life story became nothing more than property of a group of experts treating him, his actions only seen and evaluated through his diagnosis. The whole admission process could, in this light, be termed »programming« for an institutionalised life. A patient thus had no right to personal possessions and could have no space that could not be searched by anyone. Electroshocks were administered to patients in plain view of the rest of the patient population. Patients were only allowed spoons to eat their meals with. One way of ensuring obedience in the patient population was to demand humility, in any

way deemed important by the staff, mainly by acknowledging the staff's superiority. The patients were talked about in their presence, and constantly asked to participate in sessions that forced them to acknowledge that their situation was their fault. These »*mea culpa*« sessions were but one form of mental torture, another example being that they were forced to discuss the conflicts within the patient population. In the name of behavioural therapy, patients were accorded material possessions that were part of normal life in the outside world: clothes, cigarettes, etc. Physical examinations were performed in common rooms, forcing the patients to be exposed to everyone. The hygienic standards were non-existent. Any and every action that was not in accordance with hospital regime was strictly sanctioned, no matter the triviality. Patients lived in a state of constant fear, starting to accept their "moral" careers as psychiatric patients, living their role as social outcasts.

The year 1952 brought about the first antipsychotic medication, which made a significant difference in severe mental disorder prognosis. Public opinion shifted, and under its influence many hospitals were closed. The deinstitutionalisation process and anti-psychiatrist movement were present in every country that had some form of institutional care, leading to thousands of patients ending up on the streets.

There is no clear answer to the question of choosing institutional or not-institutional care. Should the patients be treated in institutions or outside is not even a valid question, as they need versatile care. There seem to be two prevailing types of public opinion concerning this - the public should be protected from the mentally ill and on the other hand, they need to be liberated of any institutional control. Both viewpoints are stigmatizing as they take away both the power to decide one's own treatment and disregard the patient's specific needs. We need to note, however, that Goffman's Asylums and the subsequent debates about stigma brought about significant changes in psychiatry. Hospitals were renovated, the number of the personnel employed increased and their education was improved. Patient's human rights are now vigorously protected, through legislation, certain in-hospital rules and advocates and lawyers who take part in the treatment process.

The World Health Organisation and the World Psychiatric Association began a far reaching public campaign in 1996 aimed at reducing stigmatization. Interest in stigmatization prevention reached its zenith in 2001 when the media actively advertised stopping any kind of biased behaviour toward the mentally ill. This message appeared in every important document in the international mental health community. Yet, the perceivable effect was low. There is no evident decrease of stigmatization of people with mental disorders. The prejudice against people with severe mental illness can even be, according to some authors, proven to be rising, mostly because of mass media (Stier & Hinshaw, 2007).

4. Causes of stigma

Stigmatization is grounded in a narcissistic emotional satisfaction that crosses the boundaries of rational self-criticism. One who stigmatizes others finds validation in discrediting another. This discreditation enables him to join the majority; he finds himself stronger and agreed with. Regardless of whether this is the real majority or simply a privileged group, the stigmatised represent a "problem" which needs to be solved. For Jews, this was the »final solution of the Jewish question«, for African Americans it was open disdain and disrespect of their basic human rights. The mentally ill face the same sort of persecution, in the form of avoidance and isolation. In the 1950's, Adorno's study showed that any kind of hate directed towards the different is rooted in early childhood repression

and loss, which is directed towards others in later life. These others are selected by criteria of social acceptability, meaning that those whom society shuns will be selected most often.

Understanding the problem of discrimination, does not, however, help in moderating it.

Social categorization plays a great part in the formation of prejudice, social categorization here meaning simply dividing people into two classes - us and them. Revulsion and violence directed toward stigmatized groups is only possible when personal prejudice finds either political or ideological backing (Nastran Ule, 1999: 305). Being affiliated with a certain group incites favouritism for that group, as is evident in families and work environments. A positive group identity is the motive for stereotyping others, which leads to a better self-image. Stereotypes are thus born from negative self-image, or rather a person's inability to create one. Identity is built on being accepted as separate from »the others«. For the stigmatizing, this is a natural and effective means of countering a potential threat. For the stigmatized it is simply suffering (Yang et al., 2007).

Negative attitude towards the mentally ill is being taught to people from their birth to their deathbed. The place we go to gather information is, for most of us, the media. Information is a market commodity and is being treated as such by the media, which consequently tailors the information to generate income. Reports from many different countries show that any event connected with mental illness is prone to be reported in manner that exaggerates danger and unpredictability of the mentally ill and shows specific behaviour as bizarre and incompetent. The mentally ill are often presented as unpredictable murderers, women with split personalities or homeless people having conversations with themselves. Anyone with a mental disorder is 10 times as likely to be labelled dangerous; additionally, three quarters of such reports graded this danger as extreme. Only six percent of TV shows discussing mental illness included mentally ill people or recovered patients in their panels. Those included were commented on in a stigmatizing fashion (Wahl., 1999; Wahl et al., 2002). These representations have little in common with objective reality.

These claims hold true for American and British media especially. There are few reports of negative media coverage from other countries, with the exception of Australia. Public disdain and branding not only significantly affect ill individuals, but also the services provided to them, which is the reason for numerous educational programs aimed at



Newspaper headings in US journals

reporters. One of them was an international warrant for stigmatizing media reports (<http://www.mentalhealthstigma.com/cinemia.html>), aimed at identifying stereotype and media violence.

A close examination of media responses shows that there was no significant change in less stigmatizing way (Wahl et al., 2002).

Media, however, is the most important tool in fighting discrimination and stigmatization, which was proven in several countries, i.e. Australia, Slovenia etc.

5. Signs of stigma

A significant change can be observed in how prejudice shows itself. It is not shown aggressively and openly, but rather as exclusion in the form of avoidance, passive refusal and ignoring. Fringe groups are not the focus of clear negative beliefs, be it to their advantage or not. Simply put, stigmatization is moving into the subconscious (Nastran Ule, 1998: 323).

Mental illness stigma is strongly linked with prejudice against patients with mental disorders: of danger, incompetence and irresponsibility. The World Health Organization (WHO), aware of this problem, issued a statement in 2001 that described the most common myths concerning mental illness and, of course, demystified them with scientific evidence, summarized below.

“Mental disorders are not imaginary, they are real diseases that cause suffering and reduce capabilities. It is not true that people with mental disorders or brain damage can not be helped. They can be treated and mental health can be restored, which is true of all mental disorders. Patients' suffering can be eased, their symptoms can be managed, and many make a complete recovery. Mental illness has nothing to do with a person's character, as it is always a consequence of biological, psychological and social causes. Furthermore, the correlation between genetics, lifestyle, environment and illness is as well established as with physical illness. Managing mental illness requires not only a serious effort on the patient's side, but also professional help. The WHO emphasized avoiding moralizing and projecting guilt onto patients and their families. People with mental health problems should not be treated exclusively in hospitals and asylums, as they have the same rights regarding special care and intimacy as other people do. They should be provided with specialized treatment plans and be treated at home, clinics and at psychiatric wards. Rehabilitation can be organised in housing communities, employment programs and in support groups. Only 20% of patients are unable to handle regular employment.”

Signs of stigma are myths. One of the most persistent myths concerning the mentally ill is the myth of danger. The WHO emphasized that the vast majority of patients with mental disorders is not in any way a danger to others. When a mentally ill person actually becomes dangerous it is mostly for the same reasons other people do, namely, drug and alcohol abuse. The risk that a mentally ill person could be dangerous is compounded if the person in question exhibited violent behaviour before the illness, if they have delusions and hallucinations, if their psychosis is left untreated and if they abuse alcohol and drugs. This was confirmed by numerous studies. These risk factors are moderate and comparable to risk factors in groups without mental disorders, such as those with a lower education, teenagers, those excluded on the grounds of gender and those who have previously exhibited violent behaviour (Corrigan, 2005). Moreover, this risk factor is significantly lowered by the fact that violent behaviour among the mentally ill is correlated with a specific set of psychotic

symptoms which can be immediately recognised by a professional. Mentally ill people are two and a half times more likely to be victims of violence than other social groups (Chapple et al., 2004).

People with mental disorders are employable and they do the same work as others. Any conviction to the contrary is simply wrong. Their career potential is the same as with others, dependent entirely on their talents, capabilities, cleverness, experience, motivation and health. Any myth about mental disorders decreases the life quality of the stigmatized and significantly hampers their treatment and recovery.

6. Types of discrimination

6.1 Overprotection and patronizing

Feelings of anger, compassion, sadness and uncertainty often fortify discriminatory behaviour in families and experts. The most common defensive behaviour when having these feelings is patronizing. The term can be explained as behaviour that denies a person his remaining capabilities because of his mental wound. Patients often report patronizing language and feel as they are being talked to as if they were children instead of adults. Another common behaviour being the previous' opposite is that the illness and related problems are not talked about at all.

Discussing the disease with nothing but well-meant advice is considered patronizing, if there is no personal experience involved. On the other hand, not talking about the illness spawns feelings of isolation and loneliness, whereas talking about it too much leads to stress, one of the main causes of relapse. Patronizing is a sign of under appreciating the role of the patient in treating and coping with the illness. The main reasons for this type of behaviour amongst professionals are a lack of knowledge, apathy and inertia (Sartorius, 2002).

6.2 Violent behaviour toward the mentally ill

Despite the persistence of the myth that the mentally ill are dangerous, the fact is that they are far more likely to be on the receiving end of violent behaviour. This is supported by research that states, for instance, that 97% of homeless women in the USA have reported being victims of violent behaviour. Studies report that 16% of all psychiatric patients are victims of abuse (Walsh et al., 2003).

An Australian study (Chapple et al., 2004) reported that 18% of psychiatric patients had been abused in the year preceding the study, three times more than in any other population group. A Finnish study (Honokonen et. al., 2004) reported a lower percentage, yet the group researched was far less exposed to such behaviour. Still, it was felt that the number was too high and steps were taken in order to protect this vulnerable group of patients. The mentally ill are also far more likely to be victims of false promises and religious fraud. Their already poor resources are ruthlessly exploited by shamans, charlatans and nonprofessional psychotherapists (Goffman, 1963).

6.3 Courtesy stigma

Stigma spreads from the individual to his loved ones (Goffman, 1963) and to all people close to the stigmatized person. Goffman's term "courtesy stigma", i.e. stigma by association, applies to those who are in contact with mental illness but not ill themselves. Research

proves that it contributes to the low level of interest for psychiatry exhibited by medical students. Further examples include denying a psychiatrists' medical professionalism by other physicians and specialists and consequent neglect of physical illness in psychiatric patients. The most common effect of courtesy stigma is family burden because of prejudice and discrimination.

A family's reaction to mental illness, at least in the beginning, bears all the traits of loss and grief. Mental illness exceeds all normal deviant behaviour. Surprise and outrage of family members expresses itself first through denial, then through attempts at re-education of the affected family member and finally through anger and/or overprotection. The diagnosis itself provides some answers and solutions, but it is only the beginning of the process. Acceptance and the realization that life needs to adjust to these new circumstances are usually a long way off. We now know that professional help often comes too late on this path and that there is too little of it (Stier & Hinshaw, 2007). Numerous studies have shown that family care causes stress, financial difficulties and depression (Wancata et al., 2006). Families often feel that discrimination directed toward the patient is also directed at them (Gonzales Torres et al., 2007).

Most patients with mental illness receive as much care from their families as they can provide. The feelings of guilt that the family experiences are correlated to false beliefs which claim that the reason for mental illness is most often connected to the family or to psychological traits of the patient's parents. In the 20th century a prevailing belief amongst experts was that most psychological problems can be attributed to patients' family situations. These theories have been refuted, but they still caused damage that is very hard to repair. The damage is obvious in families that are unable to help patients due to feelings of guilt.

Families face objective burdens of responsibility and subjective feelings of social exclusion. They are embarrassed by how the affected individual behaves, are under continuous psychological and financial stress which affects their physical and mental health. Guilt can foster either overprotection or hatred, either denial or attempts at correcting »the mistake«. This, of course, leads to stress in a patient's life and can jeopardize treatment and recovery. Families often try to hide that their loved ones got ill. Research reports that the family of a patient with a severe mental disorder often experience the same social exclusion and loss of their social network as the patient does. There is proof to the fact that relatives of these patients experience physical illness, depression, anxiety and other consequences of prolonged stress (Awad & Voruganti, 2008).

Relatives find it hardest to accept structural stigma, namely unfair and unbalanced treatment and rehabilitation in medical and social services, inadequate legislation and thoughtless political decisions that lead to financial crisis and family deprivation. Their most often voiced complaint is poor care quality. They describe being left on their own as far as patient care is concerned and being sent from one institution to another without any apparent concern for their problems. A lack of cooperation between institutions and exclusion of families from the treatment process seem to be two of the more pressing issues (Angermayer et al., 2003). Legislation that protects patients' rights often stops relatives from being informed, even though they need to be. Information can only be distributed by the doctor and only if the patient agrees to it, which can be a problem where mental problems are concerned. Most families try to get the necessary professional help as soon as possible and adjust their lifestyle so that symptoms and disability can be managed.

- *My mom was very concerned about my education, she wondered if I'll manage when I grow up.*
- *I live with my parents; they tolerate much more from me than they did before the disease. They don't bother me with their problems.*
- *My family supported me all the way.*
- *No one in the family treated me differently. Not my parents, not my husband. There was no pity.*

Mental illness scares the family, leading to overprotection, which hampers the patient's self-reliance. Before the patient's family reaches a balance that allows adequate help, too much time passes.

- *When I got sick, my family really just didn't understand it at first. They didn't treat me as an equal. It's better now.*
- *Too much care seriously hampers treatment and rehabilitation. It leads to prejudice and hostility.*
- *They treat me differently now. I can't go out Friday and Saturday night, my parents think something'll happen. I'm not allowed to drink or use any drugs...not that I would, but still.*
- *My parents don't think I can take care of myself.*
- *They were embarrassed at first, that I was in the hospital. Mom wouldn't tell her friends or our neighbours. My parents had a lot of trouble accepting things.*
- *My sisters think that I can't be a good parent, so they interfere all the time.*

Families can be counselled and helped to reduce the feelings of exclusion and helplessness. Educating the family on how to manage the illness in family groups which share experience and help each other is an invaluable tool in combating stigma. Patients' relatives organised on national and international levels wield considerable political power that is used in creating, developing and overseeing different mental health services, including psychiatry.

6.4 Self respect damage, self-discrimination, internalised stigma

A person's lack of success is considered to be his own fault. Victims of prejudice are forced to hide their disabilities, or at least act in a way that enables them to stay in contact with the dominant culture - one that reinforces the fantasy of a strong, unbreakable self that holds dominion over itself and others (Goffman, 1963, Nastran Ule, 1999).

6.4.1 Hiding the illness

The act of hiding a mental disorder strengthens the vicious circle of prejudice. Psychiatric patients most often choose not to talk about their disorder or diagnosis since they are subject to strong feelings of guilt and shame due to the aforementioned prejudice. They lead a double life in fear of exposing themselves, which leads to avoiding other people, as they are a direct threat to their exposure. They become lonely and, in turn, feel insecure, constantly threatened and inferior. Withdrawing from society, fearing ridicule, the stigmatized become more and more alone (Goffman, 1963). Despite the above stated, patients admitting their disease actually severely limits their chances of being a member of any privileged social groups. Most often admittance means a membership in the vast group of second class citizens and losing the battle for status (Thesen, 2001). Attempts to hide and obscure their condition are a source of continuous stress, which forces patients to expend enormous amounts of energy on their disguises. When it was suggested by professionals that psychiatric hospitals should be established in city and town centres, the patients' wish to be

unrecognized was overlooked. Being in the centre is not the interest of the majority of them. The following statements were made by patients who feel that this is the case.

- *I really want people not to know that I've been diagnosed. When somebody asks me how I'm doing, I never tell the truth- that I'm ill and I'm not doing well. Most wouldn't even understand, if I told them that I have schizophrenia.*
- *I don't say to people: I'm sick. I don't say that I'm going to the hospital. It seems smarter to not say anything.*
- *He asked me if I was in the hospital. So I lied.*
- *I'm ashamed of my diagnosis. I must keep it to myself. If it's important I tell people, but not all the time. It's better to stay quiet.*
- *I don't advertise that I'm being treated.*
- *I can't tell people that I've been diagnosed.*
- *When I meet somebody new, I don't say a thing.*
- *I only go to the library, but they noticed and now they look at me different.*
- *I'm not sick, but those who think that I am, avoid me.*

Despite everything, some have decided to admit their illness and risk unforeseeable consequences:

- *My friend said that I'm living in my own world, one that others can't understand. But I think that she's the sick one - always nervous and stressed. On the other hand, my friends at college don't even understand why I've been sent to the hospital. It depends on the person, I guess.*
- *When I was first in the hospital I felt stigmatized, but only because my mom told me all about that. I had trouble fitting in. I noticed later that people don't care much about whether you're in the hospital or not. I told my classmates that I'm being treated. The more you hide it, the harder it gets. It just gets to be another burden. I now tell everyone, because if I don't, I keep having to think about what I told to who. I have lots of friends, so now it's not a problem anymore.*

6.4.2 Anticipated discrimination

What they have been taught in their childhood and adult lives makes many patients with mental disorders expect discrimination. The general belief, that the mentally ill are dangerous and incompetent, turns on a patient in the moment of his diagnosis. Becoming a part of an inferior group makes him expect discrimination which leads to demoralization.

Negative cultural concepts start to be felt on a personal level. Prejudice works as a self-fulfilling prophecy, which means that expectations of discrimination come true sooner or later. The actual identity of an individual is replaced by a »virtual« social identity, one defined by others through stereotyping (Goffman, 1963).

The general social opinion of the mentally ill is largely created by the media. In movies and reports, a negative outcome of treatment, low quality of life and dangerous and incompetent behaviour are attributed to the mentally ill. These myths endanger self-respect and demoralize patients to an extent that doesn't allow them to fight for a better life. The affected individual is taught society's expectations of him and re-identifies himself; starts controlling his own expectations and avoids any confrontation, thus missing almost every opportunity (Angermeyer et al., 2004). Their social networks shrink, leading to poverty and unemployment, which in turn leads to social exclusion (Kroska & Harkness, 2006). Oversensitivity to any communication involving stigma emerges, presenting itself as

embarrassment on both sides, meaning not only with those who expect to be stigmatized but also those who try to cover up their worry for the affected.

- The opinion of others affects me a lot. I can't talk about that.

- Sometimes people say that I would be better if I don't get married and have kids. I agree with them now.

- I don't try to make friends.

Patients believe that expected discrimination is far worse than the smaller number of options they actually have. Still, some do not allow themselves to expect discrimination.

- I went back to work and back to school. It was a little uncomfortable at first, but now it's OK, I almost never feel that way. I still have trouble meeting people, but I don't give up. Sometimes it works out, sometimes it doesn't.

- People had trouble accepting me, but it wasn't me who had a problem, it was them.

- I never went back to my old job. My doctor advised me against continuing in this profession, so I changed careers and finished a course. I didn't want to retire.

6.4.3 Self-stigma

The psychological cause for self-loathing is internalization of prejudice. Some people accept disdain to be justified and legitimate. They start to act passively, dependently and helplessly as is expected of them. A social quarantine devoid of encouragement and responsibility is formed around the individual. Expectations are reduced (Lysaker et al., 2007). One withdraws and gives up hope and wishes, making himself less emotionally dependent and less likely to speak out – which are all recognised as »negative« symptoms of mental illness. It was proven that people, who identified themselves as being stigmatized, compare poorly to others, who do not feel stigmatized regarding their intellectual capacity. This means that a stigmatized social group actually functions below their intellectual potential, stigma being the reason for their impairment and not only their illness. They feel incapable of functioning as rational, competent and functional individuals, have lower self-esteem and are often depressed, anxious and hostile (Quinn et al., 2004).

Being a part of a stigmatized group is a barrier to one's success and often means a loss of life opportunities. People with mental disorders are often isolated, unemployed, poor, single and alone (Thessen, 2001). Recognising their situation many in turn disdain and even hate their fellow patients - a group of people with mental illness. They may exhibit the same or even worse stigmatizing behaviour as those outside of the group towards their fellow, more stigmatized patients (Zalar, Strbad & Švab, 2007). The individual does not want to be a part of the disadvantaged group (Goffman, 1963).

The anger and outrage directed towards the barriers keeping them out of social life is turned on themselves. Self-stigma is exhibited in feelings of shame, exclusion and loss of importance. Still, the consequences of self loathing do not stop there. Patients in its grasp do not argue their rights or interests, thus maintaining the vicious circle of stigma and legitimizing the fact that non-stigmatized people avoid and exclude them (Goffman, 1963).

It must be noted at this point that mental illness does not necessarily mean a loss in effectiveness and self-esteem. People react differently to disease and possible disability. Some fight discrimination and abuse and some are indifferent, depending on an individual's personality and the situation. People who refuse to accept the stereotype feel angry and

strong, and justifiably so. Sometimes, as members of a marginalized group which has been wronged, they feel even stronger and more assertive than before. Similar to the reaction of the Afro-American culture, they say that anger is the fair response to stigma. This expression of just anger is more likely to happen if the stigmatized individuals connect in a group focusing on improving the situation. People who fail to identify with a group more often treat discriminatory practices with indifference, regardless of their personal experience (Corrigan, 2005).

The only way to resist self loathing is to stand up to discrimination and resist abuse.

- They avoid me a lot. I don't care. There is difference between being stupid and mad. I don't think I'm stupid.

- I broke it off with some of my friends. Not just because of the diagnosis. Though I'm ok with those that I kept being friends with. If I manage to sort myself out, find a job and my family is fine, then nobody can say I'm schizophrenic, I know that.

- I think of being diagnosed as an advantage. Me and my family figured it out, what being ill means and we know exactly what to do when I start acting differently, it is the illness that gets worse.

6.5 Structural discrimination

Structural discrimination happens on a systematic level, in a way that automatically stops any attempts to acquire a different social status. The mentally ill are pushed to the edge of society, drastically reducing their life options. Being of the edge of society means that any group can be forced into humility, anonymity and silence. Any discussion of equal rights, respecting diversity and understanding is futile if discrimination is built by the general society and the state itself as the ultimate defence against intrusion of marginalized groups, dreamers and the unadjusted into any decision making system. Some countries include special mental illness clauses in their visa application forms. There are countries or states that deny their mentally ill citizens the right to vote, not considering if an individual can manage the illness or not. But the most generally present effect of structural stigma is poor quality of mental health services and their inaccessibility (Angermeyer et al., 2003), basically denying patients their right to treatment and care in an apparently accidental way. The reasons for this can be found in social service management, political decisions and poor legislation. In a cultural environment with strong values on work and income, a patient is stigmatized and cornered. He is unemployed because of not being able to reach the required production norms. As unemployed individual he is labelled twice: being mentally ill and unproductive or even lazy, unable to achieve the socially required criteria to be considered a productive member of the community. The only possible way out of this situation is belonging to a wider community of people who also feel wronged by the prejudice directed towards the mentally ill. Patients who are able to find a way to belong to such a group and identify with it have more self-esteem and are significantly stronger (Corrigan et al., 1999, 2004).

Stronger individuals report better recovery (Anthony, 2000). Those who are politically connected influence the quality of mental health services.

Poor care for the patients' physical health is one of the more serious problems that mental health care faces. People with mental disorders have the same somatic diseases as other people do, yet the standard for hospital care drops severely whenever a mental problem appears. The risk for physical problems such as diabetes, high blood pressure and cardiovascular disease is far greater amongst people with mental disorders than in other

groups. Cardiovascular disease is the main cause of death in this group. The paradox here is that with severe physical health problem good mental health is not possible. All physical illness is strongly connected with depression, anxiety and other mental health problems. It follows logically that every physician should be trained in identifying and treating mental health problems, yet psychiatry is mostly treated as unimportant at most medical schools, by the teaching staff and students alike. The average medical student is likely to have the same opinion of mental health problems as the general public. They mostly feel that psychiatry as a branch of medical science is ineffective and unscientific (Feldmann, 2005). The basis for improving the life and treatment quality of patients with mental disorders is improving the education on all levels of the educational system, including lessons on needs, rights and the reality of life in fringe groups.

7. Areas of discrimination

7.1 Friendship

Compared to others, people with mental disorders have scarce social networks and are more strongly linked to their families and more dependent on them (Thorncroft, 2006:27). A small social network can be a consequence of stigmatization and the mental disorder itself. Loneliness is a risk factor for poor recovery. Most patients try to hide their illness from their friends, as they believe hiding is essential for their social survival. They believe that mental illness makes them social lepers and rarely see it as an opportunity to improve on the quality of their existing relationships and, perhaps, finding new ones.

- *True friends stay by your side. You can check who your friends really are and start all over again, or even improve them.*
- *We're better friends than before I got ill.*
- *My friends listen more, stand by my side and encourage me.*
- *My friends stuck around, mostly. Those who didn't, weren't my friends, were they?*
- *I didn't exactly have a lot of friends. I met new people when I was admitted to the hospital. They're my friends now.*

But there seems to be much more negative experience. Friends disappear, flat out decline to see the patient and avoid him. Every friendship lost strengthens feelings of loneliness and despair.

- *I had one friend. I went to visit him once. He told me to leave. He avoided me after that, so I did the same.*
- *When they say: »she's the crazy one«, I know they're making fun of me. Nobody can stop it from happening.*
- *Some of my friends, when I told them I was in, didn't come to see me. I don't trust them anymore.*
- *I feel distant. People don't know what to say when I'm around.*
- *People that know treat me differently. If they don't, everything is much easier.*
- *I didn't make any new friends after I was admitted.*
- *I feel they don't want to be around me. It takes a lot of time for anyone to get through to me, I know that.*
- *Nobody ever comes to visit, nobody ever calls me.*
- *I called my friend and wished her happy holidays, She said she'd come, but she didn't. I think her husband doesn't let her.*

- *When I still had a job, I lost my best friend when he found out. He never called me again, so I didn't want to call him.*
- *My childhood friend was shocked, when she found out. She was scared of visiting me, so she never did. I'm sad because I lost my best friend.*
- *They think they're better than me.*
- *My friends were shocked. They avoided me.*

7.2 Partnership

People with mental disorders are much less likely to be in a committed relationship. There are many reasons for this, the most common being low self-esteem and lack of opportunities. Many existing relationships are discontinued due to the severity of the disease, stigma and financial difficulties. On the other hand many couples manage the illness and find new challenges and qualities in their relationships.

- *For me, it's an advantage. She's great.*

Divorce is one of the most stressful events in an average person's life. Most people need to be helped when faced with divorce, the mentally ill especially so. Several cases of patient's being used and manipulated during the separation process have been reported.

- *My boyfriend dumped me the second I was admitted to hospital. He didn't want to be with me anymore.*
- *I was married. My husband left me when I got ill. I had no relationships since.*
- *My husband left me because of my diagnosis.*
- *Once people know you're ill, it's hard to find somebody who's willing to share your life. You can't have kids when you're taking medication.*
- *My husband isn't understating. He had all the power so he had me hospitalized.*
- *He met somebody else, fell in love and that was that.*
- *Nobody wants to have a physical relationship with you once they know you're ill. People are afraid.*
- *Who am I going to get? People see a cripple when they look at me.*
- *When I went to see my girlfriend her mother wouldn't leave us alone. She couldn't trust someone who was in the hospital.*

7.3 Parenting

Nurturing and caring for a child after giving birth is one of the hardest physical and mental tests for mothers. Sleeplessness, hormonal imbalance, physical stress, financial difficulties, breastfeeding and relationship difficulties can shake even the strongest of women. Those who are sensitive to psychiatric disorders often experience a relapse in the year following birth. Admitting this, there is little evidence to suggest that schizophrenic mothers are unable to take care of their children. Women with mental disorders often lose their children, despite all the facts. This can be attributed to not receiving any assistance when it is most needed. Mothers don't have access to counselling, education or family therapy (Thorncroft, 2006: 38).

Most parents who have some form of mental disorder provide excellent care to their children and are considered good parents, if sufficient support is provided for possible overloads.

- *When I was hospitalised, I was handicapped, had no energy. When I went to pick my son up from kindergarten everybody was very correct. I didn't have any bad experiences, none good too; they just treated me like everyone else.*

- *There was some doubt at home, but I went through with it anyway. I'm really happy I had a baby.*

- *My ex-husband tells me I'm not strict enough when the kids are with me. I don't think so, I think he's too strict and they have to let of some steam when they're with me. It's a very small flat and there are five of us when they come over, but they like being here.*

People with severe mental disorders like schizophrenia want children the same as everybody else.

- *We tried to adopt a child with my wife, but we couldn't.*

7.4 Sexuality

People with mental health disorders often exhibit radical sexual behaviour, the outstanding group being those with mania. Women with mental health disorders are far more likely to be sexually abused. Research states that there are a lot of cases when a patient should be treated both for sexual abuse and illness (Thorncroft, 2006).

Several drugs used in psychiatric treatment have a negative effect on libido, erection and ejaculation, which is one of the leading reasons for avoiding use.

- *I have no libido...It's just gone.*

- *It's true I don't have any desire to be sexually active since it got sick.*

- *I can't get a woman pregnant. The medicine would harm the kid.*

- *When I got ill, I couldn't perform. My wife cheated on me a lot, she wasn't happy with me.*

- *Sexual disorders are another cause of slow self-esteem.*

Intercourse is, because of the above mentioned, less likely to happen in psychiatric institution than in other institutions, but it does occur and not rarely. Prohibiting sexual activity is discrimination, yet it must be implemented sometimes in order to stop people acting on basis of their reduced reasoning because of the illness. People with low self-esteem who agree to intercourse they would otherwise reject also need to be protected. Effects of these dilemmas presented themselves through hospital management decisions conflicting over gender separation. In the name of normalization, England implemented mixed wards for a couple of decades, which are being separated again. The reasons for this are numerous reports of abuse and women's dissatisfaction due to a lack of privacy. Closed wards fared the worst in this experiment of gender mixing, as the patients there have a problem controlling their behaviour. Women who experienced abuse before admission often demand their right for privacy very strictly. The number of women being treated because of traumatic sexual experiences in psychiatric hospitals is not low (Thorncroft, 2006).

A patient's right to sexual expression needs to be balanced with the reasonable demand for protection. In clinical practice, this means that in closed wards sexual intercourse is usually prohibited, even though it is a breach of their basic human rights.

7.5 Employment

Employment discrimination is one of the most often encountered forms of stigma.

- I rarely got a reply to my work applications and I was never accepted. I wrote about my diagnosis in these applications.

Work is known to improve mental health, helps manage an individual's life and makes a person feel appreciated. Unemployment deprives people of social interaction, reduces their self-esteem, intensifies feelings of incompetence and pushes people into poverty. Research proves that most people with mental disorders possess work capabilities and desire to employ them (Brohan & Thornicroft, 2010). The low employment rate of people with mental disorders can be blamed on discrimination.

*- I want to work, but I am locked up at home. I have nothing to do
- They told me to find another job, when they found about my medication.*

Employers expect mentally ill workers to be unproductive and frequently absent. They fear unpredictability and damage to the workplace or the company. Physically disabled people are twice as likely to be employed compared to the mentally disabled. If people with mental disorders get employed, they can expect a lower and less lucrative position, their experience and education not taken into account.

*- This is a big obstacle and big stress. Employer looks at me very carefully, what I speak and what I do.
- I was moved to a lower paid work position, and then finally to some unimportant office. Then I quit.
- From team leader to worker and finally a cleaner.*

Given time, a lot of them give up on finding employment and accept their social status (Wahl, 1999; Link, 1982). Half of available and appropriate positions are terminated or changed to the mentally ill worker's disadvantage because of poor workplace relations (Becker et al., 1998). The most commonly asked question when discussing possible employment with a patient is whether the individual should reveal his diagnosis to his employer. There is no simple answer to that question. It depends on the employer's prejudice and on whether the position is more or less stressful. Hiding the diagnosis might lead to difficulties. If the individual can not perform set tasks or can not handle the stress, the most common response is inefficiency.

- There was too much overload, I collapsed and had to go away.

Honesty, on the other hand, might expose the individual to rejection and victimisation.

- Nobody said I won't get the job because I was sick, they never say "You are schizophrenic and we don't want you", but it's obvious.

The most common solution seems to be denying the illness and covering up problems (Stuart, 2004).

Experts who try to lower their patients' or clients' expectations and try to get them to accept social aids or pensions are also an issue.

Adjusting the work to the needs of people with mental health disorders improves their job performance (Waghorn, 2011). This means making the workplace a little more serene, employing people to work from their homes, adjusting the work hours or just making sure

that individuals work in a tolerant environment where they are entitled to support when needed. There are clear guidelines how to organize work for people with mental health disabilities (Corrigan & McCracken, 2005). People with mental disorders need adjusted work hours and support at the work place (Crowther et al., 2001). An organizational culture which respects mental health, diversity and offers support is therefore necessary, as job performance can be significantly improved even with the most severe mental disorders (Thornicroft & Brohan, 2008). Legislation can speed up the process of employing people with mental disorders, but only slightly as employers still see them as a threat, despite the financial stimulation the government offers for their employment. Productivity is the cornerstone of respect in many cultural environments. To get and keep a job is the best path to recovery, on walked also by many people with severe mental illness. There are many examples of people who received enough support to recover in this way.

7.6 Education

A student with a mental disorder can experience significant difficulties. Their reduced capabilities show themselves as problems with studying, communicating, memory, thinking and sleep which significantly affects their studies. Such students are hard to recognise as most student difficulties are attributed to a lack of motivation and poor working habits. Research of their special needs is very scarce. The astounding diversity of mental disorders and their varied symptoms further complicate the problem. Student may suffer from depression, anxiety, addiction, psychotic disorders or personality disorders. Each and every of these problems requires a different treatment and different types of support. The diagnosis, however, should not be the reason for program adjustment, it should rather be the reduced capabilities caused by the illness and its other effects - including stigmatization. Obstacles that prevent the student from reaching optimal results need to be removed. Specific social skills, for example, in obtaining information can be improved upon by an appropriate mentor. Additional rights can be provided for a student who just finished recovering from a mental illness, such as additional timelines, additional flexibility, adjustment of class attendance requirements, providing additional mentors and tutors, additional lectures arranged for specific problem areas and the option of at-home studying. Counselling, stress control classes, study planning classes and social skill classes should also be considered. Adjusting the study process should not jeopardise its quality, only change its difficulty. It is not expensive to adjust educational programs, the difficulty lies in combating discrimination against the mentally ill in all stages of the educational system (Rickerson et al., 2004). Rights and needs awareness need to be raised among the staff working in education.

Students who have received sufficient support have proved that education can help control a mental disorder.

- Learning helps me get through the day.

Students with mental disorders have reported that some teachers try to help them manage their duties, which depends on the sensibility of the teachers themselves, not on school rules.

- In college my professors became lenient when they found out about my illness, with homework or even tests. One even gave me a solved test and just told me to copy it.

- I got special treatment in high school.

They frequently experience discrimination and avoidance.

- *When I was doing my requalification everybody looked at me funny.*
- *Teachers, professors-they all underestimated me.*

Some further guidelines for educational adjustment can be found here:
(<http://www.bu.edu/cpr/jobschool>).

7.7 Accommodation, communities

Different social and cultural environments mean different types of care for people with mental disorders. The Slovenian social environment, for instance, sees most patients living in primary families, similar to the Mediterranean countries. In northern and western countries, most patients live on their own (Thornicroft, 2006).

Today numerous patients live in sheltered living arrangements. This form of accommodation offers diverse levels of care and is an alternative to living with relatives. Patients mostly choose to live in such a community when their domestic situation offers no advantage to recovery, when they feel they have no chance of living on their own and when they require help with everyday obligations. These alternative living choices can only work when competent staff is available, one that can recognise and answer the many different needs that people in such a community have. In Slovenia, social institutions are still one of the most common types of long-term accommodation, and however far they are developed, they still seem to face the same problems - an often reported high risk of neglect and inadequate treatment.

- *Looking for an apartment when mentally ill isn't easy. When I did it, I never told anyone I was ill. People don't like people who are...different. It's best to stay unnoticed.*

- *My landlord knows that I'm ill, she's a bit more careful now. I think it's because I didn't tell her much, but she still tries to make conversation and understand me. I know it's a bit awkward for the both of us, but I fell it's ok, it's her house.*

- *My parents think I'm not mature enough to have my own flat, even though I have one. I can cook for myself. Ironing and washing up are still problems, but I'll get help from a therapist so I can look after myself after I'm discharged.*

7.8 Social relations, finances, civil rights

A person's social life outside the bonds of family and the workplace depend on his social skills, opportunities, rights, resources and his perceived worth in society. The mentally ill can be discriminated against by having no means for day to day recreation, quality time and simple pleasures. The most common reason for this is financial deprivation, usually caused by unemployment and poor pension or social aid, sufficient only for the bare necessities. Most patients desire employment that would improve their financial status. Even if they do manage to find some form of employment they have to deal with management that's not always tolerant. Furthermore, they are most often not sufficiently informed of their rights and subsequently do not enforce them. Others do not want to enforce their rights because they want to enter any relationship on equal grounds. Some accept their inferior status because of their low expectations.

People with severe mental disorders are poorer than the general population and suffer from disrespectful behaviour, sometimes physical violence and underestimation. It should be noted however, that there are numerous reports of tolerance, cooperation and equal treatment.

- They encouraged me. In the library, the staff knew what I'm interested in and they helped me.

7.9 Neighbours

Reports from Great Britain and the US claim that people with severe mental disorders are being avoided and excluded by in their communities. When the non-government organization ŠENT in Slovenia was establishing group homes, we believed that people who were living in the neighbourhood should not be given prior information concerning the possible (absence of) danger to help them accept the newcomers. We have firmly stated, however, that any event out of the ordinary, even if it's just an unscheduled visit by an ambulance, should be explained to everyone affected. The recommendation (Thorncroft, 2006: 15) that in the earliest stage of creating the community, residents should be notified carries weight, which might be relativised by the right to confidentiality and the fact that half of the world's adult population will be affected by a mental disorder at some point in their life and that three quarters of this population know somebody who suffers from one. Reports given by interviewed people with schizophrenia in INIGO differ significantly. Often the neighbours are those who notice that an individual requires help. The individual affected may perceive this as an intrusion into his autonomy that damages his self-respect.

- Of course, my neighbours called the ambulance. It's annoying if your neighbours know they can out you away. They just call the ambulance and tell them to take me. When I bought this flat, my own little place, I locked myself in for 14 days straight - I wanted to put it in order. It was my first apartment! In the ghetto, really small, doesn't matter. Then suddenly, cops came to take me away. And I was so happy to get my own flat. It's unpleasant to say the least, when somebody can send you to the hospital anonymously. They just come, handcuff me and take me away.

- The neighbours know when I'm in the hospital. My blinds are down. It bothers me, a little.

- I live in a small village; my mom-she's the village gossip. She always cares most about what the neighbours will say. I think that's the source of a lot of problems. If I lived alone, there would be none of that. People in my village are always watching me.

People in a community most often help one another.

- I was elected house president twice. I told nobody in the building that I was in the hospital. That's why they listened to me.

- My neighbours didn't know I was ill for a long time. They know now, they understand.

7.10 Professionals

Patients with mental disorders are most stigmatized by professionals (Lauber et al., 2006, Nordt et al., 2006). Stigma in professional services is one of the main causes of treatment discontinuation amongst patients (Tehrani et al., 1996). Professionals stigmatize the mentally ill for the following reasons. They are pessimistic about their recovery, despite all the scientific evidence to the contrary. The prognosis for most mental disorders is far better than for most recurring physical illnesses. Experts rarely meet recovered patients, only those

in grave need of assistance. Another reason is the need for distance and superiority, in short, power, which can be easily satisfied in any type of institution. Most professionals claim that they do not stigmatize, that problems arise from patients' oversensitivity to what they say. This anticipated discrimination contributes to patient stress. Stigma directed against the professionals themselves is also very much a reality- people often perceive professionals as arrogant and uncomprehending and therefore don't trust. This leads to procrastination in seeking assistance. Research shows that most people with mental disorders never seek treatment (Wittchen et al., 2005). The most stigmatized diagnoses are alcohol addiction, eating disorders, personality disorders, self-harm and schizophrenia. The most stigmatized patient groups are men with financial problems and the homeless. Discriminatory behaviour of staff increases in case it is decided that the mental problem is the patient's own fault, if the patient is admitted frequently, if violent or criminal behaviour is assumed, if it is believed the patient has little chance of recovery or, finally, if the patient is believed to be dishonest. Besides patronizing, double standards are a common type of stigmatization - every act is judged according to the patient's diagnosis even when there is no objective reason to do so. For example, a patient being upset with the quality of his treatment could be interpreted as agitated because of the illness, even if his complaints are legitimate. People with mental disorders encounter the same discrimination in every institution, not just the hospital. Professionals' attitude towards the mentally ill has a large influence on others' behaviour. Psychiatrists and nurses who see their profession as stressful, hard and unsatisfying lead the public to see apathy, ignorance and poor patient treatment as the way to behave toward people with mental disorders. On the other hand, committed experts who appreciate their choice of profession set an example of respect, hope and the need to cooperate.

- *Social services are like that: they decide instead of you, they treat you differently.*
- *The court doesn't take me seriously. He raped me long ago, I was in the hospital and I am still here, and he, the criminal, is out.*
- *I feel the gap between staff and patients, between "healthy" and "mad". Outside the hospital, I'm worried my professors will find out about me, because we are a very small study group.*
- *My tooth was extracted in spite of my resistance to do that. The dentist just did it. I'm not in control of my life.*
- *They didn't tell me about the effects and side effects of drugs, and also about the length of my hospitalization. They didn't tell me anything.*

Others don't experience such problems.

- *My gynecologist knew about my illness, but she didn't treat me differently. She encourages me to have children, but we decided against it, with my husband, since it's a genetic disease.*

7.11 Privacy

New legislation demands that a patient be accorded his right to privacy. This can not always be done due to current hospital conditions. Living conditions depend on many factors, chief amongst them the budget available and the level of structural stigmatization. Respect for the right to privacy depends on the staff also - some might see the patients' need to be alone as important, others not. Obviously, a closed ward is needed for patients who need to be observed for their and others' safety.

- *There is no privacy in the hospital. For any of us, none has it better.*
- *It's hard to say. There's not a lot of freedom, but they expect you to cooperate with everyone, the doctors, parents. No inner peace.*
- *Patients in psychiatric hospitals don't have privacy. You can't do anything on your own, just what they tell you.*
- *I had to sleep on a „temp“, in the living room. People were coming to look at me all night long, made noise. I cried all night.*
- *They were always ok with it, when I wanted to be alone.*

8. Coping with stigma

8.1 Protest

Protest is the most used strategy to fight injustice, as unsuccessful as it is. People who discriminate are prone to responding with more discrimination when subject to outrage and opposition. They are less likely to cease their behaviour when other opinions are forced on them. Protest can only positively affect media coverage, specifically those reporters who have failed to form a clear opinion on the matter at hand. Protest is a reactive strategy; it attempts to diminish negative attitudes about mental illness, but fails to promote more positive attitudes that are supported by facts (Corrigan & Watson, 2002).

8.2 Education

The belief that prejudice is irrational inevitably leads to the logical conclusion that it can be fought with reason. If we were only able to understand the whole truth of mental disorders, the people it affects and ourselves we would be able to overcome prejudice and weaken their connection with our emotions easily. This thesis is the ground on which all anti-stigmatization educational programs are founded, including those that promote meetings between the non-discriminated and the discriminated. Promoting mental illness awareness is by far the most accepted method of combating stigmatization and discrimination. The same method was used in intercultural dialogue campaigns, aimed at reducing racism and homophobia. It was assumed that people could rationally »delete« their prejudice. It was proven that although short educational programs improve relationships and awareness (Roman & Floyd, 1981, Link et al, 1987, Brockington et al., 1993), they only have short-term effects. Their effect on discriminatory behaviour is unproven and there is some doubt as to whether they influence the behaviour itself or merely change the understanding of a problem (Corrigan et al., 2005, Pinfold et al., 2005, Shulze et al., 2003). People understanding more about mental disorders, however, doesn't mean much to stigmatized individuals. The main problem of educational programs seems to be that discussion is always focused on the stigmatized group, not on the group that stigmatizes. Instead of paying attention to prejudiced individuals, objects of their prejudice are being focused on, as Henriques noted in 1984 in his book »Changing the subject«. Following years showed that more than convictions, actual discriminatory behaviour needed to be stopped, which required knowledge of history, institutions, legislation and the cultural traits of the affected environment (Gonzales Torres et al., 2007).

8.3 Contact

Establishing direct contact with those who recovered from mental illness is another way to educate. Stories and reports by empowered individuals are a strong weapon against

stigmatization. (Brockington et al., 1993; Wolf et al., 1996, Corrigan et al., 2001; Happel et al., 2002, Pinfold et al., 2005). They were proven more successful than educational campaigns, especially in combating fear (Angemeyer et al., 2003), yet even these programs only managed to fight stereotyping (Wolf et al, 1996; Thompson et al., 2002), not social distance. Relating to an individual with mental disorder experience does not affect the social nature of stigma. But, even direct contact effects can be relativised, as individuals can consider the one they are talking to, an exception. An informed and competent individual does not affect the reputation of his whole group, except when he is a recognised representative (Oakes et al., 1994). People with mental health problem experience know where to expect stigma in day to day life. Professional representatives of the mentally ill that give speeches at conventions and seminars aren't typical representatives of the group. Similar to professionals, they require frequent public appearances to maintain their status. Their posture is consequently militant, disdainful and they are constantly trying to find mistakes in their healthy colleagues' communication. They demand »appropriate« behaviour, in keeping with the marginalised group's code. Their expectations differ significantly from the bulk of the population's, who try to be polite and careful in order not to jeopardize their position. Most individuals with mental disorders try to demonstrate that they are well adjusted, behaving similar to others. At the same time, they try to convey that they are not the same; that they are at a disadvantage that needs to be accepted as a fact (Goffman, 1963). Most of the discriminated have developed careful and artful forms of communication, which enables them to be at least partially accepted and prevents severe problems.

9. Research on stigma

Already in 1999 US research on stigma argued that socio-psychological research of ethnic minorities and other group stereotypes should be considered when implementing anti-stigma strategies. It indicates that (a) attempts to suppress stereotypes through protest can result in a rebound effect; (b) education programs may have limited effectiveness because many stereotypes are resilient to change; (c) contact is enhanced by a variety of factors, including equal status, cooperative interaction, and institutional support (Corrigan & Penn, 1999).

In 2004, Link and others identified a variety of mechanisms along observation and measurements of key components present in a stigmatization process. These are: labelling, stereotyping, cognitive separating, emotional reactions, status loss, discrimination experiences and discrimination expectations, structural discrimination and behavioural responses to stigma. Structural discrimination was found not to be adequately researched. Strong proof of prevalence of expected discrimination over actual, experienced discrimination was found. Most studies show that older people, individuals with a relatively poor education and persons who have never known anyone with a mental illness are more likely to desire social distance than their younger, more educated counterparts who have had more contact with the mentally ill. The main limitation of majority of research by then was found to be social desirability bias. People do not want to state openly that they are reluctant to accept people with mental disorders. Opinion measuring scales and Community Attitudes Toward the Mentally ill scales showed major improvement after contact with people with mental disorders (Crisp et al., 2005), which produced incentive to further anti-stigma strategies. The positive influence of contact was also proved by measuring emotional reactions to people with mental disorders (Angermeyer & Matschinger, 1996) and opened a path to research on stigmatizers.

The stigmatized were, from 1987 onward, repeatedly assessed on rejection, perceived rejection and anticipation. Some measures on coping orientations were taken as well. The stigma on the affected' carers and relatives was measured with different scales from the one of the last developed in Gernay (Wancata et al., 2006).

The biggest stigmatization control project was »Open the Doors«, a study and a campaign under the World Psychiatric Association, which got underway in 1996 in 20 different countries around the globe (Thompson et al., 2002; Sartorius & Schulze, 2005). It was meant to combat prejudice and discrimination against schizophrenia. The first phase consisted of public polls in 6 different countries, the second a wave of social service public education programs. The project enjoyed some success, achieving, for example, a reduction in social exclusion in Germany (Gaebel, 2004). The following years showed that more than convictions, actual discriminatory behaviour needed to be stopped, which required knowledge of history, institutions, legislation and the cultural traits of the affected environment (Gonzales Torres in dr., 2007). One of the larger anti-stigmatization campaigns »Moving People« proved this as during the campaign, from 2002 to 2005, of 30 million British reached, 17% more started believing that mental illness and violence are correlated, whereas in Scotland the exact opposite was true- the number of people convinced that the mentally ill are prone to violence dropped by 17% . Before the campaign started 40% more people in Scotland believed in this stereotype than in Wales and England. This result proves that campaigns need to be adjusted to social and cultural environments.

The media research gaps were identified by Stout and others (2004). It was nevertheless clear that those who watch a lot of television hold more negative views of individuals with mental illness than those who watch it less (Granello & Pauley 2000). Most of the articles on media influence on stigma share the same conclusion - this is outrage on media reports. A lack of differentiation among different media channels and the scarcity of research on children perception is nevertheless obvious. Additional problems include non-representative results - the people studied are primarily college students. A link between media depiction and individuals' perceptions is thus still theoretical at this point. Replication and expansion of research in this area is required, and particular emphasis should be given to identifying links between exposure to media images and subsequent perception impact. Simply stated, more precise research is needed.

A major improvement in research was applying qualitative methods , being essential for appreciating the subtle, damaging effects of stigma, for example structural discrimination. The Goffman work described above was the first and still most influential qualitative research on stigma. Major gaps in stigma research still remained: lack of results on structural discrimination, emotional responses of patients and cross cultural approaches.

The importance of understanding the social context of the stigma is presented in research about attitudinal and structural barriers that prevent people with mental disabilities from becoming active participants in the competitive labour market (Stuart, 2006).

The connection between mental disorder and physical illness researched proved that the increased frequency of physical diseases in schizophrenia might be on account of factors related to schizophrenia and its treatment, but undoubtedly also results from the unsatisfactory organization of health services, from the attitudes of medical doctors, and the social stigma ascribed to the schizophrenic patients (Leucht et al., 2007). One of the major approaches to overcome low service use, poor adherence rates, and stigma was defining mental disorders as neurobiological medical disease. The 10-year comparison of public endorsement of treatment and prejudice proved that this approach translates into support

for services but not into a decrease in stigma. Reconfiguring stigma reduction strategies may require providers and advocates to shift to an emphasis on competence and inclusion of patients with mental disorders (Pescosolido et al., 2010).

In Pinfold et al. a review (2005) of relevant literature and the results of the recent Mental Health Awareness in Action (MHAA) programme in England was published to discuss the current evidence base on the active ingredients in effective anti-stigma interventions in mental health. The key active ingredient identified by all intervention groups and workshop facilitators were the testimonies of service users. The statements of service users (consumers) about their experience of mental health problems and of their contact with a range of services had the greatest and most lasting impact on the target audiences in terms of reducing mental health stigma.

Research on stigma and mental disorders has faced several problems: it has made few connections with clinical practice or health policy (for example in relation to help-seeking and access to care); it has been largely descriptive in its use of public attitude surveys or portrayal of mental illness and violence by the media. Few systematic assessments of user experience have been made. The research has been focused on hypothetical rather than real situations, out of context, addressed stigma indirectly rather than directly and has not provided a clear answer on how to intervene to reduce social rejection (Thornicroft et al., 2009). The review of self-stigma research shows lack of longitudinal research in this area and the need for greater attention on disentangling the true nature of the relationship between internalized stigma and other psychosocial variables (Livingston & Boyd, 2010). Public campaigns' efforts to reduce stigma have not been convincing and the field suffers from a lack of applicable solutions (Thornicroft, 2006; Angermeyer et al. 2009; Gaebel et al., 2008)]. The process of destigmatization appears to be a slow one. Data on the economic impact of anti-stigma campaigns is scarce and evaluation is intrinsically difficult (Sharac et al., 2010).

The overall conclusion of research gave some premises that the best course of action to support people with mental illness is empowerment, including a connection with supported employment and job coaching, national policy changes, development of quality services and anti-stigma education of mental health workers. The strongest evidence at present for active ingredients to reduce stigma pertains to direct social contact with people with mental illness and social marketing on the population level (Thornicroft & Brohan, 2008). The research should focus on measures directed at personal stigma of mental illness as it is increasingly being used as a key factor in anti-stigma interventions.

The need to schedule research from public to the affected persons was followed with the introduction of the INDIGO study aimed to describe the nature, direction, and severity of anticipated and experienced discrimination reported by people with schizophrenia. A cross-sectional survey in 27 countries was made, in centres affiliated to the INDIGO Research Network, by use of face-to-face interviews with 732 participants with schizophrenia. Discrimination was measured with the newly validated discrimination and stigma scale (DISC), which produces three subscores: positive experienced discrimination; negative experienced discrimination and anticipated discrimination. Rates of both anticipated and experienced discrimination were found to be consistently high among people with schizophrenia, mostly in establishing and keeping friendship, in family relationships and in work places. Almost three thirds of the participants were found to want to conceal their diagnosis (Thornicroft et al., 2009). The theory that contact with mentally ill people reduces stigma and discrimination is not fully supported by latest qualitative INDIGO results (Rose et al., 2011).

The INDIGO study is followed by the ASPEN project which is currently underway (2009-11) in 27 countries of the EU. It's goals are ambitious and include the creation of stigma and discrimination assessment scales, creation of detailed analytical European profile of stigma and discrimination as experienced by young people and adults with depression, including both anticipated and expected discrimination and self-stigma. The focus groups research, literature search and interviews were applied to identify best-practice, relevant problems in local environments and presentations of structural stigma and social exclusion (ASPEN, retrieved 7.7.2011 on webpage <http://mdac.info/aspn>).

INDIGO and ASPEN projects are seen as a step forward towards improvement of research on attitudes, systems, personal testimonies and discriminative behaviours.

10. Conclusion

Prejudice can be fought by associating it with the political and social environment. Stigma can not be removed by open protest, explanations or examples - the only solution is a complex social movement aimed toward the better investment in the position of the mentally ill. All stigma reducing interventions need to be adjusted according to local experience and founded on daily observation of problems individuals face. Prejudice that affects the areas of life important to the affected individual needs to be determined (Yang et al., 2007). A set of social and institutional measures needs to be taken, one that encourages tolerance of illness, patients, treatment and symptoms. The anti-stigma movement should be connected with big mental service planning issues- those of psychiatric rehabilitation and community mental health that give some promise to improve the social position and access to care and treatment of people with mental disorders. Community care for people with mental disorders is important, since it provides multi-sectoral programmes of action to promote the social inclusion of people with mental illness.

The only way we as individuals can affect stigma is by leading by example, openly opposing derogatory terms and stereotypes. In basic education, schools and teachers should provide also mental health education, care for mental health and wellbeing of pupils and teachers alike. An inclusive school, promoted, can foster tolerance and make possible early recognition of mental disorders. Every educational level needs to prohibit derogatory language directed at the people with mental disorders and consistently view them as individuals, not diagnoses. Changes in educational curricula should include involving mental health service users and their carers at all educational levels as experts and teachers in mental health issues.

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Culture, Psychiatry and Cultural Competence

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1. Introduction

Why the study of culture and its clinical application is important in mental health training and service? Mental health and illness is a set of subjective experience and a social process and thus involves a practice of culture-congruent care. Series of anthropological, sociological and cross-cultural research has clearly demonstrated a very strong ground in favour of this contention.

An individual's cultural background colours every facets of illness, from linguistic or emotional expression (Helman, 2007; Lewis-Fernandez, 1996) to the content of somatic complaints (Goldber & Bridges, 1988) and delusional (Yip, 2003) or hallucinatory experiences (Kim, 2006; Cowen, 2011). Cause, course and outcome of major psychiatric disorders are influenced by cultural factors (Kleinman, 1988; Kirmayer, 2001; Littlewood & Lipsedge, 1997). Wide variations in the prevalence of many psychiatric disorders across geographic regions and ethnocultural groups have been documented (Maercker, 2001). In mental health, dysfunctional behaviour is a key issue in diagnosis, viz. distinction from normal to disordered behaviour. The social and cultural context here is important because identification of abnormal dysfunctional behaviour is basically a social judgement (Kirmayer & Young, 1999). Different cultural and ethnic groups have different perception and practices about health as per their ecocultural adaptation (Weisner, 2002). Social and cultural factors are major determinants of the use of health care services and alternative sources of help. Recent changing global demography demands the recognition and response to cultural diversity in psychiatric practice (intercultural clinical work). Culturally based attitudes and assumptions direct the perspectives that both patient and clinicians constantly encounter in therapeutic communications (Moffic, 1983).

Ethnicity, ethno-cultural identity, social class, cultural dimension of gender, cultural explanation and meaning of sufferings or illness, cultural codes of expression of distress, cultural value system and support network, cultural belief about religion and spirituality, cultural specificity in coping mechanism and ways of inter-cultural assimilation are the few broad issues in cultural psychiatry that helps to understand the clinical manifestation of psychopathology. Lack of awareness of important cultural differences can undermine the development of a therapeutic alliance and the negotiations and delivery of effective treatment. Following is a brief discussion on three important issues, viz. relationship between culture and mental health, cultural competence and cross-cultural communication and lastly the outline of cultural formulation in clinical assessment.

2. Cultural psychiatry

“Psychiatry may outline a science of the psyche and its disturbances but it also reflects a cultural interpretation about personal experience, responsibility, social behaviour, and the requirements for social order. The cultural character of the psychiatric enterprise itself, just as much as the characteristics of its disorders, constitute the subject matter of cultural psychiatry” (Fabrega, 2001).

2.1 Cultural psychiatry: Definition and concept

It is a special field of psychiatry concerned with the cultural aspects of human behaviour, mental health, psychopathology and treatment (APA, 1969). Alarcon (2009) puts it as: “Cultural psychiatry deals with the description, definition, assessment, and management of all psychiatric conditions, inasmuch as they reflect and are subjected to the patterning influence of cultural factors. It uses concepts and instruments from the social and biological sciences, to advance a full understanding of psychopathological events and their management by patients, families, professionals and the community at large.” Within the framework of bio-psych-socio-cultural paradigm in psychiatry, cultural psychiatry is mainly focused on socio-cultural aspects of human behaviour. Tseng (2001) proposes three levels of approach: **Clinical level:** that aims to promote culturally competent mental health care for patients of diverse ethnic and cultural backgrounds, viz., culturally relevant assessment and culturally appropriate care. **Research level:** is the exploration of how ethnic or cultural factors influence behaviour and psychopathology as well as the process of healing (ethnopharmacology) and at **Theoretical level:** aims to expand our knowledge of human behaviour and mental problems transculturally to facilitate the development of more universally applicable and cross-culturally valid theories of psychopathology.

Recent advances in medical sociology, psychiatric anthropology and cross-cultural psychology make the domain of cultural psychiatry more broad and challenging (Kelly, 2010; Al-Issa, 1995). Following are the few issues of clinical importance from the trans-cultural point of view: Personality-culture interaction, psychosocial conflicts and problems related to rapid social change, attitudes and beliefs towards behavioural deviance in changing societies, multicultural communication styles, assessment of stress and cultural variation of coping and resilience, cultural change and psychic adaptation in the era of globalization and migration, technological advancement in communication and media, ecological changes and its impact on mental health, cultural principles in psychiatric diagnosis, clinical guidelines in cross-cultural mental health assessments, applications of therapeutic techniques to various ethnic groups, ethnopsychopharmacology and alternative (ethnobotany) or folk care, cultural determinants of public health policy, and the cultural implications of the new managed care approaches in the service delivery.

2.2 What is culture?

Culture is defined as a set of behavioural norms, meanings, and values or reference points utilized by members of a particular society to construct their unique view of the world, and ascertain their identity. It includes a number of variables such as language, traditions, values, rituals, customs, etiquette, taboos or laws, religious beliefs, moral standards and practices, gender and sexual orientation, and socio-economic status (GAP, 2002). All these issues are reflected in cultural products like common sayings, legends and folk lore, drama,

plays, art, philosophical thoughts and religious faith (Tseng & Strelzer, 2006). So, Culture is **learned** through active teaching, and passive acting, **shared** among its group members, **patterned** as having definite sets of beliefs and practices that guide different areas of individual and social life, **adaptive**, through change across variable environments and **symbolic** with many arbitrary signs that represent something special to the group. Culture is learned by the process of *enculturation* and is *transmitted* from generation to generation through family units and social environments. Culture operates at two levels: at the macroscopic level it represents the social and institutional pattern of a society at large and at the microscopic level it influences the individual thinking and behaviour, both consciously and unconsciously.

2.3 Various experiences with the cultural system

A **cultural system** may be defined as the interaction of different elements of culture with the individual or groups. It is a dynamic process and different from social system. Sometimes both systems together are referred as socio-cultural system.

Enculturation, an anthropological term, is the process by which a person learns the requirements of his/her own culture, and acquires values and behaviours that are appropriate or necessary in that culture (Grusec & Hastings, 2007). The process of enculturation is related to socialization. Enculturation is operative through child-rearing patterns, language development, and institutionalized education and through different abiding social systems. It is a learning process through introjections and absorption of value systems from parents, family members, neighbors, friends, school, social events, traditional literature and media.

Acculturation: is a process in which members of one cultural group adopting the cultural traits or social patterns of another group. Acculturation is an important process of cultural change in immigrated population (Berry, 1997) and influences their mental health (Bhui et al., 2005).

Acculturative Stress: It refers to the psychological, somatic, and social difficulties that may accompany acculturation processes. This was first described by Redfield et al. (1936) as, "psychic conflict" that may arise from conflicting cultural norms. Acculturative adaptation to a new culture is a complex and dynamic process whereby individuals continuously negotiate among accepting, adapting to, or denying the characteristics of a majority culture, as well as retaining, changing, or rejecting certain components of their own culture. This involves serious changes in multiple areas of functioning (e.g., values, behaviours, beliefs, attitudes, etiquette, moral judgement etc.), and for individuals, families, and groups engaged in this process, these adjustments are often experienced as stressful. The nature of familiarity and length of exposure to the new culture are important risk variables for the acculturative stress.

Assimilation: is the process whereby a minority group gradually adapts to the customs and values of the prevailing culture. It is a two-way process - firstly, an individual or a group of diverse ethnic and racial minority or immigrant individuals comes to adopt the beliefs, values, attitudes, and the behaviours of the majority or dominant culture and secondly, at the same time, they relinquishes the value system of their cultural tradition and becomes a member of the dominant society. Assimilation is a slow and a gradual process. The term has political and social implications also. *Assimilation Index* tells us how a migrant has assimilated (with the host culture) so that he/she is no longer seemed to be an immigrant. Vigdor (2008), from Manhattan Institute for Policy Research, uses Assimilation Index value

that can distinguish immigrants from U.S. natives, calculated on the basis of economic (employment, occupations, education, homeownership); cultural (ability to speak English, marriage to natives, number of children) and civic (naturalization, military service) information.

Cultural identity: is the identity of a group or culture or of an individual as far as one is influenced by one's belonging to a group or culture. The usual cultural identifiers are place, gender, history, nationality, ethnicity, language, religious faith, and aesthetics. Recognition of cultural identity is important for a culture-fare mental health care (Groen, 2009; Kent & Bhui, 2003).

Deculturation or Cultural Uprooting: Deculturation results when members of nondominant cultures become alienated (either by accident or by force) from the dominant culture and from their own minority society (Berry & Sam, 1980). As the deculturation is the loss of one's traditional culture without integration into a new culture so it is like a tree that has lost its roots- so called uprooting and there is a culture loss without replacement. The consequence of deculturation may result in increased stress and psychopathology (Cheetham et al., 1983) and cultural bereavement (Bhugra & Becker, 2005).

Cultural diffusion: is the spreading of ideas or products from one culture to another. This concept was first introduced by Kroeber (1940). There are three categories of cultural diffusion: *Direct diffusion* is when two cultures are very close to each other, resulting in intermarriage, trade, and even warfare. *Forced diffusion* occurs when one culture subjugates (conquers or enslaves) another culture and forces its own customs on the conquered people. Colonisation is the unique example. The term *Ethnocentrism* or *Cultural imperialism* is often applied to forced diffusion. *Indirect diffusion* is when cultural ideas are spread through a middleman or even another culture (e.g. spread of fast food MacDonald culture in Middle East). Recently, by technological advancements, media, TV, movies, culture may be transmitted to people far away without any direct contact.

Diaspora: is the movement, migration, or scattering of people away from an established or ancestral homeland. The term *Diaspora* carries a sense of displacement and a sense of hidden hope or desire to return to homeland. Safran (1991) described six criteria of Diasporas from migrant communities: the group maintains a myth or collective memory of their homeland; they regard their ancestral homeland as their true home, to which they will eventually return; being committed to the restoration or maintenance of that homeland; and they relate their identity with the culture of their homeland.

Cultural Paranoia: The concept was introduced by Grier & Cobbs (1968) in their book 'Black Rage', where they said that Black clients may not disclose personal information to White therapists for fear that they may be vulnerable to racial discrimination and this condition was regarded not a form of psychopathology but a healthy and adaptive response by African Americans towards the white Americans. This concept was further elaborated by Ridley (1984) but challenged by others (Homer & Ashby, 1986, Bronstein, 1986). Culture deeply influence our cognitive reference, perceptual experiences and belief system and thus have strong influence on persecutory ideas, shared delusions (Sen & Chowdhury, 2006) and even treatment seeking and hospitalization (Whaley, 2004).

Cultural Mistrust: It "involves the inclination among blacks to mistrust whites, with mistrust most evident in the areas of education and training, business and work, interpersonal and social relations, politics and law" (Terrell & Terrell, 1981). It may pose a great obstacle to health service delivery (Cort, 2004).

Culture shock: is the difficulty people have adjusting to a new culture that differs markedly from their own, usually occurs during visiting a new place or during a short-term sojourn (international students). Thorough phases of initial excitement and then negotiation and adjustment, people usually master the new environment. There are many symptoms and signs of culture shock, including general unease with new situations, irrational fears, difficulty with sleeping, feeling sick, anxiety and depression, preoccupation with health, and homesickness (Oberg, 1960). *Cultural confusion* results from a growing lack of consensus about what is proper or appropriate in a given circumstances. It is the initial phase of culture shock when people become confused, tired and disoriented in a new foreign environment.

Cultural Accommodation: It is the process by which individuals may take on values and beliefs of the host culture and accommodate them in the public sphere, while maintaining the parent culture in the private sphere.

Cultural Negotiation: It is an adjustment process that takes place at individual, interpersonal, and systemic levels. It occurs when individuals (e.g., adjusting immigrants in a new society or bicultural individuals having two cultural backgrounds) navigate diverse settings (e.g., school, home, work, community) and shift their identities and values depending on the norms of each environment. This allows individuals to fulfil differing expectations, obligations, and roles and to maintain relationships inside and outside their own cultural communities. Cultural negotiation helps to balance differing value systems, familial and community expectations, peer relationships, and identities.

Cultural Equivalence: Cultural equivalence is the term used in research methodology that is used to minimize the cultural bias and measurement error in the development and/or adaptation of assessment tools (Vandevijver & Tanzer, 2004). Five dimensions (conceptual, content, linguistic, technical, and normative equivalencies) are important and to be used to minimize measurement error in cross cultural applications.

2.4 Some useful concepts in cultural psychiatry

Race: Old concept of geographical race is now abandoned. Race is a socially and culturally constructed category not a biological validity. It is now believed that inequalities between racial groups are not consequences of biological inheritance but rather products of historical and contemporary social, economic, educational and political circumstances (AAA, 1999).

Ethnicity: It refers to social group of people whose members identify with each other from other groups by a common historical path, behaviour-norms and their own mark of group identities. The group members share a common language, religion, and a sense of a historical continuity of traditions and root culture. Ethnic variations of disease prevalence and ethnic health inequalities are important issues in mental health.

Minority: A racial, religious, political, national, or other group (relatively small) thought to be different from the larger group in a society. The status of a minority may be acquired by: (a) Native people after they have been invaded, taken over or destroyed by military, technologically or economically superior outsiders- the whole range of colonization is the example, e.g., Native Americans in North America, native aborigines in Australia and Canada. (b) Racial background and historical path of migration to a host country - African-Americans in USA/ East Indians in Europe/ Tibetans in India. (c) Ethnic origin- like Hutterite in USA or Dalits in India and (d) Religious affiliation- Muslims in India/Hindus in Bangladesh.

Society: Composed of a large social grouping that shares the same geographical or virtual territory, subject to the same political authority and dominant cultural expectations and organized by an administrative structure and regulated by certain rules or systems. Several cultures or subcultures may exist within a single society.

Subculture: A cultural group within a larger culture, often having beliefs or interests at variance with those of the larger culture. The smaller subcultures usually have the same racial background as the majority group, but they choose to have distinctly different sets of beliefs, value systems and life style. E.g. Amish in USA. In mental health the term often used with different connotations like drug subculture, criminal subculture, urban subculture or youth subculture etc.

Social Class: refers to the social stratification in a society. Sociologists use *Socio-Economic-Status (SES)* that includes variables like education, occupation and income. In mental health, social class is considered primarily the product of the perceptions and beliefs held by people in different subgroups in a society like upper class, middle working class and lower class, which are associated with certain lifestyles, values and ethics. An extreme example is the caste system in India. These classes seldom changes radically but SES is changeable across the social ladder.

Primary Cultural Characteristics: things that a person cannot easily change, but if they do, a stigma may occur for themselves, their families or society. It includes nationality, race, colour, gender, age and religious affiliation.

Secondary Cultural Characteristics: includes educational status, SES, occupation, political beliefs, urban vs. rural residence, enclave identity, sexual orientation, gender issues, marital status, parental status, length of time away from the country of origin, migration status.

Worldview: the way individuals or groups look at the universe to form basic assumptions and values about their lives and world around them. It is the fundamental cognitive orientation of an individual or a society involving philosophy, cosmology, relationship with nature, existential meaning, moral and ethical reasoning, social relationships, magico-religious beliefs, values, emotions and ethics (Palmer, 1996).

Cultural Relativism: The concept of cultural relativism was first postulated by the German-American anthropologist Franz Boas (1858- 1942) in 1887 and later the term was coined by Alain LeRoy Locke (1885-1954), an American philosopher in 1924. Cultural relativism maintains the view that all cultures are equal in value and therefore should not be judged on the basis of another cultural perspective. It supports the belief that mental health should be understood through the context of normative behaviour within a specific culture. Proponents argue that issues like abortion, euthanasia, female circumcision and physical punishment in child rearing should be accepted as cultural practice without judgement from the outside world. Opponents argue that cultural relativism may undermine condemnation of human right violations, and family violence cannot be justified or excused on a cultural basis. There is some ongoing debate between universalistic and relativistic opinions about how cultures influence the manifestation of mental illness. According to the universalistic view the core psychiatric disorders are universal and what may vary across cultures are the symptomatic manifestation of the disorder or the threshold of labelling pathological versus normal behaviour.

Cultural diversity: encompasses the cultural differences that exist between people, such as language, dress and traditions, and the way societies organize themselves, their conception of morality and religion, and the way they interact with the environment. The Universal

Declaration on Cultural Diversity was adopted by UNESCO (2001) and declared cultural diversity as “common heritage of humanity”, where the main focuses are: (a) the diversity of people’s backgrounds and circumstances is appreciated and valued, (b) similar life opportunities are available to all, and (c) strong and positive relationships exist and continue to be developed in the workplace, in schools and in the wider community and society. Careful and ethical consideration of cultural diversity is a key issue in mental health because it aims to integrate cultural awareness, and cultural sensitivity into clinical practice and training, which have impacts on the quality of mental health service provision to individuals from minority ethnic communities (Bhui & Bhugra, 2002a). In this era of globalization and interconnected world we are living in a multicultural society and thus the core principle of mental health today is the unity within diversity (Brody, 2001).

2.5 Some key issues in cultural psychiatry

Following are the few important socio-anthropological issues, that mental health professionals should have in his/her mind during the cultural history taking in cross-cultural context.

Cultural variations of Family Systems: Family system functions as a unit, and every family member plays a unique role in the system. So change in any one member of the system will influence, by a ripple effect, the whole family system. Issues like kinship system, family structure, primary axis, interpersonal-dynamics, one-parent family, and family violence are important psychologically. Family organization (extended/nuclear) and relational roles (patriarchal or matriarchal systems) vary across cultural or subcultural groups.

Child development and enculturation process: upbringing process, cultural rituals and ethics in child rearing, gender-based customs, schooling, childhood trauma or abuse- all have significant impact on personality development.

Marriage system: gender role, its cultural meaning and responsibilities, socio-cultural implication of bride wealth or dowry system.

Culture and Personality development: socio-cultural environment, acquisition of values, beliefs and expectations, development of emotionality in the socialization process.

Social Customs: habitual ways of behaving carried out by tradition and enforced by social sanctions- customs relating to exposure of body parts, food choices, sexuality, substance abuse/ drinking, social interaction and restrictions etc.

Rituals: is a set of actions, performed mainly for their symbolic value, e.g., traditional practice of certain sets of or prescribed ceremonies like rituals with birth, puberty, wedding and death. In some cultures there are varieties of health rituals exists.

Etiquette: refers to the code of expected social behavior according to conventional norm within a society or a group, same as ‘manners’ in social interactions. To know the etiquette of a target culture is beneficial in cross-cultural communication.

Taboos: a social prohibition or restriction on certain things or behaviour, breaking of which is socially unacceptable because of the belief that it might result in ill effect. In every culture there are some superstitious beliefs and set rules of avoidance of some behaviours or objects.

Culture and Gender: Gender refers to the ways in which cultures differentiate and define roles based on biological sex and reproductive functions. Men and women do have some fundamentally different experiences of their bodies, of their social worlds and of their life course. There are also important gender differences in styles of emotional expression, symptom experience, social expectations and help seeking. Gender equality and freedom differs from culture to culture. In mental health, gender difference influence rates of

common mental disorders, there are gender specific risk factors and gender bias occurs in the treatment of mental illness (WHO, 2011; Emslie et al., 2002).

Attitudes and views about ageing: in some culture aged persons are more respected and listen to, have role in decision making, aged persons are more vulnerable to neglect and exploitation, have less access to health care.

Beliefs about health-illness-healing: beliefs in bad deed or *karma*/ancestral or God's punishment/ evil eye or sorcery / witchcraft/ possession/ supernatural force may influence illness experience and help seeking. In some cultures there may be strong resistance to blood transfusion or blood tests. Culture strongly influences illness beliefs and thus enhances 'psychic infectivity' in some psychiatric epidemics (Chowdhury, 1992a). Ethnomedicine or the study of cross-cultural health system (Banerjee & Jalota, 1988) is one of the central topics in cultural psychiatry.

Views about Birth, Death and Mourning: influence emotional reactions, grief and bereavement. Numerous cultural rituals involve the phenomenon of death. Some of these rituals may preclude the conduct of an autopsy.

Value system: Values are powerful drivers of how we think and behave. Values are a significant element of culture, where they form a part of the shared rule- set of a group. If someone transgresses other's value it may lead to betrayal responses (distress, loss of trust and seeking justice). Health professionals should be cautious of the values in practice. There are many categories of value like personal, social, political, economic and religious.

Idioms of Distress: Culture heavily influences how people understand and respond to distressing events. Distress is not expressed in the same way in all cultures or communities. In some culture distress is expressed by 'somatisation': people complain of physical symptoms which are mainly caused by emotional or mental worry, anxiety, or stress. The term 'idioms of distress' has been used to describe specific illnesses that occur in some societies and are recognized only by members of those societies as expressions of distress. A good example is the term 'nerve' which is used in many societies to designate both physical pain and emotional discomfort and is clinically presented with bodily pain, fatigue, insomnia or feelings of sadness, tension, and weepiness (Scheper-Hughes, 1992).

Disease and Illness: Disease, a biological construct, represents all the manifestations of ill health in response to some pathological process and is translated into nosological descriptions of signs/symptoms under medical framework. Illness, a socio-cultural construct, having a symbolic nature, and primarily represented by the subjective, emotional, behavioural, interpretative and communicative responses of the affected individual (Eisenberg, 1977). Cultural explanation and ethnomedical worldview influence the perception of illness and health, healing (Boyd, 2000) and sick role and illness behaviour (Chowdhury & Dobson, 2002).

Explanatory Model of Illness (EMI): Patient's illness beliefs influence their symptom formation and degree of disability (Fig.1). Klienman (1992) suggested that by exploring the *explanatory model* of illness we can better understand our patients and families: "Explanatory Models are the notions about an Episode of sickness and its treatment that is employed by all those engaged in the clinical process." He provided a very simple 'What, Why, How and Who' questions to elicit patient's explanation about illness (Box 1). Weiss (1997) further developed this into different clinical sets of Explanatory Model Interview Catalogue for different cultural and clinical groups across different countries. Explanatory model is a very useful clinical tool not only in mental health assessment (Bhui & Bhugra, 2002b; McCabe & Priebe, 2004) but also in other areas of medicine (Ross et al., 2002; Hallenbeck, 2003).

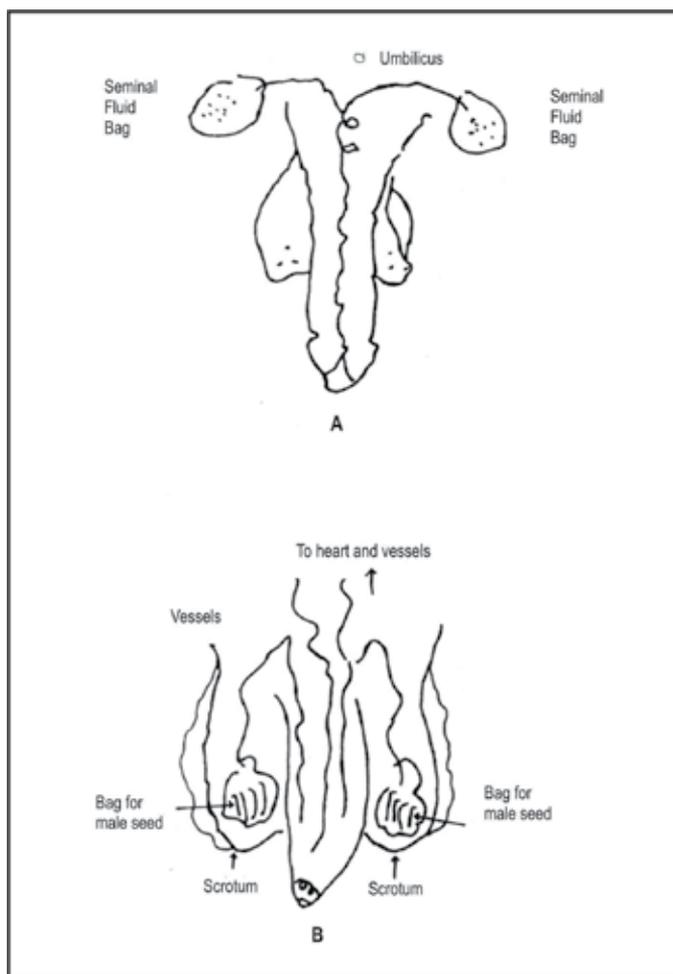


Fig. 1. *Body-heat explanatory model of Indian Koro patients* (Chowdhury, 2008). Increased body heat was implicated for the sudden 'pulling-in' of the penis. A. Drawing by a 22 year boy with Dhat syndrome - showing the *penile pull* was active from both the seminal fluid bag in the abdomen. B. Drawing by a 34 year male school teacher with Scrotal Filariasis - showing that the *pulling force* was operative from the heart

2.6 Culture and psychopathology

How does Culture relate to Psychopathology? Tseng (2003) provides a very practical clinical construct about how culture influence psychopathology. He provided seven types of effects as follows:

2.6.1 Pathogenic Effects: refers to situations where culture is a direct causative factor in forming or generating psychopathology, e.g. *stress* can be created by culturally formed anxiety, culturally demanded performance or culturally prescribed roles and duties. So culture is considered to be a causative factor, because culture-specific beliefs and ideas contribute directly to the formation of particular stress inducing certain type of psychopathology. Culture-Bound Syndromes are the example.

Culture Bound Syndromes (CBS)

Culture-bound or culture-specific syndromes cover an extensive range of disorders occurring in particular cultural communities or ethnic groups. The behavioural manifestations or subjective experiences particular to these disorders may or may not correspond to diagnostic categories in DSM-IV-TR or ICD-10. They are usually considered to be illnesses and generally have local names. They also include culturally accepted idioms or explanatory mechanisms of illness that differ from Western idioms. There is some conceptual confusion with the term 'Culture-bound'. In the widest sense everything is culture-bound. Here the word 'bound' implicates that the symptoms describe is confined to one specific culture, but in reality they may be found in multiple cultures (may be by different name). So Levine and Gaw (1995) suggested more precise term for CBS as "folk diagnostic categories". Some researchers, in a wider sense, debated the Eurocentric role of culture-boundness even with cultural psychiatry in the global context (Jadav, 2004).

Awareness of culture-bound syndromes is important to help psychiatrists and physicians to make culturally appropriate diagnoses (Chowdhury et al., 2003). The concept is also interesting to medical and psychiatric anthropologists because the culture-bound syndromes provide examples of how culturally salient symptoms can be elaborated into illness experiences. CBS was included in the fourth version of Diagnostic and Statistical Manual (APA, 1994) and provided symptomatic descriptions of 25 culture-bound syndromes in the Glossary of Culture-Bound Syndromes in appendix I (Table 1). Simons and Hughes (1985) provided a comprehensive list and description of CBS as reported globally. Though CBS is mainly implicated to non-Western cultures but in recent years, there is increased recognition by cultural psychiatrists of syndromes in western culture (Littlewood, 2002) that are heavily culture-related like anorexia nervosa (Swartz, 1985); obesity (Ritenbaugh, 1982), drug-induced dissociative states, multiple personality or personality disorders (Alarcon et al., 1998) and premenstrual tension syndrome (Johnson, 1987).

Guarnaccia and Rogler (1999) provided a set of four key questions for clinical analysis of CBS in the context of culture and psychopathology. These are:

1. *Nature of the phenomenon?* The character of CBS in the context of a given culture and what are the defining features of the phenomenon?
2. *Location in the social context:* who are affected? What is the social structural location and who are at risk or any situational trigger?
3. *Relationship to Psychiatric Disorder:* Empirical relation of CBS with designated psychiatric disorder? Any comorbid psychiatric disorder? The CBSs often coexist with other psychiatric disorder, as many psychiatric disorders do with each other. Delineation of comorbidity factor will in help in clinical decision making.

Example: Epidemiological study in Puerto Rico (Guarnaccia et al., 1993) showed high rate of psychiatric disorder among those reporting ataque de nervios (63% vs. 28% of the sample) - 3.5 times more likely to meet criteria for an anxiety disorder and 2.75 times more likely to meet the criteria for an affective disorder than those who had not reported an attack de nervios.

4. *Different comorbidities:* Difference in the symptomatic, emotional and contextual aspects of cultural syndromes, may show different subtypes of the designated psychiatric disorder.

Example: Koro or genital retraction syndrome has offered a unique opportunity to study comorbidity in CBS, as over the years Koro has been reported from diverse culture and ethnicity (Chowdhury, 1996; 1998). For example: Koro with high sex guilt and

depressive reaction (Chowdhury, 1992b, Chowdhury & Rajbhandari, 1995) or with heightened sexual anxiety and anxiety disorder (Chowdhury, 1990) or with hypersuggestibility and hysterical reaction (Chowdhury, 1994a) and even sometimes with medical comorbidities (Chowdhury, 1989; Puranik & Dunn, 1995).

Name (Geographical/cultural location)	Presentation
Amok (Malaysia, Indonesia, Philippines, Brunei, Singapore)	Dissociative episode- violent and homicidal behaviour, usually preceded by brooding over real or imagined insults.
Ataque de nervios (Nervous attack) (Latin-America)	Brief, intense release of emotion believed to be caused by family conflict or anger.
Bilis (Rage)	Outburst of anger.
Boufée delirante (West Africa and Haiti)	Outburst of agitated, aggressive behaviour, marked confusion, psychomotor excitement, often with visual and auditory hallucinations or paranoid ideation.
Brain fag or brain fog (West Africa)	Usually among high school or university students. Symptoms: difficulties in concentrating, remembering, and thinking.
Dhat syndrome (Indian subcontinent)	Sexual/ general weakness due to loss of semen through urine or faeces.
Falling out/blacking out (Southern USA, Caribbean)	Episodes of sudden collapse and fainting, often with hysterical blindness.
Ghost sickness American Indian (Novajo)	A syndrome, associated with dead or dying, attributed to ghosts (<i>chindi</i>) or witchcraft. Symptoms are general weakness, loss of appetite, feeling of suffocation, recurring nightmares and a pervasive feeling of terror.
Hwa-byung (Anger sickness) (Korea)	Epigastric pain, usually female, shortness of breath, flushing, indigestion, palpitations, vomiting, cold hands, dysphoria from an imagined abdominal mass, thought to be caused by suppressed or unresolved anger, disappointment or grudges.
Koro (China, Malaysia, India, SEA)	Acute fear- genitalia will retract into the body (also breast into the chest in female), causing death.
Latah (Malaysia, Indonesia)	Hypersensitivity to sudden fright, often with echopraxia, echolalia, command obedience, and dissociative or trancelike behaviour.
Locura (Latinos in USA/ Latin America)	Chronic psychosis with incoherence, agitation, auditory and visual hallucinations, inability to follow rules of social interaction, and possible violence- attributed to an inherited vulnerability or life adversities.
Mal-de-ojo (Evil eye) (Mediterranean, Hispanic)	A common idiom of disease, attributed to any misfortune, and social disruption.
Nervios (Latinos in USA/ Latin)	Refers to a general state of vulnerability to stressful life experiences and difficult life circumstances. A wide range of symptoms: emotional distress, somatic disturbance,

Name (Geographical/cultural location)	Presentation
America)	and inability to function. Common symptoms: headaches, brain aches, irritability, stomach disturbances, sleep difficulties, nervousness, easy tearfulness, inability to concentrate, trembling, tingling sensations, and mareos (dizziness with occasional vertigo-like exacerbation).
Pibloktoq (Arctic hysteria) (Arctic circle, Inuhuit Eskimos)	Symptoms: hysterical (screaming, uncontrolled wild behaviour), depression, coprophagia, echolalia, insensitivity to extreme cold. Common in winter and among women.
Gi-gong (Psychotic reaction) (China)	An acute, time-limited episode characterized by dissociative, paranoid, or other psychotic or nonpsychotic symptoms that occur after participating in the Chinese folk health-enhancing practice of <i>qi-gong</i> .
Rootwork (African American, Caribbean, White population in Southern USA)	Cultural interpretations that explain illness as the result of hexing, witchcraft, voodoo, or the influence of an evil person.
Sangue dormido (Portuguese in Cape Verde)	Literally “sleeping blood” with symptoms of pain, numbness, tremor, paralysis, convulsions, stroke, blindness, heart attack, infection, and miscarriage.
Shenjang shuairuo (Neurasthenia) (India, China)	Mental and physical fatigue, poor concentration and memory, headache, dizziness, changes in sleep, appetite, sexual function.
Shen kui (China)	Anxiety, panic and sexual complaints with no physical findings, attributed to loss of semen or ‘vital essence’.
Shin-byung (Korea)	A syndrome characterized by anxiety and somatic complaints like general weakness, dizziness, fear, loss of appetite, insomnia, and gastrointestinal problems, followed by dissociation and possession by ancestral spirits.
Spell (African American, White population in Southern USA)	A trance state in which individuals “communicate” with deceased relatives or with spirits.
Susto (Latinos in USA, Mexico, Central America, South America)	Attributed to an illness precipitated after a frightening event that causes the soul to leave the body, leading to symptoms of unhappiness and sickness.
Taijin Kyofusho (Social phobia) (Japan)	Guilt about embarrassing others- an intense fear that one's body, body parts, or bodily functions are displeasing, embarrassing, or offensive to other people.
Zar (Ethiopia, Somalia, Egypt, Sudan, Iran, and Middle East)	Experience of spirit possession- presented with dissociative episodes with laughing, shouting, hitting the head against a wall, singing, or weeping.

Table 1. DSM IV (2000) list of some common CBSs (Trujillo, 2008; Hall, 2008)

2.6.2 Pathoselective Effects: cultural choice to stress reaction that shapes the nature of psychopathology, e.g., Running amok in Malaysia, familial suicide in some cultures.

2.6.3 Pathoplastic Effects: the ways in which culture contributes to modeling or plastering of the manifestation of psychopathology- this acts in two ways: *Shaping the content of the symptoms:* content of delusions, hallucinations, obsessions or phobias is subject to psycho-social context in which the pathology is reported. *Modeling the clinical picture as a whole* - Taijin-kuofu-sho in Japan and Brain fog syndrome in Nigeria. Culture plays a pathoplastic role in some psychiatric epidemics also (Chowdhury et al., 1993).

2.6.4 Pathoelaborating Effects: Certain behaviours (either normal or pathological) may become exaggerated to the extreme by *cultural reinforcement:* Latah in Malaysia is being utilized by people for social amusement; *hara-kiri* - formal way of suicide by a soldier in Japan to avoid capture or humiliation by enemy is an honourable way of ending one's life. Verbal insult for non-payment of loan may be a justified reason for attempting self-harm in some Asian communities. Cultural notion of body-image/ shape, diet and body weight regulation to an extreme degree are good example of this category in recent health-conscious and commercially driven urban culture.

2.6.5 Pathofacilitative Effects: Many psychiatric disorders are intimately tied to psychological and sociocultural variables in their development, e.g., suicidal behaviour (Chowdhury, 2002), alcoholism (Chowdhury et al., 2006), and substance abuse, e.g., initial social tolerance towards involvement of unemployed youths in drug trafficking activities resulted in high incidence of heroin dependence and HIV infection in Monipore, India (Chowdhury, 1994b).

2.6.6 Pathodiscriminating Effects: Sociocultural labeling of behaviour as normal or abnormal- several mental conditions or behaviours, e.g., personality disorder, sexual deviation and substance abuse are accepted or rejected as per the social discrimination according to cultural factors.

2.6.7 Pathoreactive Effects: Culture influences how people label a disorder and how they emotionally react to it. Prognosis of schizophrenia is better in less developed, rural, farming societies than industrialized nations. The social environment, attitudes of family and community determine how well the person will rehabilitate into social and family life, thus affecting the prognosis. Excessive and often overrepresentation of risk from mental patients in the media and the public reaction thereof (stigmatizing mental patients) in the Western world is a good example of this category (BBC, 1999; Edney, 2004).

3. Cultural competency in health care

All our clinical interactions take place in the context of culture. Culture always matters in health care, if the culture is ignored or overlooked, individuals and families are at risk of not getting the required support, or worse yet, receiving service that is more harmful than helpful.

3.1 Culture gives context and meaning of symptom or distress

Culture is a filter through which people process their understanding, experiences and impact of life events. Culture influences people's values, actions, and expectations of

themselves and of others and thus influence their behaviour. Culture provides the world-view about health, healing, and wellness beliefs- both to clients and professionals. Culture influences the help-seeking behaviours of patients, their attitudes and expectation toward health care providers and thus influence treatment acceptance and compliance (Chowdhury, 1991).

Everyone has a culture. It is the core issue in identity, behavior and world views. Everyone lives in multiple cultural orbits: ethnic, religious, class, gender, race, language, and social network (Olsen et al., 2006). Cultures are not static. It changes and evolves over time as individuals change over time. It involves continuous change in response to varied circumstances, challenges and opportunities. Culture is not determinative. Different people take on and respond to the same cultural expectations in different ways. Assumptions therefore cannot be made about individuals based on a specific aspect of their cultural experience and identity.

3.2 What does it mean to be culturally competent?

Cultural competency (CC) is "a set of academic and personal skills that allow us to increase our understanding and appreciation of cultural differences between groups" (Cross et al., 1989). Becoming culturally competent is a developmental process. It includes the ability to understand the language, culture, and behaviors of other individuals and groups, and to make appropriate clinical recommendations. The goal of CC is to create a health care system and workforce that are capable of delivering the highest quality care to every patient regardless of race, gender, ethnicity, culture, or language proficiency (Betancourt et al., 2005).

3.3 Why is cultural competency important for health professionals?

CC is the ability to interact successfully with patients from various ethnic and/or cultural groups. The increasing cultural diversity of recent era demands the delivery of culturally competent services. Every health professions should be aware of these three issues: (a) **Lack of awareness:** about cultural differences can make it difficult for both providers and patients to achieve the best, most appropriate care in a culture-conducive way. (b) **Diversity:** Despite all our similarities, fundamental differences among people arise from nationality, ethnicity, and culture, as well as from family background, individual experiences and current cultural disposition. The differences and similarities among diversity should be recognized, celebrated, and respected. Understanding of cultural diversity improves mental health service within a framework of legitimate practice (James & Prilleltensky, 2002). (c) **Expectations:** Cultural, ethnic, linguistic, and economic differences influence how individuals or groups access and use health, education, and social services (Lau, 2000). These differences affect health beliefs, practices, and behaviour on the part of both patient and provider, and also influence the expectations that patient and provider have of each other.

Often in the therapeutic setting there is lack of awareness of these differences, mentioned above, and their impacts, which may be devastating and may lead to:

1. **Miscommunication:** Patient-provider relationships are affected when understanding of each other's expectations is missing. The provider may not understand why the patient does not follow instructions: e.g., why the patient takes a smaller dose of sleeping medicine than prescribed (because of a belief that Western medicine is "too strong and may damage heart"); or why the family, rather than the patient, makes important

decisions about the patient's health care (because in the patient's culture, major decisions are made by the family as a group).

2. **Rejection:** Likewise, the patient may reject the provider (and the entire system) even before any one-on-one interaction occurs because of non-verbal cues that do not fit expectations. For example, "The doctor is not wearing a white coat - maybe he's not really a doctor; or, "The doctor smiles too much. Doesn't she take me seriously?"
3. **Cultural Distance:** A gap between the culture of two different groups, such as that between the culture of institutions/clinician and the service user or their families. Mental health service delivery faces this challenge especially to reach the ethnic minority clients (Littlewood & Lipsedge, 1988; Saha, 2006).

3.4 Rationale for cultural competency

Many studies and official reports showed disparity in health care due to *cultural incompetence*. The Report of Surgeon General on Mental Health (1999), USA, highlighted several disparities between racial and ethnic minorities and whites where Minorities (a) have less availability of, and access to, mental health services, (b) are less likely to receive needed mental health services, (c) often receive a lower quality of mental health care and (d) are underrepresented in mental health research. Some studies have clearly delineated that patient's race and gender affect physician's medical decision making (Cooper-Patrick et al., 1999; Weisse et al., 2001).

Meyer (1996) describes four major reasons why we need CC in healthcare. These are: (1) Difference in clinical presentation among different ethnic and racial groups, (2) Language and communication difficulties, (3) Ethical issues and decision making- western medicine versus traditional/folk medicine or practice and (4) Trust/respect - cultural variation of levels of trust towards authority. So CC virtually offers a wide range of service development in a culture-fair way (Anderson et al, 2003) and is providing definite advantage in service delivery in a multicultural society as follows:

1. CC = Quality of Care and service outcome,
2. CC = Disparity Reduction (Eliminating disparities in the health status of people of diverse racial, ethnic, and cultural backgrounds),
3. CC = Risk Management (more understanding of the client's behaviour to mitigate risk),
4. CC = Linguistic Competence - One necessary aspect of cultural competence is linguistic competence,
5. CC = Responding to demographic changes in the society,
6. CC = Help to reduce the likelihood of liability or malpractice claims,
7. CC = A Fundamental Social (often legal) Responsibility- reflects the basic value-base of the public mental health approach, which should be responsive to individual needs and preferences,
8. CC=Meets the obligation to respect UNO's Cultural Diversity and Racial Discrimination protocol.

3.5 Types of CC: There are two types- Individual and Organizational

3.5.1 Component of Organizational CC: The organization should have (1) clearly articulated vision regarding the importance of diversity and inclusion to the business of the organization, (2) should do Climate survey to assess the degree to which individuals and members of the groups perceive they are valued, rewarded and have opportunities for growth and should

provide (3) ongoing education, mentoring and evaluation throughout the organization for employees and managers to understand the expectations and skills necessary for developing a culturally competent organization. A culturally competent organization ensures that a commitment to CC can be seen throughout all levels of the hierarchy.

3.5.2 Components of Individual CC

CC exists on a continuum from incompetence to proficiency.

At individual level CC comprises five components (Papadopoulos et al., 2004):

1. **Cultural desire:** genuine motivation to engage in the process of cultural competence and commitment to self-evaluation and criticism to develop cross-cultural knowledge.
2. **Cultural Awareness** of one's own cultural worldview (values, beliefs and practice) to reduce the risk of cultural bias and conflict in therapeutic assessment and decision making.
3. **Attitude** towards cultural differences, i.e., appreciating and accepting differences. Two ways of enabling attitudes are by: *Sensitivity training:* Reflect on culture, racism, sexism, etc. / *Case studies and Awareness training:* Population level statistics or ethnic disease prevalence data can alert the presence of minority groups and their needs in the area served.
4. **Knowledge of different cultural practices and worldviews.** It is the most important part for the development of cultural competencies. The key focus here is the acquiring of *Inter-cultural knowledge*, i.e., deliberately seeking out various world views and explanatory models of disease. Knowledge promotes understanding between cultures, failure of which may lead to intentional or unintentional discrimination (Purnell, 2005). Following are the few areas of knowledge which are essential for the mental health professionals (Saldana, 2001): (A) *Knowledge about specific facts related to culture of the client:* (a) Clients' culture: history, traditions, values, family systems, artistic expressions; (b) roles of language, speech patterns, communication styles, help-seeking behaviors, and (c) impact of racism and poverty on behaviour, attitudes, values, and disabilities. (B) *Knowledge about the culture of service and institution:* (a) the impact of the social service policies on clients of colour; (b) available resources (i.e., agencies, persons, informal helping networks, research) available for ethnic minority clients and communities; (c) how power relationships within communities or institutions impact different cultural groups, and (d) how professional values may either conflict with or accommodate the needs of clients from different cultural background.
5. **Cross-cultural Skill:** Focused on the ability and desire to combine awareness and knowledge to interpret and incorporate culture-specific understandings into primary, secondary and tertiary healthcare settings. Four ways to achieve it are:
 - a. *Cultural skill development:* Learning how to culturally assess a patient, explaining an issue from another's perspective; reducing resistance and defensiveness; and acknowledging interactive mistakes that may hinder the desire to communicate.
 - b. *Cultural encounters:* Meeting and working with people of a different culture will help dispel stereotypes and may contradict academic knowledge. Culturally competent skill should help to be humble enough to fight stereotypes and remain open to the individuality of each patient.
 - c. *Cultural empowerment:* Professional ability to openly discuss racial and ethnic differences and issues and to respond appropriately to culturally based cues, ability

to utilize the concepts of empowerment on behalf of culturally different clients and communities and proactive to recognize and combat racism, racial stereotypes, and myths among individuals and institutions.

- d. *Cross-Cultural communication*: One of the most important learning processes in the development of cultural competency.

3.6 Cross-cultural communication

Cross-cultural or Inter-cultural communication is the interaction with persons of different cultural, ethnic, racial, gender, religious, age and class backgrounds. It is a process of exchanging, negotiating, and mediating one's cultural differences through language, non-verbal gestures, and space relationships. Cultural background, health beliefs and treatment expectations affect health care encounters with every patient (Kai, 2005). Different cultures have different 'set rules' that influence the behaviour, pattern of speech, value judgement, concept of time and interpersonal space and emotional attitudes towards distress and dysfunctions. Intercultural communication involves understanding others and making you understood by others. Culturally competent communication reduces racial and ethnic disparity in health care (Taylor & Lurie, 2004).

Communication is an important component of patient care (Skelton et al., 2001). With globalization and increased influx of multicultural population groups, cross-cultural communication is becoming an integral part of medical education and care (Stumpf & Bass, 1992). It is currently getting increased attention from medical schools and accreditation organizations (Loudon et al, 1999). There is also increased interest in researching patient-doctor communication and recognizing the need to teach and measure this specific clinical skill (Teutsch, 2003).

Cross-cultural communication is an ongoing learning process and involves many barriers, blocks and new initiatives and skill (Mull, 1993). Health professionals should be aware of three limitations that may interfere with effective cross-cultural understanding (Ting-Toomey, 1999): *Cognitive constraints* - These are the existing frames of reference or world views that provide a backdrop where all new information is compared, contextualize and inserted. *Behaviour constraints* - Each culture has its own set rules about proper behavior which affect verbal and nonverbal communication. The *Emotional constraints* are the ways of emotional regulation which varies from culture to culture. So for every health professionals, these three personal agenda need constant updating, viz., cognitive competence, affective competence and role competence.

3.6.1 Cultural differences in communication

Recognition of cultural differences in communication is important in therapeutic negotiations. Following are the few examples (DuPraw & Axner, 1997):

1. *Different Communication Styles*: The way people communicate varies widely between, and even within, cultures. Three aspects of communication style are important: language use, non-verbal communication and degree of assertiveness in communication (reflect positivity and confidence). Language use differs from culture to culture. Across cultures, some words and phrases are used in different ways. Even in English, the word 'Yes' has many connotation depending on the way it is said. Nonverbal communication, or body language, is a vital form of communication. When we interact with others, we continuously give and receive countless wordless signals (Argyle, 1988). The *Static* non-verbal communications include: Distance, Orientation

(face to face/ side-by-side) Posture (of formality/relaxed/tensed) and Physical Contact (shaking hands/ touching/ holding/ embracing/ pushing). The *Dynamic* nonverbal communications are: Facial Expressions (smile, frown, raised eyebrow/ yawn/ sneer), Gesture (hand movement), Eye Contact, Kinesis (movements – forward/backward, vertical or side-to-side), Touch (Tactile Communication), Personal Space (Proxemics): the space you place between yourself and others, Environment (arrange objects into your environment), Silence (its meaning underneath) and Time. All these issues are highly culture-dependent.

2. *Different Approaches to Completing/Handling Tasks*: The success of any medical assessment and treatment negotiation virtually depends on the willingness of the client to complete the task. There are different ways that people handle tasks in terms of time frame, following of instructions, value judgement of the therapeutic decision offered and feedback as and when necessary. This may reflect in treatment negotiation, adherence or compliance to the management plan in a psychiatric clinical setting. Cultural framework in relation to time management, sense of reciprocal responsibility and trust influence how one takes the task at hand.
3. *Different Decision Making Styles*: The roles individuals play in decision-making vary widely from culture to culture. This is an important issue in accepting the treatment decision. In some culture a strong value is placed on holding decision-making responsibilities oneself and in some cultures decision needs affirmation from the family members (Asian Culture) or from the clan head before starting treatment (Some African culture).
4. *Different Attitude toward Disclosure*: Disclosure is a very sensitive as well as crucial issue in medical assessment. Frank reporting of sensitive personal issues varies from culture to culture. Potential problem may arise in areas like history taking on Drug/HIV or sexual history or history of abuse or domestic violence.

3.6.2 Factors that impede cross-cultural communications

Lack of Understanding: One of the major barriers to effective cross-cultural communication is the lack of understanding of client's culture.

Personal Values: Health professional's personal values may constitute a significant barrier, which may be due to class-bound values or culture-bound values (Sue & Sue, 1977).

Judgmental Attitudes: Tendency to evaluate other's values, beliefs and behaviours in a negative way.

Prejudice: Tendency of 'pre-judging' someone's characteristics simply because they have been categorised as belonging to a particular group. It is usually associated with negative attitudes to that group and often has ethnic or racial overtones.

Discrimination: Differential treatment of an individual due to minority status; actual and perceived; e.g., "here we have no facility to serve people like that."

Generalization: reducing numerous characteristics of an individual or group to a general form that is oversimplification, e.g., "All Caribbeans are highly superstitious".

Stereotyping: an oversimplified conception, opinion or belief about some aspect of an individual or a group. To categorize and make assumptions about others based on identified characteristics (such as gender, race, ethnicity, age, religion, nationality, or socioeconomic status) is a serious mistake. e.g., "she's like that because she's Indian – all Indians are shy and nonverbal."

Ethnocentrism: The tendency to evaluate other groups according to the values and standards of one's own ethnic group, especially with the conviction that one's own ethnic group is

superior to the other groups (as if “my way is the best in the world”). Ethnocentrism leads to make false assumption about cultural differences and helps to make premature judgement. It is an obstacle to intercultural communication (Dong et al., 2008). Clinical practice in Western psychiatry is very often criticised as an ethnocentric discipline (Ata & Morrison, 2005; Fernando, 1991).

Cultural imperialism: is the practice of extending the policies and practices of one group (usually the dominant one) to other or minority groups.

Cultural Imposition: is the intrusive application of the majority group’s cultural view upon individuals and families - belief that everyone should conform to the majority; e.g., “we know the right thing for you, if you don't like it you may go elsewhere.”

Cultural Blindness: Differences are ignored and one proceeds as though differences did not exist; e.g., “there's no need to worry about a person's culture - you do your job and that is enough”.

Racism: Race has social meaning, assigns status, limits or increase opportunities and influence interaction between patient and clinicians. Racism has been described as prejudice combined with power (Abrums, 2004). United Nations (1965) ‘International Convention on the Elimination of All Forms of Racial Discrimination’ defines racism as: “Any distinction, exclusion, restriction or preference based on race, colour, descent, or national or ethnic origin which has the purpose or effect of nullifying or impairing the recognition, enjoyment or exercise, on equal footing, of human rights & fundamental freedoms in the political, economic, social, cultural or any other fields of public life”. Racism may be overt or covert.

“Institutionalised racism consists of the collective failure of an organisation to provide an appropriate and professional service to people because of their colour, culture or ethnic origin. It can be seen or detected in processes, attitudes and behaviour which amount to discrimination through unwitting prejudice, ignorance, thoughtlessness, and racist stereotyping which disadvantage minority ethnic people” (Lancet, 1999). Stokely Carmichael, a Trinidadian-American black activist, coined this term in 1960. Racism in health care is a very sensitive and challenging issue in UK, USA and other European countries (Bhopal, 2007), especially in work place, medical (Dennis, 2001; Mistry & Latoo, 2009), and psychiatric service delivery (McKenzie & Bhui, 2007). *Racial fatigue* is the state of potential emotional and psychological sequel of feeling isolated in a work or health environment because of racial discrimination, especially when the issues were consistently ignored and not discussed (*racial silence*) (Nunez-Smith et al., 2007).

Stigma: Stigma is a severe form of social disapproval or personal discontent with a person on the ground of their unique characteristics, which is judged as a sign of disgrace and something that sets a person apart from others. Goffman (1990) defined stigma as “the process by which the reaction of others spoils normal identity”. Goffman described three forms of stigma: the experience of a mental illness, physical deformity and association with a particular race, religion or belief. Stigma derives from deeply ingrained individual and social attitudes and always leads to discrimination. Negative attitudes and stigma directly affects the clinical practice in psychiatry (Byrne, 1999). Stigmatization of individuals with mental illnesses is widespread (Chowdhury et al., 2001; Jadav et al., 2007) and serves as a major barrier to proper mental health care and the better quality of life (Mann & Himelein, 2004; Charles et al., 2007). Reduction of stigma against persons with mental illness is a serious preventive work (Arboleda & Sartorius, 2008; Crisp et al., 2000) at all levels of mental health work- from clinic, hospitals, institution to community (Penn & Couture, 2002). World Psychiatric Association started an international programme to fight stigma and

discrimination against schizophrenia in 1996 and Royal College of Psychiatrist, London, completed an anti-stigma campaign (*Changing Minds*) with a five year (1998-2003) strategy.

3.6.3 Factors that facilitate cross-cultural communications

Cross cultural communication is the process of dealing with people from other cultures in a way that minimises misunderstandings and maximises the potential benefit out of therapeutic relationships. Payne (2004) provides some useful basic tips for effective cross-cultural communications. These are few important in a health service context: (a) *Slow Down* and speak clearly, normal pace, normal volume, no colloquialisms, or double negatives (i.e. 'not bad'); (b) *Separate Questions*- short sentences one by one; (c) *Avoid Negative Questions*; (d) *Take Turns*- talk and listen; (e) *Write it Down*- for clarity if necessary; (f) *Check Meanings* - whether you are properly understood; (g) *Avoid Slang*; (h) *Be Supportive* - make the client comfortable, confident and trust you; (i) *Maintain Etiquette*- learn some cross-cultural issues before dealing a people from the target culture and (j) *Listen actively*: Listening is one of the most important skills in any communication, especially in the field of medicine (Robertson, 2005). The success of any therapeutic consultation depends on how well the patient and doctor communicate with each other (Gask & Usherwood, 2002). Following are the few rules to become an active listener: pay attention, avoid distractions, show that you are listening, engage yourself, provide feedback, defer judgment and respond appropriately. Some useful interview guides are shown in Box 1.

4. Clinical application of culture: Cultural assessment

4.1 Emic-etic perspective

Proper insight and understanding about culture's impact on mental health and treatment is crucially important to prevent disparities in assessment and treatment (Hwang et al, 2008). How we perceive the other culture is dependent on our view or looking lenses. There are two ways of looking at any given cultural system: Emic and Etic - terms coined by Kenneth Lee Pike, an American linguist and anthropologist in 1954 (Pike, 1967). These are linguistic terms- phonetic (sound of universal language) and phonemic (sound of specific language) respectively. *Etic* is used to address things that are considered universal, whereas *emic* is culture-specific. From clinical research point- an *emic* account is a description of behaviour or a belief that account comes from a person within the culture (insider). The *etic* approach implies that research is conducted by an outside observer. *Etic* approach may be more objective but may lose culturally relevant meaning in its interpretation. Emic-etic controversy in the research of culture and mental health is a long debate and challenge in psychiatry (Marano, 1982; Littlewood, 1998; Warner, 1999).

In their very influential publication on 'Culture and Psychiatry' Tseng and Streltzer (2004) very nicely summed up three basic areas of cultural interaction with the therapeutic system. These are:

1. *The culture of the Patient*: patient's understanding of illness, perceived cause, symptom experience and meaning and treatment expectations - all of which are being influenced by culture.
2. *The culture of the Physician*: pattern of attention, interaction and communication with the patient. Physician's culture explicitly or implicitly guides his/her attitude toward the patient, understating of the problem, support and treatment and care provision of the patient

3. *The culture of Medical Practice*: These are the framework of rules, regulations, customs and attitudes of the medical system and institutions in which the service to the client is provided. Tseng and Streltzer (2004) described it as "invisible cultural system" and in every society there are set rules for each medical disciplines and institutions, for its members and principles of care. All these culture-dependent medical customs influence doctor-patient relation and interaction (Tseng, 2003) and treatment expectations.

A. Explanatory Model of Distress: 8 questions of Kleinman et al., (1978)

1. What do you think has caused your problem?
2. Why do you think it started when it did?
3. What do you think your sickness does to you?
4. How severe is your sickness? Will it have a short or long course?
5. What kind of treatment do you think you should receive?
6. What are the most important results you hope to receive from this treatment?
7. What are the chief problems your sickness has caused for you?
8. What do you fear most about your sickness?

B. LEARN model (Berlin & Fowkes, 1983) for physicians-in-training

- Listen with sympathy and understanding to the patient's perception of the problem
- Explain your perceptions of the problem and your strategy for treatment.
- Acknowledge and discuss the differences and similarities between these perceptions.
- Recommend treatment while remembering the patient's cultural parameters.
- Negotiate agreement. It is important to understand the patient's explanatory model so that medical treatment fits in their cultural framework.

C. FICA model (Josephson & Peteet, 2004): screening for worldview and spirituality

- Faith and religious/spiritual beliefs
 - Involvement in the practices associated with a faith or beliefs
 - Community of support related to a faith or beliefs
 - Address how these beliefs, practices, and community are to be integrated in health and mental health care
-

Box 1. Models of Effective Cross-Cultural Communication and Negotiation

4.2 Culture in mental health care

Group of Advancement of Psychiatry (GAP, 2002) clearly stressed the importance of culture in mental health and strongly advised that careful assessment of the cultural context of psychiatric problems must form a central part of any clinical evaluation. They categorized four areas of cultural importance in clinical psychiatry.

1. *Diagnostic and Nosological factor*: cultural competency training and cultural formulation in clinical assessment that enhances treatment and care planning.
2. *Therapeutic and protective role*: culturally determined attitudes and behaviour can operate as a cushion that prevents the occurrence of psychopathology and/or the spread of its harmful consequences. Role of extended families and social networks neutralize the impact of stigma, and traditional healing, role of religious beliefs and practices may enhance health recovery.

3. *Ethnopsychopharmacology*: Series of recent research has shown that there is a significant difference among ethnic groups in their response and vulnerability to side-effects of medications because of the genotypic variations, which influence the pharmacokinetics and pharmacodynamics of drug metabolism (Matthews, 1995). The role of cytochrome P450 enzymes in hepatic metabolism has been extensively studied (Lin et al., 1993). Asian patients often respond to substantially lower doses of psychotropics. Specific mutations of certain cytochrome P450 enzymes lead to poor or slow metabolism. Several ethnic variations in drug response has been documented, e.g., to neuroleptics (extrapyramidal side effects- Jann et al., 1989), Asian-Caucasians difference in tricyclic antidepressants serum level (Rudorfer et al., 1984); racial differences in red blood cell sodium and lithium levels (Hardman et al., 1998) and clozapine-induced agranulocytosis has been more commonly observed in Ashkenazi Jews, especially in those with a cluster of HLA types (Lieberman et al., 1990). Multiple psychosocial factors like gender, diet, consumption of cigarettes, caffeine, alcohol, herbs, psychoactive substances, sleep-activity-rest patterns and environmental-geographical effects influence ethnocultural differences in psychotropic drug metabolism and response (Jacobsen, 1994; Ng et al., 2008). Recent advances in genetic neuroscience; especially the psychosocial genomics (Box 2) unfolded a new horizon of understanding of culture/social-gene interactions: "how the subjective experiences of human consciousness, our perception of free will, and social dynamics can modulate gene expression, and vice versa" (Rossi, 2002a).
4. *Management and structuring clinical services*: Culture is an important element in the structure of management approaches and provision of services to the community. Three issues form the basis of this approach, viz., Cultural sensitivity, i.e. the awareness of culturally based needs in a given population, Cultural relevance, i.e. the implementation of measures that help to provide culturally sensitive services and Cultural competence, both of the organisation and its workforce to deliver the care in a culturally appropriate way.

5. The cultural formulation

Culture has a very important role in precipitating, perpetuating and preventive factors in relation to any illness (Bhugra & Osborne, 2006). The cultural assessment is thus helping providers understand where and how patients derive their ideas about disease and illness. Assessments help to determine beliefs, values and practices that might have an effect on patient care and health behaviors (Weiss, 2001). In fact, cultural assessment improves patient safety in healthcare organization (Nieva & Sorra, 2003). So Cultural Consultation service (Kirmayer et al., 2003) and Cross-cultural psychiatric assessment (Bhugra & Bhui, 1997) is now becoming a cornerstone of clinical assessment in multicultural health services and psychiatric training. Cultural formulation not only make the diagnostic process and treatment more culturally sensitive (Borra, 2008), but also becoming a part of therapeutic justice in the midst of growing cultural pluralism in recent societies (Lewis-Fernandez & Diaz, 2002).

5.1 DSM IV –Tr cultural formulation

APA published DSMIV in 1994 which included an 'Outline for Cultural Formulation' to provide a concise method of incorporating cultural issues into the therapeutic (diagnosis

Psycho-Social Genomics is the study of how psychological and social processes modulate gene expression and brain plasticity (Rossi, 2002a). Virtually it is an interdisciplinary field involving studies of stress, psychosomatics, psychoimmunology, psycho-neuro-endocrinology and psychobiology of creativity, optimal performance, dreaming, art, ritual, culture, and spiritual life. The main focus of psychosocial genomics is to explore how the levels of gene expression, neurogenesis, and healing are interrelated as a complex, adaptive system with the levels of human experiencing, behaviour, and consciousness (Rossi, 2002b). In other words, psychosocial forces and factors can shape neurobiology.

The contributions from psychosocial genomics have shown that socio-environmental experiences influence neurobiological structure and functions of brain across the life cycle (Garland & Howard, 2009). This is called '**Dynamic Gene Expression**': the interplay between behavioural state-related gene expression (nature) and activity-dependent gene expression (nurture) bring about healing through neurogenesis and learning (Hofmann, 2003). Investigations of neuroplasticity demonstrate that the adult brain can continue to form novel neural connections and grow new neurons in response to learning or training even into old age. The discovery that gene expression is not static, but rather is influenced in an ongoing way by interactions with the environment – has led to the interest in the influence of psychosocial treatments on illnesses that are thought to have strongly biological underpinnings (Rossi, 2004).

Box 2. Psychosocial Genomics

and care) process (Lu, 2006). The DSM-IV-TR (APA, 2000) Outline for Cultural Formulation provides a systematic method of considering and incorporating sociocultural issues into the clinical formulation. Depending on the focus and extent of the evaluation, it may not be possible to do a complete cultural formulation during the first interview. However, when cultural issues emerge, they may be explored further during subsequent meetings with the patient. In addition, the information contained within the cultural formulation may be integrated with the other aspects of the clinical formulation. Though there are some criticism of DSM IV and culture (Littlewood, 1992; Rogler, 1993) and cultural formulation (Mezzich et al., 2009; Thakker & Ward, 1998), yet DSM IV-TR outline for cultural formulation is the only relatively standard protocol till available for assessment of culturally diverse individuals (Lim, 2002). Kirmayer and colleagues from the Transcultural Psychiatry Group at McGill University, Montreal, Canada provided a very useful expanded version of DSM IV outline for clinical use (Kirmayer et al., 2008).

5.2 Content of cultural formulation (DSM-IV-TR):

Following is a brief description of the five components of Cultural Formulation framework of DSM IV TR (Focus, 2006):

1. *Cultural identity of the individual*: Usual focus is on ethnicity, age, gender, acculturation/biculturalism, language (mother tongue and present use), socioeconomic status, sexual orientation, religious and spiritual beliefs, disabilities, political orientation, health literacy, migration, involvement with culture of origin and host culture.
2. *Cultural explanation of the individual's illness*: Usual focus is on patient's explanatory models or idioms of distress, perceived cause and cultural meaning of distress/symptoms, past help-seeking and present treatment expectations and preferences.

	Cultural Factors	Salient findings
1.	Ethnic and Cultural Identity	
	Original culture/ host culture Mother tongue/ present language Immigration/Migration history- first /second generation Level of tie with original culture Level of assimilation with host culture	
2.	Cultural background	
	Family role - extended/nuclear family Religious and/ or spiritual beliefs and practices Social support and network Experience of any discrimination and or prejudice due to race, religion, cultural identity, gender, sexuality, or disability? Experience of any trauma , its cultural explanation	
3.	Present problem	
	Symptoms - culture specific meanings Perceived cause Illness meaning and idioms of distress Cultural explanation of cause and cure Past help-seeking (culture-based)	
4	Treatment expectations	
	Perception of any cross-cultural barrier Cultural distance or animosity? Treatment expectations Involvement of family/ community/ traditional healer in the treatment process Therapeutic modality desired: Pharmacotherapy/Psychotherapy/ Traditional/ Religious/Legal/Community	
5.	Cultural Formulation	
	Diagnosis: Medical (discuss and clarify the meanings of diagnostic label) Cultural (discuss with the client/ family)	
	Rate: level of illness severity	
	Rate: level of functioning	
	Rate: level and nature of stressors	
	Rate: level of social support	
	Any cultural issue related to symptoms of therapeutic importance (cause/ culture congruent mood, guilt, delusion or hallucination)	
	Clinician's cultural identity	
	Interpreter used	

Table 2. Short Cultural Formulation Note

3. *Cultural factors related to psychosocial environment and levels of functioning*: involves information on available social supports, levels of function or disability, the roles of family/kin systems and religion and spirituality in providing emotional, instrumental, and informational support.
4. *Cultural elements of the relationship between the individual and the clinician*: This include the ethnocultural identity and social status of physician, language, knowledge about the client's culture, transference and countertransference issues, cross-cultural skill and ability and eagerness of the physician to understand client's problem form his/her cultural context.
5. *Overall cultural assessments*: how the cultural assessment will apply to diagnosis, treatment planning and care.

Cultural formulation should be as exhaustive as possible and the health professional should maintain a detailed note with ample narratives. It needs a special session to work out. Following is a brief interview note (Table 2) which may be helpful in a busy clinic to keep relevant cultural note with the clinical record of the client.

Currently experimentations and clinical trials are ongoing with the Cultural Formulation protocol in different academic institutions including DSM V and ICD 11 working groups and it is hoped that shortly we will get a more comprehensive, easy-to-use clinical protocol that would be useful for assessment and treatment planning. Initiatives from different cultures and countries are necessary to gain more cross-cultural knowledge and to mitigate Eurocentric bias.

6. Conclusion

In recent decades the horizon of psychiatry, rather mental health and wellbeing has broadened to an unprecedented extent because of many challenging and fascinating inputs from medical geography (Holley, 1998; Mayer, 1996) and ecology (Carey, 1970; Gadit, 2009), medical sociology (Rogers & Pilgrim, 2010; Cook & Wright, 1995), medical anthropology (Kleinman, 1988; Fabrega, 1992; Gaines, 1992), psychology and neurosciences. There is a significant change in the medical ethics of therapeutic system and procedures with more focus on human rights, race relation and equality and diversity, and immigration health within a national standards and legal framework. Globalization and technological improvement facilitated population movement and created a multicultural client in every sphere of civil life, be it work place, industry, corporate or health service. So culture is now becoming a primary issue in all communication and policy frameworks. Medical teaching and training primarily focus core medical subjects, inputs from sociology, anthropology or other social sciences are virtually negligible. This is a global scenario. In recent years some universities and national health agencies highlighted the need for cross-cultural training and cultural competence in health care. This is a good sign. Some international health organizations like WHO, World Psychiatric Association, American Psychiatric Association, Royal College of Psychiatrist, European Psychiatric Association, Society for the Study of Psychiatry and Culture and others are also advocating this need very proactively. A dozen of very scholarly journals dedicated to culture and mental health, to name a few, Culture, Medicine and Psychiatry, Transcultural Psychiatry, World Cultural Psychiatry Bulletin, International Journal of Culture and Mental Health, Mental Health, Religion and Culture, Anthropology and Health Journal, Anthropology and Medicine, Ethnicity and Health, Journal of Immigrant and Minority Health, International Journal of Social Psychiatry etc. are

also taking the cultural issues in the forefront of medicine and mental healthcare, and thus enriching our perception, attitude and thrust for cross-cultural knowledge in a very positive way. In recent decades quite a large number of books on culture and health (mental health) has been published and helped us to develop our therapeutic ambience in a more culture-conducive way. Cultural diversity, competency and cultural formulation has become a part of health care delivery system (Anderson et al., 2003) and medical education (Marzan & McEvoy, 2010) and psychiatry training programme (Lu & Primm, 2006) in some of the universities and health care organizations. It is now well evidenced-base that cultural competency in health care in general and mental health care in particular is a ethical, legal and clinical requirement (Johnson & Cert, 2004) which in turn prompted more health service research and culture-ethnicity-health studies in academia (Skultans & Cox, 2000; Lopez & Guarnaccia, 2000). But unfortunately this momentum in culture and mental health initiatives is observed mainly in the developed countries, significant progress in the developing part of the globe is still lacking. I am concluding with a valuable remark by Tseng (2006) regarding the aims, objective and the task of psychiatrists: "Historically, the study of culture-related specific syndromes prompted the development of transcultural psychiatry, and later, cultural psychiatry, as subfields of general psychiatry. However, clinically, instead of being overly concerned with how to consider and label more culture-related specific syndromes and debating how to categorize them diagnostically, we need to move ahead and concentrate on the understanding of the cultural implications of all forms of psychopathology and examine approaches to **culture relevant treatment**, that is, providing **culturally competent care for all patients**. This is a practical need that exists in contemporary societies, which are becoming increasingly multiethnic and polycultural." (emphasis by the present author).

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Epidemiology of Psychological Distress

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1. Introduction

Psychological distress is widely used as an indicator of the mental health of the population in public health, in population surveys and in epidemiological studies and, as an outcome, in clinical trials and intervention studies. Yet the concept of psychological distress is still vague for some. Indeed, a closer look at the scientific literature shows that the expression “psychological distress” is often applied to the undifferentiated combinations of symptoms ranging from depression and general anxiety symptoms to personality traits, functional disabilities and behavioural problems. The aim of this chapter is to provide a critical review of the clinical features, assessment and prevalence of psychological distress and of the empirical evidence on the risk and protective factors associated with psychological distress in the general population and in two specific populations. Workers and immigrants deserve special attention since they are exposed to specific risk and protective factors that may modify the impact of more general factors. This chapter will underline several issues that are central to a better understanding of the epidemiology of psychological distress and that need to be addressed in future research.

2. Clinical features of psychological distress

Psychological distress is largely defined as a state of emotional suffering characterized by symptoms of depression (e.g., lost interest; sadness; hopelessness) and anxiety (e.g., restlessness; feeling tense) (Mirowsky and Ross 2002). These symptoms may be tied in with somatic symptoms (e.g., insomnia; headaches; lack of energy) that are likely to vary across cultures (Kleinman 1991, Kirmayer 1989). Additional criteria have been used in the definition of psychological distress but these criteria do not make consensus. In particular, tenants of the stress-distress model posit that the defining features of psychological distress are the exposure to a stressful event that threatens the physical or mental health, the inability to cope effectively with this stressor and the emotional turmoil that results from this ineffective coping (Horwitz 2007, Ridner 2004). They argue that psychological distress vanishes when the stressor disappears or when an individual comes to cope effectively with

this stressor (Ridner 2004). There is plenty of evidence confirming the effect of stress on distress, however, including stress in the definition of distress fails to recognise the presence of distress in the absence of stress.

The status of psychological distress in the psychiatric nosology is ambiguous and has been debated at length in the scientific literature. On the one hand, psychological distress is viewed as an emotional disturbance that may impact on the social functioning and day-to-day living of individuals (Wheaton 2007). As such, it has been the object of numerous studies seeking to identify the risk and protective factors associated with it. On the other hand, distress is a diagnostic criterion for some psychiatric disorders (e.g., obsessive-compulsive disorders; post-traumatic stress disorder) and, together with impairment in daily living, a marker of the severity of symptoms in other disorders (e.g., major depression; generalized anxiety disorder) (Phillips 2009, Watson 2009). Thus, psychological distress would be a medical concern mostly when it is accompanied by other symptoms that, when added up, satisfy the diagnostic criteria for a psychiatric disorder. Otherwise, in line with the stress-distress model, it is viewed as a transient phenomenon consistent with a “normal” emotional reaction to a stressor. Horwitz (Horwitz 2007) illustrates this point by quoting a series of studies conducted among adolescents and showing the high fluctuation of depressive symptoms over intervals as short as one month. He argues that this fluctuation reflects the relatively brief sorrow that follows from failing a test, losing a sporting match or breaking up with a boyfriend or girlfriend. The transient nature of psychological distress has been disputed by Wheaton and his colleagues (Wheaton 2007) who have investigated the stability of psychological distress among adults based on seven longitudinal studies lasting from 1 to 10 years. They found that psychological distress was moderately stable and argued that this finding runs counter to the assertion that distress is a transient phenomenon. However, they could not account for the role of personality in this relative stability of psychological distress over time. In effect, neuroticism has been shown to be associated with psychological distress and some argue that it may partly account for chronic distress (Jorm and Duncan-Jones 1990).

Psychological distress is usually described as a non-specific mental health problem (Dohrenwend and Dohrenwend 1982). Yet, according to Wheaton (Wheaton 2007), this lack of specificity should be qualified since psychological distress is clearly characterized by depression and anxiety symptoms. In effect, the scales used to assess psychological distress, depression disorders and general anxiety disorder have several items in common. Thus, although psychological distress and these psychiatric disorders are distinct phenomena, they are not entirely independent of each other (Payton 2009). The relationship between distress and depression - and to a lesser extent, anxiety - raises the issue of whether psychological distress lays in the pathway to depression if left untreated (Horwitz 2007). Unfortunately, the course of psychological distress is largely unknown.

Finally, defining psychological distress as a normal emotional reaction to a stressor raises the issue of delineating “normality” in different populations and different situations. Indeed, it is widely agreed that the individual and collective experience of disease is partly bounded by cultural norms and that although negative states of mind such as feeling sad, depressed or anxious tend to be universal, the expression of these states of mind may vary in intensity and in form across and within societies (Kirmayer 1989, Kleinman 1991, Westermeyer and Janca 1997). This transcultural variation is especially noteworthy in somatic symptoms. According to Kirmayer et al. (Kirmayer 1989), “somatic symptoms provide the most common expression of psychological distress worldwide” but the type of somatic symptoms associated with distress may differ across cultures. For example, among Chinese, emotions are related to specific

organs and can cause physical damage to these organs: anger is associated with the liver, worry with the lungs and fear with the kidneys (Leung 1998). Haitians tend to view depression as a consequence of either a medical condition - usually anaemia or malnutrition - or worry. Thus, somatisation is related to mood disorder and it is expressed by feeling empty or heavy-headed, insomnia, fatigue or low energy, and poor appetite (Desrosiers and St Fleurose 2002). Similarly, in Arab culture, depression and somatisation are closely intertwined and depressive symptoms are expressed in physical terms, especially involving the chest and abdomen (Al-Krenawi and Graham 2000). Given the transcultural variation in the expression of distress, the transcultural validity of the scales used to assess psychological distress has been questioned. This point will be illustrated in the next section.

3. Assessment of psychological distress

Psychological distress is assessed with standardized scales that are either self-administered or administered by a research interviewer or a clinician. In principle, the development of a scale must be based on a comprehensive definition of the construct to be measured. As mentioned earlier, a major problem with the construct of psychological distress is its diversified meaning in the scientific literature. Indeed, several scales comprising a wide array of psychological, somatic and behavioral symptoms were developed without clear conceptual basis and are used to assess "psychological distress". In this chapter, the most widely accepted definition of psychological distress (i.e., "a state of emotional suffering characterized by symptoms of depression and anxiety") was adopted. In consequence, scales designed to measure an unspecified construct or a related construct such as depression or anxiety will not be discussed.

The development of a scale is a lengthy process. In short, it consists in four main steps. First, a set of items is selected from existing scales or formulated based on the definition of the construct under study and on the conceptual framework sustaining this construct in the targeted population. For instance, the assessment of the quality of life in adolescents and in seniors would require different conceptual frameworks because the main components of the quality of life in these two age groups differ considerably. Second, from the initial pool of items, a smaller set is identified based on the pattern of endorsement of these items in a representative sample of the targeted population. Third, this smaller set of items is submitted to several statistical analyses (e.g., factorial analysis; sensitivity and specificity analyses; receiver operating curve - ROC - analysis; test-retest analysis) to verify the validity and reliability of the scale. Fourth, a final version of the scale is constructed based on findings from the validation analyses. This process seems linear but, in effect, disappointing results at one step may require going back to preceding steps.

Two important issues must be stressed regarding the assessment of psychological distress. The first issue is the length of the time window used for the detection of distress symptoms. This time window ranges from the past 7 days to the past 30 days depending on the scale. The second issue is the cut-point used to discriminate individuals with a lower vs. higher level of distress. In most studies, psychological distress is analyzed as a continuous variable. However, the individual scores must be dichotomized to estimate the prevalence of distress and dichotomous scores are sometimes used as a solution to the notably asymmetrical distribution of the scores of psychological distress. Clearly, the length of the time window and the selection of the cut-point impact on the estimation of the prevalence of psychological distress and may also affect the identification of the less influential risk and

protective factors. In principle, the length of the time window and the cut-point are set in the course of the development of the scale. Now and then, different time windows and cut-points are applied for a specific scale. In particular, the modification of a cut-point may be legitimate when it is demonstrated that the initial cut-point lacks validity for the population under study.

Several scales satisfy the definition of psychological distress adopted here. A full description of these scales and of their psychometric characteristics is out of the scope of this chapter. Therefore, only the most validated and popular instruments will be discussed to give an overview of the way psychological distress is generally assessed. Three families of scales were chosen for discussion: (a) the General Health Questionnaire; (b) the Kessler scales; and (c) the scales derived from the Hopkins Symptom Checklist. These scales share several items in common.

3.1 The General Health Questionnaire (GHQ)

The GHQ was designed to assess psychological distress in population surveys and epidemiological studies, and to screen for non-psychotic mental disorders in clinical settings (Goldberg and Williams 1991). It initially contained 60 items describing depression, anxiety and somatic symptoms and social impairment. The GHQ now exists in four additional versions that differ by the number of items (12, 20, 28 and 30). The GHQ-28 is frequently used in clinical studies, whereas the GHQ-12 is the most popular version in epidemiological studies and population surveys. The GHQ-12 includes the following items: able to concentrate; lost sleep over worry; playing a useful part in society; capable of making decisions; constantly under strain; couldn't overcome difficulties; enjoy normal activities; face up to problems; unhappy and depressed; losing confidence in yourself; thinking of yourself as worthless; feeling reasonably happy. The inclusion of social impairment symptoms, especially in the longer versions, seems in contradiction with the prevalent definition of psychological distress. However, due to its widespread use and recognition as an indicator of distress, the GHQ is often considered as the Gold standard for the measurement of psychological distress (Furukawa et al. 2003).

The items use a 4-point severity/frequency scale (0-3) to rate the extent to which respondents have experienced each symptom over the past two weeks; the expressions "recently" and "during the last few weeks" are occasionally used instead of the two weeks reference period. The items scores can be added to create a total score of distress. An alternative scoring system uses a dichotomous scale (0-0-1-1) instead of the 4-point scale. The GHQ scales have been validated with clinical (Segopolo et al. 2009) and non-clinical samples (Nerdrum, Rustøen, and Rønnestad 2006). Validated versions of the GHQ exist in more than 40 languages (McDowell 2006) and the cross-cultural validity of these scales was established in some countries (Furukawa and Goldberg 1999, Goldberg, Oldehinkel, and Ormel 1998). The GHQ-12 was shown to be measurement invariant (i.e., to measure the same construct) across gender (Shevlin and Adamson 2005) and between adults and adolescents (French and Tait 2004). However, there is some evidence that, as a screening instrument, the GHQ-12 tends to underestimate the prevalence of affective disorders in women and overestimates it in men (Cleary, Bush, and Kessler 1987). Martin et al. (Martin and Newell 2005) and Shevlin et al. (Shevlin and Adamson 2005) have questioned the unidimensionality of the GHQ following factorial analyses indicating that the GHQ-12 has at least two dimensions. This multidimensionality would cast doubt on the use of the total

score of the GHQ-12 as a unidimensional index of psychological distress. However, a recent study based on confirmatory factor analysis suggests that the GHQ-12 is unidimensional and that the appearance of multidimensionality is due to a methodological artefact, i.e., a substantial degree of response bias for the negatively phrased items (Hankins 2008).

3.2 The Kessler scales

One of the most recent scale of psychological distress is the K10 (Kessler et al. 2002), a 10-item unidimensional scale specifically designed to assess psychological distress in population surveys. The K10 was designed with item response theory models to optimize its precision and sensitivity in the clinical range of distress, and to insure a consistent sensitivity across gender and age groups (Kessler et al. 2002). The scale evaluates how often respondents experienced anxio-depressive symptoms (e.g., nervousness, sadness, restlessness, hopelessness, worthlessness) over the last 30 days. Each item is scaled from 0 (none of the time) to 4 (all of the time) and the total score is used as an index of psychological distress. A 6-item version, called the K6, is also available. Since the K6 perform as well as the K10, Kessler et al. (Kessler et al. 2010) recommends the use of this shorter version.

Several studies showed no substantial bias for the K10 in relation to gender, education (Baillie 2005) or age (OConnor and Parslow 2010). The K6 also achieves an adequate level of measurement invariance across gender and age groups and over a 12-year period (Drapeau et al. 2010). The K6 was validated with teens (Green et al. 2010). The two Kessler scales were shown to outperform the GHQ-12 in detecting depressive and anxiety disorders in terms of overall ROC curve performance (95%CI of AUC being 0.89 to 0.91 for K10, 0.88 to 0.90 for the K6, and 0.78 to 0.82 for the GHQ) (Furukawa et al. 2003). In terms of dimensionality, most studies confirm the single-factor structure of the Kessler scales. Two studies provide some evidence for a two-factor structure for the K6 or a three- to four-factor structure for the K10 (Arnaud et al. 2010, Brooks, Beard, and Steel 2006). However, the very strong correlations between the factors in these studies still suggested considerable commonality between them. The inclusion of the K6 in the World Health Organization World Mental Health Survey Initiative has foster the translation and validation of this scale in 13 countries from the five continents (Furukawa et al. 2008, Kessler and Üstün 2008, Kessler et al. 2010). Additional validation studies have been conducted in Italy (Carra et al. 2011), Netherlands (Donker et al. 2010, Fassaert et al. 2009) and with Native Americans (Mitchell and Beals 2011). No substantial cultural bias has been identified so far.

3.3 The Symptom checklists

The Brief Symptom Inventory (BSI) (Derogatis and Melisaratos 1983, Derogatis 1993), the SCL-25 (Derogatis et al. 1974), the SCL-5 (Tambis and Moum 1993) and the more recent Brief Symptom Inventory-18 (Derogatis 2001) were all derived from the Hopkins Symptoms Checklist-58 items (HSCL-58) (Derogatis et al. 1974). The HSCL-58 contains a large array of symptoms but the BSI, the SCL-25 and the SCL-5 focus on anxio-depressive symptoms and somatic symptoms. The BSI contains 18 items that are rated on a 5-point scale (0 to 4). The scale focuses on the symptoms experienced during the last 7 days. The theoretical 3-factor structure of the BSI-18 is occasionally supported, but 1-factor and 4-factor structures have also been identified (Andreu et al. 2008, Prelow et al. 2005). The lack of stability of the factorial structure is problematic since it suggests problems of measurement invariance.

Effectively, studies of the BSI-18 conducted in the USA suggest that its factorial structure is different for Hispanic women vs. Afro-American or Caucasian women (Wiesner et al. 2010, Prelow et al. 2005). More specifically, the BSI-18 seems to have a 3-factor structure for Afro-American and Caucasian women and a 1-factor structure for Hispanic women. The official version of the BSI-18 exists only in English and few translations have been validated up to now.

The SCL-25 focuses on the symptoms experienced during the last 14 days and it is often used in studies conducted among immigrants (Hoffmann et al. 2006, Mollica et al. 1987, Rousseau and Drapeau 2004, Thapa and Hauff 2005). Many translations have been made and some have been validated (Strand et al.). The SCL-5 includes two anxiety items and three depression items. The correlation with the SCL-25 is quite high ($r=0.92$) and the performance of the SCL-5 to identify cases of serious mental disorder (in terms of sensitivity, specificity, predictive values and ROC curves) is almost as good as the that of the SCL-25 (Strand et al. 2003, Tambs and Moum 1993).

4. Prevalence of psychological distress

The prevalence of psychological distress is difficult to pinpoint due to the variety of the scales assessing distress, of the time windows used in the documentation of symptoms and of the cut-points applied to dichotomize the score of distress and identify individuals with pathological distress. It roughly ranges between 5% and 27% in the general population (Benzeval and Judge 2001, Chittleborough et al. 2011, Gispert et al. 2003, Kuriyama et al. 2009, Phongsavan et al. 2006) but it can reach higher levels in some segments of the population exposed to specific risk factors such as workers facing stressful work conditions and immigrants who must adapt to the host country while holding family responsibilities in the homeland. The International Labour Office stated that psychological distress affected between 15 and 20% of workers in Europe and North America (International Labour Office 2000) and one out of five workers may experience repeated episodes of psychological distress (Marchand, Demers, and Durand 2005a). The rate of the prevalence of psychological distress observed among immigrants ranges from 13% to 39% (Leveque, Lodewyckx, and Bracke 2009, Ritsner, Ponizovsky, and Ginath 1999, Sundquist et al. 2000).

Two characteristics of the prevalence of psychological distress are noteworthy: the widespread gender difference and the variation over the lifespan. The prevalence of psychological distress is higher in women than in men in most countries (Caron and Liu 2011, Jorm et al. 2005, Phongsavan et al. 2006) and in all age groups (Cairney and Krause 2005, Darcy and Siddique 1984, Myklestad, Roysamb, and Tambs 2011, Paul, Ayis, and Ebrahim 2006, Storksen et al. 2006, Walters, McDonough, and Strohschein 2002). Yet this gender difference is not universal. For instance, no gender difference was observed in Mexican Americans (Aranda et al. 2001), in African, Asian, Central American and South American immigrants in Norway (Thapa and Hauff 2005), in rural Australians (Kilkinen et al. 2007) and in older Chinese (Chou 2007). The widespread gender difference points to three alternative hypotheses. The first hypothesis is that psychological distress may be partly attributable to gender-related personality traits or biological components, such as those found in depression and anxiety disorders (Parker and Hadzi-Pavlovic 2004). The second hypothesis is that, in most societies, women are more exposed or more vulnerable to the socio-cultural risk factors associated with psychological distress (Cleary and Mechanic 1983, Gove, Hughes, and Style 1983). Attempts to verify this hypothesis have produced mixed

findings. Women seem more responsive to stress emanating from their social network (Kessler and McLeod 1984) or their parental role (Umberson et al. 1996) and they tend to be more exposed to marital stress (Aranda et al. 2001, McDonough and Walters 2001), domestic stress (Evans and Steptoe 2002) and parental stress (McDonough and Walters 2001, Umberson et al. 1996). However, women and men tend to experience an equal level of distress when faced with the similar stress (Ensminger and Celentano 1990, Walters, McDonough, and Strohschein 2002). Ensminger et al. (Ensminger and Celentano 1990) found intriguing pattern of gender differences in distress regarding parental status. This gender difference was observed in single parents but not in individuals heading two-parent households. Ensminger et al. (Ensminger and Celentano 1990) conclude that gender difference in psychological distress is most likely related to role configuration rather than to intrinsic gender differences. Finally, the third hypothesis is that, in most cultures, the expression of emotions differs across gender. Some items of the scales used to assess psychological are indeed more frequently endorsed by women than by men but this difference in items functioning does not appear to account completely for the gender difference in psychological distress (Drapeau et al. 2010, Leach, Christensen, and Mackinnon 2008).

In general, the prevalence of psychological distress tends to decrease over the lifespan starting from late adolescence (Caron and Liu 2011, Gispert et al. 2003, Phongsavan et al. 2006, Walters, McDonough, and Strohschein 2002). The decreasing trend is more or less apparent depending on the age range covered by the studies and it is usually attributed to differential exposure to risk factors and to survival bias. There is some indication that the prevalence of psychological distress might follow a U-shaped distribution although the location of the peaks of this distribution is unclear. Schieman (Schieman, Van Gundy, and Taylor 2001) found that the prevalence of psychological distress peaks at 18-29 years old and 80-89 years old whereas Pevalin (Pevalin 2000) noted a curve rising up to middle age, declining to about 60 and rising again in both gender. Focusing on seniors, Paul et al. (Paul, Ayis, and Ebrahim 2006) and Cairney and Krause (Cairney and Krause 2005) noted an increase of the prevalence of psychological distress after 65 years old. Jorm (Jorm 2000) reviewed eight studies dealing with the distribution of distress over the lifespan and concluded that the evidence was inconsistent. He attributes this inconsistency to possible age biases in the measurement of distress, to the effect of neuroticism which tends to decrease with age, and to confounding by cohort effect.

5. Epidemiology of psychological distress

Empirical evidence on the epidemiology of psychological distress mostly rests on cross-sectional data collected in large scale population surveys and in studies focusing on specific segments of the population defined by age, gender, ethnicity or social roles. Longitudinal data are scarce. In principle, longitudinal data are especially useful to clarify the time sequence between psychological distress and putative risk and protective factors, and the combined evolution of these factors and distress over time. However, their usefulness decreases as the time interval between waves of data collection increases.

The objectives of a number of studies published in the scientific literature are essentially descriptive. These studies provide data on the distribution of psychological distress across socio-demographic categories of people and allow for the identification of groups at higher risk of distress. Other studies aims to verify hypotheses derived from theoretical frameworks. These studies serve to better understand the mechanisms underlying the

relationships between psychological distress and various factors. These theoretical frameworks typically stem from the stress-distress model and the role-identity model, which are complementary to a large extent. Stressors that occur outside of the context of specific roles (e.g., chronic health problems) are felt to impact on the psychological well-being only if they disrupt social roles. These point-of-views do not take into account the enduring stress related to disadvantaged life conditions such as poverty.

Pearlin (Pearlin 1989) posits that the stress process is embedded in three levels of social structure: social stratification (i.e., gender, age, socio-economic class, ethnicity), social institutions providing roles and statuses, and interpersonal relationships. Social structures determine the expression of distress, the exposure to specific stressors and the strategies used to cope with this stress. According to Pearlin, social roles entail five categories of strains: role overload (i.e., ineffective coping capacity vis-à-vis the demands inherent to a role); interpersonal conflicts within role sets (e.g., husband-wife); inter-role conflict (e.g., wife-mother-worker); role captivity (i.e., filling an unwanted role); and role restructuring within a role set (Pearlin 1989). According to Thoits, the saliency of specific social roles is central to the relationship between stress and distress in that stressful events or situations that threatens the role-identities most valued by an individual are more likely to impair his or her mental health (Thoits 1991). In her view, individuals who hold social roles and who perform adequately in those roles develop role-identities that contribute to their self-esteem by reinforcing their sense of who they are and of what is expected of them and by enhancing their sense of meaning and purpose in life. Thus the lack of social roles is a risk factor for psychological distress because it deprives individuals of a social identity. The role-identities theory has two main corollaries. First, the cultural value of specific social roles may vary across and within societies. Thoits (Thoits 1991) argues that, for instance in Western societies, the role of mother tends to be more salient than the role of father. Second, the accumulation of social roles should be protective since if one role fails to foster the self-esteem and the sense of meaning and purpose in individuals, the others can take over. Two hypotheses have been raised to explain why exposure to stress and coping strategies are likely to vary across the lifespan (Folkman et al. 1987). The developmental hypothesis contends that there are inherent changes in the ways people cope as they aged. The contextual hypothesis stipulates that age differences in coping are the result of changes in what people must cope with as they age.

A large number of risk and protective factors have been investigated in relation to psychological distress but the empirical evidence regarding the epidemiology of psychological distress ranges from convincing, to conflicting and questionable. The discrepancies between findings from different studies can sometimes be attributed to variation in the design of the studies (e.g., sample size; selection criteria; mode of data collection; assessment of psychological distress; type and measurements of other variables; statistical analysis). However, they may also reflect true epidemiological differences between groups or countries. Indeed, most studies have been carried out in Western countries and findings from these studies may not be readily generalized to countries with a different socio-cultural ideology or lower standards of living. The discrepancies between studies may also be attributable to selection and information biases. Selection biases may occur when non participation in a study and attrition are not random with regard to a factor related to the rationale underlying the study, for instance when highly distressed individuals are more likely to refuse to take part in a study or to drop out of a longitudinal

study. Information biases may arise when some categories of respondents fail to report their distress symptoms, maybe to comply with what they feel is socially desirable, and when the scale used to assess psychological distress lacks validity for the groups under study.

In this section, data on the epidemiology of psychological distress is presented in three parts. The first part reviews the empirical evidence pertaining to the general population, stressing - whenever possible - gender and age differences. The effect of some factors (e.g., poverty; social isolation; childhood trauma) is so powerful that it is felt over the lifespan. Other factors tend to have a more short-term effect or their effect varies considerably across life-stages. The second and third parts summarize findings pertaining respectively to workers and to immigrants.

5.1 In the general population

To summarize the empirical evidence on the epidemiology of psychological distress in the general population, risk and protective factor are split in three categories: (1) socio-demographic factors; (2) stress-related factors; and (4) personal resources. The *socio-demographic* factors regroups the characteristics of individuals that are inborn (e.g., gender; age; ethnicity) or that reflect the role of individuals in the social structure. These factors are the most common indicators of the populations at risk of psychological distress that could be targeted for prevention or intervention programs. The *stress* category covers the events and life conditions that exert a stress on the psychological well-being of individuals. The *social resources* category encompasses the resources that are available to individuals to prevent the occurrence of psychological distress. These three types of factors may be complementary. For instance, poverty is viewed as a stressful life condition whereas income is viewed as a personal resource.

Some factors are not considered in this summary of the epidemiology of distress either because the evidence is lacking or because they are usually interpreted in terms of social and economic factors that can be assessed more directly. Health behaviour such as smoking and alcohol intake are associated with increased odds and mean level of distress (Chittleborough et al. 2011, Kuriyama et al. 2009, , Myklestad, 2011 #718; Phongsavan et al. 2006) but the interpretation of this association is awkward. Smoking and alcohol may be a form of self-medication to dilute the burden of distress but they may also generate some distress. Few studies have explored the role of residential environment, which is usually described by opposing urban and rural areas. Findings are inconclusive and the rural-urban distinction is generally used as a proxy for economic disadvantage and for barriers to access to resources (Caron and Liu 2011, Myer et al. 2008).

5.1.1 Socio-demographic factors

A part from gender and age, which were discuss in the section on prevalence, ethnicity and social roles, especially the roles of worker and spouse are the main socio-demographic factors associated with variations in psychological distress. Ethnicity is viewed as a proxy for the cultural background of individuals. As a cultural marker, it is meant to account - albeit imperfectly - for the cultural norms, values and beliefs that influence the behaviour and attitude of people belonging to a specific ethnic group or country. Ethnicity may also signal membership in a minority that is stigmatized. The impacts of this ethnic stigmatisation include a loss of self-esteem and a lower access to the social resources that contribute to the health and psychological well-being of individuals, such as adequate

housing, income and employment. Discrimination has been shown to be a risk factor for psychological distress in several studies (Gonzalez-Castro and Ubillos 2011, Yip, Gee, and Takeuchi 2008). Findings from the study carried by Thapa and Hauff (Thapa and Hauff 2005) suggest that women and men may react differently to specific manifestations of discrimination: the mean level of distress was higher in men who were denied a job whereas it was higher in women who were denied housing. Thus it is not ethnicity per se that constitutes a risk factor but instead the socio-economic implications of membership in an ethnic minority.

The empirical evidence regarding ethnicity is conflicting. These conflicting findings may result from the way ethnicity and psychological distress are measured and analysed. For instance, two studies carried out in Australia have produced opposite results although both studies used the K10 to assess psychological distress among adults and applied a similar cut-point (i.e., ≥ 22). However, the measurement of ethnicity was different. Chittleborough et al. (Chittleborough et al. 2011) found that the odds of distress was higher in immigrants than in born Australians with the exception of immigrants from the United Kingdom (UK) whereas Phongsavan et al. (Phongsavan et al. 2006) found no significant difference between English speakers and non English speakers. Odds ratios were not altered by the addition of other variables in the studies. In all likelihood, English speakers would roughly equate with born Australians and immigrants from the UK whereas non English speakers would coincide with other immigrants. The measurement of membership into an ethnic minority through country of birth, self-reported ethnicity and language spoken at home may fail to capture the rationale underlying the concept of ethnic minority. Alternatively, members of some ethnic minorities may be more resilient than what is usually assumed. The transcultural validity of standardized scales has been questioned repeatedly but, as discussed previously, the most popular scales used to assess psychological distress (e.g., GHQ and K6 or K10) have shown their construct validity across various ethnic groups.

Bratter and Eschbach (Bratter and Eschbach 2005) have used data from the National Health Interview Survey conducted in the United States of America (USA) to investigate the association between ethnicity and psychological distress. The large sample size ($n = 162\,032$) recruited over the five cross-sectional annual waves (from 1997 to 2001) of the survey allowed them to stratify respondents in 10 self-reported "race/ethnic" groups. Only two ethnic minorities (Native Americans and Puerto Ricans) reported a higher mean level of psychological distress than "Whites". In the other minorities, the mean level was either lower than (Asian and Mexican) or similar to (African Americans, Cubans and other Hispanics) that of the mainstream population. The lack of statistically significant difference between Black and White Americans has been confirmed in other studies (Nemeroff, Midlarsky, and Meyer 2010). According to Bratter and Eschbach (Bratter and Eschbach 2005), these findings question the conceptual distinction between ethnic minorities and majorities in mental health studies and the assumption that membership in an ethnic minority is a risk marker for mental illness. They argue that although disadvantaged ethnic groups may be more exposed to the risk factors associated with psychological distress, they are not necessarily more vulnerable. In effect, individuals may belong to the ethnic majority and still be stigmatised because of their ethnic background (e.g., Black majority in South Africa; Myer et al. 2008).

Overall, the role of worker (Gispert et al. 2003, Phongsavan et al. 2006, Schieman, Van Gundy, and Taylor 2001, Walters, McDonough, and Strohschein 2002) act as a protective factor against psychological distress. According to Warr and Jackson (Warr and Jackson

1987), the role of worker fosters the psychological well-being not only because it is a valued social role but also because working provides financial resources and opportunities for control, skill use, socialisation and externally generated goals. Unemployed are viewed as a group at risk of psychological distress because they do not have access to these benefits although some work-related advantages (e.g., skill utilisation; socialisation) may be obtained outside the work environment. McKee-Ryan et al. (McKee-Ryan et al. 2005) carried out a meta-analysis to test the hypothesized influence of unemployment on psychological well-being. Psychological distress was one of the measures of mental illness used in the 52 selected studies. This meta-analysis confirmed that, in general, unemployment is a risk factor for mental illness though the detrimental effect of unemployment varies across categories of unemployed. Indeed, the motive for unemployment must be taken into account. Jorm et al., (Jorm et al. 2005) and Lincoln et al. (Lincoln et al. 2011) have found no overall significant difference in distress between unemployed and employed but a higher mean level of distress in individuals out of the labour market compared to employed individuals. Findings from the study conducted by Marchand et al. (Marchand, Drapeau, and Beaulieu-Prévost 2011) show that individuals unemployed because of family responsibilities report a mean level of distress similar to workers and lower than those without a job due to permanent or temporary disabilities and job seekers. In general, living with a spouse is also associated with a lower level of psychological distress (Caron and Liu 2011, Jorm et al. 2005) except perhaps in seniors (Cairney and Krause 2005, Paul, Ayis, and Ebrahim 2006, Prévaille et al. 2002). However, although individuals who are divorced, separated or widowed tend to report a higher mean level of distress than those who are married, the mean level of distress is similar in never married and married (Walters, McDonough, and Strohschein 2002). At first glance, the lack of difference in married vs. singles may seem in contradiction with the finding that people living alone tend to report a higher mean level of psychological distress than those living with others (Paul, Ayis, and Ebrahim 2006, Phongsavan et al. 2006); but singles may live with friends and family. Finally, the influence of the role of parent on psychological distress is more controversial partly because the assessment of the parental role is intricate. For example, the number of children seems to act as a protective factor for the mental health of men but not of women (Jorm et al. 2005) whereas the age of the youngest child does not appear to affect psychological distress (Walters, McDonough, and Strohschein 2002).

5.1.2 Stress- related factors

In general, the empirical evidence supports the hypotheses derived from the stress-distress model: exposure to stressful events or life conditions tends to vary across social groups and the impact of the exposure to specific stressors on mental health is more or less severe depending on the resources available to cope with this stress among people belonging to these groups. Some studies focus on specific stresses consistent with the role-identify theory (e.g., life transition such as job loss, marital breakdown; family and work-related conflict) whereas others cover a wide range of stressors. In addition, most studies have targeted a specific age group such as adolescent, young adults, working age adults and seniors since, in agreement with the stress-distress model, exposure to different types of stress is likely to vary across the lifespan.

Murphy and Athanasou (Murphy and Athanasou 1999) conducted a meta-analysis on the effect of gaining or losing employment on mental health. Sixteen studies were identified and

the outcome measure of 11 of these studies was psychological distress. In all but two studies, job loss was associated with an increase in psychological distress. A number of alternative explanations may account for the increase in distress following job loss. The hypothesis that more distressed individuals were more likely to lose their job, was discarded by studies that control for the level of distress before the loss of employment. The hypothesis that those with a stressing or unsatisfying job would be less likely to experience an increase in distress following the loss of their job could not be verified in the studies selected by Murphy and Athanasou (Murphy and Athanasou 1999). The socio-economic context at the time of the job loss, the cultural meaning of the role of worker and the financial compensation following job loss were not investigated.

Jorm and his colleagues found several age and gender differences in the factors associated with psychological distress among Australian workers (Jorm et al. 2005). For instance exposure to stress tended to vary across the three age groups under study (20-24; 40-44; 60-64). More precisely, the probability of a recent end of a relationship, a recent problem with someone, and a recent job threat declined with increasing age. Childhood adversity, personal or family injury or illness, problem with someone, problem at work and conflicting relationship with friends or family were risk factors for psychological distress for both women and men. However, gender differences occurred in three types of stress: job insecurity was a risk factor for men but not for women whereas death in the family and end of a relationship were risk factors for women but not for men. These findings support the assumption that the role of worker is still more prominent for men than for women whereas family-related roles are more crucial for women than for men.

For seniors, chronic stress, recent life events and childhood trauma emerge as major risk factors for psychological distress (Cairney and Krause 2005). For adolescents, stress related to academic performance increases the odds of psychological distress (Darcy and Siddique 1984, Myklestad, Roysamb, and Tambs 2011, Ystgaard, Tambs, and Dalgard 1999) but there is some evidence that this type of stress may be more detrimental for girls than for boys. Thus the impression of failing in the role of students affects the psychological well-being of adolescents. Being bullied at school (Myklestad, Roysamb, and Tambs 2011) and family conflict (Wilkinson-Lee et al. 2011, Ystgaard, Tambs, and Dalgard 1999) increase the mean level of distress in both girls and boys although when detailed stressful situations are taken into account family conflicts seem to affect girls more than boys (Ystgaard, Tambs, and Dalgard 1999). Parental divorce seems to have a stronger effect in adolescent girls; time lapse since divorce does not appear to modify the association with distress (Størksen et al. 2006). Størksen et al. attributed the effect of divorce on distress to the enduring family conflicts following a divorce since divorce per se is quite common in Norway. In their opinion, parental divorce must be seen as a stressful situation instead of as a stressful event. Rickwood and d'Espaignet (Rickwood and d'Espaignet 1996) investigated the evolution of the prevalence of psychological distress from the age of 16 to 25 and found that for both women and men it reaches a peak at the final year at school and drops afterwards. Graduation from high school marks the end of adolescence and the beginning of adulthood for most youths living in industrialized countries (Gaudet 2007). From a psychosocial point of view, the transition from adolescence to early adulthood stands as a major life transition since, over a short period of time, high school graduates experience abrupt changes in their lifestyle and social identity and face new sources of stress, social network and social support that may foster or strain their psychological well-being (Creed, Muller, and Patton 2003, Needham 2007, Schulenberg, Sameroff, and Cicchetti 2004).

Poverty is associated with poor mental and physical health because it prevents people from purchasing adequate food, clothing and services, it affects self-esteem and the sense of control over one's life, it can be a cause of social exclusion and it can increase the likelihood of stressful events. Kessler (Kessler, Price, and Wortman 1985) defines two mechanisms explaining the relationship between socio-economic status and distress. Social selection posits that emotionally vulnerable individuals tend to drift to the lower socioeconomic strata of the society (i.e., distress causes SES drift) whereas social causation implies that economical hardship leads to distress by influencing the stresses to which one is exposed or the resources available to cope with stressful experiences (i.e., SES causes distress). He argues that: lower-class people might be highly exposed to the types of stressful experiences which can cause distress; and that they might be more likely to become distressed when exposed to these stresses. Lower income and socio-economic status have repeatedly been shown to be a risk factor for distress (Caron and Liu 2011, Myer et al. 2008, Phongsavan et al. 2006). Individuals with a low income tend to have a lower education, to be more frequently unemployed and to belong to ethnic minorities but the risk factors associated with psychological distress tend to be the same for low and higher income groups (Caron and Liu 2011). Thus people with a low income would not be more vulnerable to general risk factors but they would be more exposed to them. Benzeval and Judge (Benzeval and Judge 2001) have investigated the relationship between poverty and health over time in adults based on the British Household Panel Survey, a longitudinal population survey conducted every year between 1991 and 1997. They found that the odds of distress was higher in individuals whose current income was in the bottom 40% of the population income distribution whereas the five-year average income and the number of years below the average income or in the bottom fifth of the population distribution were not a risk factor for psychological distress. Thus there seems to be some sort of a ceiling effect to the detrimental effect of poverty. For adolescents, perceived poverty (Hamilton, Noh, and Adlaf 2009) may be more distressing than true financial difficulties as reported by parents (Myklestad, Roysamb, and Tambs 2011) although the latter may take more importance as adolescents move towards adulthood (Myklestad, Roysamb, and Tambs 2011). Sakurai et al. (Sakurai et al. 2010) have investigated three components of socio-economic status (SES) (i.e., subjective social status; education; income) in Japanese aged 20 to 74 years old. They found that low income increased the odds for distress for both women and men, that education did not affect the odds of distress for either gender and that women who felt that their social status was low were at higher risk of distress than those who felt that it was higher. In their opinion, the weaker (and not statistically significant) association of distress with education and income may reflect the fact that these indicators of socio-economic status are not as relevant to Japanese. Sakurai et al. (Sakurai et al. 2010) contend that the relationship between low income and distress in men but not in women reflects the Confucian gender role ideology where men are the sole bread-earners for their families. Perceived failure in this role may decrease men's self-esteem, causing greater distress.

In adults, chronic health problems and limitations in daily activities whether in self or in a close family member play an important role in the epidemiology of psychological distress (Gispert et al. 2003, Mandemakers and Monden 2010, Zabora et al. 2001). This association could be attributed to the diminished quality of life, the disruption of social roles, and the side effects of medication (Chittleborough et al. 2011). The detrimental impact of some chronic health problems may vary across the life span (Myklestad, Roysamb, and Tambs 2011), across gender (Gispert et al. 2003) and ethnic groups (Bratter and Eschbach 2005).

5.1.3 Personal resources

Personal resources may be split in two categories: inner resources and external resources. Inner resources encompass those resources that have a strong component of personality such as self-esteem and sense of control over one's life. These resources are relatively stable over the life span although they may be shattered temporarily or permanently in case of a traumatic event. High levels of self-esteem and sense of control over one's life are associated with lower mean level of psychological distress in adults (Gadalla 2009, Jorm et al. 2005, Walters, McDonough, and Strohschein 2002) and seniors (Cairney and Krause 2005). The sense of control over one's life tends buffer the effect of poor health and daily stress on distress but not the effect of poverty (Gadalla 2009). External resources include social network, social support, income and education.

In general, social support appears to be more essential to the psychological well-being of individuals than social network (Cairney and Krause 2005, Caron and Liu 2011, Gadalla 2009, Prévile et al. 2002). In addition, there is some evidence that the type and source of support may act differently in women and men and across the lifespan. The study conducted by Kuriyama et al. (Kuriyama et al. 2009) in Japanese aged 40 and over illustrates the complexity of the relationship between the type of support and psychological distress. In this study, the odds of psychological distress were higher in women and men who lacked someone to provide advice when in trouble, and in women who had no one to consult about their health, to drive them to hospital and to take care of them. For adolescents, support from a group of friends is generally associated with a lower level of distress (Myklestad, Roysamb, and Tambs 2011, Ystgaard, Tambs, and Dalgard 1999). However, when friends at school and outside of school are distinguished, support from friends at school act as a protective factor for boys but not for girls and support from friends outside of school has no influence on psychological distress (Myklestad, Roysamb, and Tambs 2011). Operario et al. (Operario et al. 2006), found that high distress was associated with girls who reported low parental warmth and who turned to their peers for support during family conflict; boys were not affected by parental warmth or peers support. The type of social support and social network that are associated with distress in the adult population do not seem to have the same protective effect in seniors (Paul, Ayis, and Ebrahim 2006). Number of contact have no effect on psychological distress among seniors (Cairney and Krause 2005) whereas perceived social support, are associated with a decrease distress.

The protective effect of higher income and education against psychological distress has been confirmed in most studies for women and for men, for all age groups and across countries (Caron and Liu 2011, Chittleborough et al. 2011, Huang et al. 2009, Jorm et al. 2005, Nemeroff, Midlarsky, and Meyer 2010, Walters, McDonough, and Strohschein 2002). There is some evidence that education might interact in the relationships between psychological distress and income or disability. For example, the effect of education may be more protective for individuals with an average or higher income (Caron and Liu 2011). Education is assumed to buffer the effect of disability because more educated people may be better equipped (have better cognitive skills) to deal with the consequences of disability, such as disruption of social roles, increased difficulties in daily living, loss of income. However, although Mandemakers and Monden have shown that disability impacts more on the psychological distress of young adults with a low education than of better educated ones whatever the level of disability, they found that the better economic resources and cognitive abilities did not account for the interaction effect of education (Mandemakers and Monden 2010).

5.2 In workers

There is growing and convincing evidence that occupations and work organisation conditions affect the psychological well-being of workers. The investigation of work-related psychological distress rests on three main theoretical models. The Job Demand-Control Model (Karasek 1979) posits that work demands (i.e., workload; time constraints, pace of work; conflicting, emotional and physical demands) exert considerable stress on workers and that the level of decision latitude at work (i.e., high levels of skill utilization and decision authority) moderates the effect of this stress on the mental health of workers. The Demand-Control-Support Model (Karasek and Theorell 1990) expands on the Job Demand-Control Model by emphasizing the impact of social support in the workplace on the interaction between decision latitude and work demands. The Effort-Reward Imbalance Model (Siegrist 1996) underscores the importance of an equilibrium between demands and rewards (i.e., wage; social recognition; security; motivation; career perspective) in the experience of work-related stress and the onset and development of psychological distress. According to this model, an imbalance between demands and rewards is especially detrimental to the mental health of workers overcommitted to their job. Most empirical studies support the hypothesized influence of high work demands, low decision latitude, poor social support at work, and minimal rewards on the psychological distress observed in workers (Marchand, Demers, and Durand 2005b). However, the interaction between these factors have not been corroborated (Bonde 2008, Marchand and Durand 2011). The Job Demand-Control Model, Demand-Control-Support Model and Effort-Reward Imbalance Model have mostly been investigated in relationship with the type of occupations and work organisation condition.

5.2.1 Occupations

A number of longitudinal and cross-sectional studies worldwide have identified variations in psychological distress across occupations. Findings from these studies are difficult to compare because of differences in the classification of occupations. Data from a French study, the GAZEL cohort, showed that the mean level of psychological distress tends to be higher in semi-professionals (e.g., administrator; associate engineers), supervisors, office workers, blue-collar workers and craftsmen (Niedhammer et al. 1998). In the Netherlands, data from the Maastricht cohort study revealed that "occupation" explained 2.7% of the variance in psychological distress among workers (Bultmann et al. 2001). In this study, the prevalence of distress was higher for 10 out of the 131 occupations and the occupations at higher risk were mainly blue and white collar workers. Similarly, in Canadian studies conducted by Marchand and his colleagues, "occupation" accounted for 1% to 3% of the variance in psychological distress (Marchand, Demers, and Durand 2005b, 2005a, 2006). The Whitehall Study, which followed a large sample of London civil servants found that employees in higher grades or management positions were at lower risk of psychological distress than those lower in the hierarchy (Stansfeld et al. 2003). Similar results were obtained for the GAZEL cohort (Paterniti et al. 2002).

5.2.2 Work organisation conditions

Work organisation conditions seem more important than occupations per se to explain variations in psychological distress. Work organisation conditions can be defined around four organisational dimensions related to task design, demands, social relations and gratifications (Marchand, Demers, and Durand 2005a).

The nature and content of tasks vary across occupations and across organizations. Task can be more or less repetitive and make more or less use of an individual's skills and qualifications. The work organisation can also allow more or less control (i.e., autonomy, decision authority) to individuals in the performance of work-related tasks. Monotonous and repetitive jobs are associated with a higher risk of psychological distress (Johansson 1989, Shiron, Westman, and Melamed 1999) whereas skills utilization and control over the task completion are associated with lower risk of distress (Albertsen, Nielsen, and Borg 2001, Bourbonnais et al. 2005, Karasek and Theorell 1990). Altogether, the larger one's decision latitude is (i.e., high skill use and high decision authority), the lower the risk of distress in workers. However, findings from some studies suggest that too much skills utilization and decision authority can lead to more psychological distress (Marchand, Demers, and Durand 2005b, 2006). Organisational demands and personal involvement in the job yield to psychological and cognitive loads that can affect one's mental health. The stress generated by these demands is not necessarily negative since it may, within a certain limit, increase one's mastering and social identification at work. Nevertheless, beyond this limit, physical, psychological and contractual demands can foster psychological distress.

Physical demands take the form of several occupational health and safety risks manifest in the work environment (e.g., high levels of noise, dust, heat, cold, toxic vapours, neurotoxic substances) and the workplace can give rise to some risks of injuries and death. In addition, workers can be confronted to a high level of physical efforts (e.g., transporting heavy loads, uncomfortable work postures). Overall, physical demands are a risk factor for psychological distress (de Jonge, Mulder, and Nijhuis 1999, Marchand, Demers, and Durand 2005b). Similarly, psychological demands can generate elevated stress and increase the odds of psychological distress (Albertsen, Nielsen, and Borg 2001, Bourbonnais et al. 2005, Marchand, Demers, and Durand 2005b, Paterniti et al. 2002). Psychological demands are typified by task rhythm, workload, time constraints, and conflicting and emotional demands (e.g., client aggression, exposure to the suffering of others). Contractual demands are defined by unusual work schedules and number of working hours. Workers dealing with work schedules that are alternating, irregular or on night shift, experience a difficult situation. Shift work, being on call, and unpredictable work schedules require workers to adapt to variations in the circadian rhythm, which can promote sleep problems and diverse nervous reactions that can increase the feeling of distress. These types of work schedules can also lead to negative effects on family life and social isolation, which will further endanger the mental health of workers. All in all, work schedule and work hours increase the risk of psychological distress (Hayasaka et al. 2007, Hilton et al. 2008, Marchand, Demers, and Durand 2005b, Matthews, Power, and Stansfeld 2001, Sekine et al. 2006, Spurgeon, Harrington, and Cooper 1997).

Conflicting relationships at work, either with co-workers or supervisors, can create a stressful experience that may impact on the mental health of workers. In this vein, the social support received at work has been the subject of considerable attention and refers to social interactions providing instrumental and emotional support from colleagues and superiors. The social support at work fulfils the need of individuals to be acknowledged and endorsed in the execution of their task; it is a source of pleasure and compensation for the efforts invested at work. Studies using global scales of social support at work generally report lower levels of psychological distress when the social support is higher (Albertsen, Nielsen, and Borg 2001, Bourbonnais et al. 1998, Marchand, Demers, and Durand 2005a, 2006, McDonough 2000, Pomaki, Maes, and Ter Doest 2004). Social relations also encompass the

style of supervision. Some research suggests that the clarity and the consistency of instructions given by the supervisor is an important element in the reduction of psychological distress of white collars workers (Stansfeld et al. 1999). Abusive supervision (i.e., authoritarian and aggressive styles) brings about an elevated level of psychological distress in exposed workers (Tepper 2000). Finally problems with violence or harassment at work on the part of colleagues or supervisors are worthy of investigation, since several studies highlight the major impact of these problems on psychological distress (Marchand, Demers, and Durand 2005b, McDermut, Haaga, and Kirk 2000, Mueller, De Coster, and Estes 2001, Piotrkowski 1998, Richman et al. 1999).

Finally, gratifications available in the workplace bring to the individuals an important source of recognition, motivation, valorisation, and of identification to their work. Thus a low level of gratifications can engender dissatisfaction and stress, which might affect mental health. These gratifications involve not only remuneration, but also career perspectives, job security and self-esteem at work. Some studies report a lower level of psychological distress in workers satisfied with the rewards obtained within their workplace (de Jonge et al. 2000, Demerouti et al. 2000, Tepper 2000). Conversely, several studies support the hypothesis that job insecurity and possibly the mode and the level of remuneration could in themselves be conducive to psychological distress (Bourbonnais et al. 1998, Ibrahim, Smith, and Muntaner 2009, Ikeda et al. 2009, Marchand, Demers, and Durand 2005a, 2006, McDonough 2000, Rugulies et al. 2006).

5.3 In immigrants

Resettling in an alien society entails a number of stressful experiences such as gaining employment, maintaining family cohesion within and across countries, recreating a social network and, sometimes, learning a new language. The level of stress generated by these experiences varies across categories of immigrants and is exacerbated by the cultural distance between the homeland and the host country and the lack of transferable skills (e.g., language, education, work experience). Immigrants may also have a hard time resettling if the host society is unable, because of a difficult socio-economic situation, or reluctant, because of inter-ethnic prejudices, to welcome strangers. Compared to other categories of immigrants, refugees may be disadvantaged because their exposure to political violence in their homeland or in refugees' camps may have weakened their physical and mental health. According to Silove (Silove 1999), exposure to political violence may harm a number of adaptive resources such as the feeling of safety, the capacity to form and nurture interpersonal bonds, the sense of identity and role functioning, the faith in justice, and the belief that life is meaningful and coherent. At first glance, immigrants and refugees would appear at higher risk of psychological distress than natives. However, this risk may be offset by the healthy migrant effect (Stafford, Newbold, and Ross 2011). In effect, immigrants form a selective group of individuals characterized by their determination to start a new - and hopefully better - life abroad and most countries select immigrants based on their health status and transferable skills. Similarly, healthier and better-educated refugees may be more likely to have survived the political violence in their home country and to have been selected for migration in refugees camp (Mollica et al. 2001).

Several factors affecting psychological distress in the general population also operate on the psychological distress of immigrants and refugees. In general, immigrant women report a higher mean level of distress than immigrant men (Gonzalez-Castro and Ubillos 2011, Lerner, Kertes, and Zilber 2005, Levecque, Lodewyckx, and Bracke 2009) although this

difference may not be statistically significant in older immigrants (Chou 2007, Ritsner, Ponizovsky, and Ginath 1999). Similarly, financial hardship (Gonzalez-Castro and Ubbillos 2011, Lerner, Kertes, and Zilber 2005, Sundquist et al. 2000), poor self-reported health (Chou 2007, Lerner, Kertes, and Zilber 2005) and recent stressful events (Lerner, Kertes, and Zilber 2005, Thapa and Hauff 2005) act as risk factors whereas family cohesion (Lerner, Kertes, and Zilber 2005, Yip, Gee, and Takeuchi 2008) and the sense of control over one's life (Lerner, Kertes, and Zilber 2005, Sundquist et al. 2000) play a protective role.

The influence of other long-established risk and protective factors is more uncertain. Most studies have found no statistically significant effect of age (Levecque, Lodewyckx, and Bracke 2009, Thapa and Hauff 2005, Yip, Gee, and Takeuchi 2008) on the psychological distress of immigrants whereas the evidence is mixed for unemployment (Lerner, Kertes, and Zilber 2005, Levecque, Lodewyckx, and Bracke 2009, Thapa and Hauff 2005), education (Chou 2007, Levecque, Lodewyckx, and Bracke 2009, Sundquist et al. 2000) and marital status (Chou 2007, Lerner, Kertes, and Zilber 2005, Thapa and Hauff 2005).

Deciphering the relationships between psychological distress and factors typical of immigrants is a difficult task because of the complex interplay of the context of migration, the ethno-cultural background of immigrants and the socio-cultural characteristics of the host country. Bronstein and Montgomery conducted a systematic review of the literature related to the epidemiology of psychological distress in refugee children based on 22 studies (Bronstein and Montgomery 2011). They concluded that the mean level of psychological distress was high in these children and that it tended to vary by age, gender, country of origin, pre-migratory traumatic experience and post-migratory support. A similar exercise has not been conducted among adult refugees but some of the conclusions reached by Bronstein and Montgomery also apply to adults. For instance, Chou et al. (Chou 2007) recorded a higher mean level of distress in refugees to Australia than in individuals who had migrated to be reunited with their family or who were selected for immigration based on their professional skills whereas Thapa and Hauff (Thapa and Hauff 2005) observed no statistically significant difference between refugees and immigrants in Norway, and Rousseau and Drapeau (Rousseau and Drapeau 2004) found that the association between psychological distress and the context of migration to Quebec varied depending on the home country of immigrants. The effect of past exposure to political violence on the psychological distress of refugees in the host country is also ambiguous. Sundquist et al. (Sundquist et al. 2000) detected no significant effect in refugees from four different countries, Thapa and Hauff (Thapa and Hauff 2005) found a significant effect for women but not for men and Rousseau and Drapeau (Rousseau and Drapeau 2004) noted that the effect depended on the type of exposure to political violence and on the country of origin of refugees. Thus, at the population level, refugees are not systematically at higher risk of psychological distress than other immigrants.

Three main indicators have been used to assess the level of acculturation of immigrants: self-defined ethnic identity, mastery of the mainstream language and relationships with natives from the host country. Defining oneself as a member of the host country while preserving close ties with the culture of origin tends to act as a protective factor against psychological distress (Birman and Taylor-Ritzler 2007), perhaps more so for women than for men (Lerner, Kertes, and Zilber 2005). Sundquist et al. (Sundquist et al. 2000) found that a poor mastery of the mainstream language was a risk factor for men but not for women. Finally, Gonzalez-Castro et al. (Gonzalez-Castro and Ubbillos 2011) and Thapa and Hauff (Thapa and Hauff 2005) have found no significant effect of social support provided by members of the mainstream population on psychological distress.

6. Conclusion

In the past few decades, empirical evidence has accumulated regarding the epidemiology of psychological distress. Still, the use of scales comprising a wide array of undifferentiated symptoms has impeded our understanding of the risk and protective factors that impact on psychological distress. Nevertheless, when restricting the review of the scientific literature on studies based on scales that assess psychological distress defined as *a state of emotional suffering characterized by symptoms of depression and anxiety* sometimes accompanied by somatic symptoms, several characteristic features emerge. First, in the general population, stressful events and life conditions and the lack of valued social roles come up as significant risk factors for psychological distress whereas inner resources (e.g., self-esteem) and external resources (e.g., income) are important protective factors. Second, among workers, high work demands, low decision latitude, poor social support at work, and minimal rewards increase the risk of psychological distress. Work-related factors do not explain all the variations in psychological distress observed in workers but the integration of the various elements that make up the social environment of workers (i.e., work, family, social networks, local community-neighbourhood) has proved difficult both theoretically and empirically. Finally, the prevalence of psychological distress is especially high among immigrants and refugees. Although several factors affecting the psychological well-being of the general population also impact on the level of psychological distress of immigrants and refugees, specific factors related to the context of migration and the resettlement process seem to take their toll on the mental health of these individuals. In all likelihood, factors associated with psychological distress also affect other dimensions of mental health and mental illness and there is a need to identify the similarities and differences between the epidemiology of psychological distress and other mental health problems.

The empirical evidence points to a number of issues that must be addressed to better understand, and eventually to prevent, psychological distress. Knowledge about the course of psychological distress is especially lacking and it prevents the distinction between transient and pathological distress. The gender and age differences in psychological distress remain largely unexplained although it has been the focus of several studies. Exposure to specific risk factors seems to vary across gender and across age group but the effect of this differential exposure on psychological distress is unclear. The complex interplay of socio-demographic factors, stress-related factors and individual resources also need to be further investigated. The relative contributions of occupation and work organization conditions and factors acting outside of the work environment have been largely unexplored. For instance, conceptual frameworks concerning work-related factors leave no room for the way gender and migration status could moderate the relationship between these factors and psychological distress. Still, the main brake to a better understanding of the epidemiology of psychological distress is the almost complete lack of systematic reviews of the empirical evidence concerning the numerous risk and protective factors associated with distress.

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Part 2

Understanding Etiological Factors

Psychosis and Adhesion Molecules

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1. Introduction

Schizophrenia is a chronic, severe, and disabling brain disorder that affects about 1% of the population worldwide. However the etiology and pathophysiology is poorly understood. It has been determined that schizophrenia is a multifactorial disorder influenced by genetic, neurodevelopmental and social factors (Mueser & McGurk, 2004; Weinberger, 1987). Numbers of linkage and association studies have shown that multiple susceptibility genes such as DISC1, Neureglin1, DTNBP1, RGS4, G72 were involved in the development of schizophrenia (Sibylle *et al.*, 2009). Moreover, accumulating evidence from recent studies suggests that environmental risk factors during fetal and perinatal life also contribute to the development of schizophrenia. The environmental risk factors of schizophrenia have been reported, such as infections, nutritional deficiencies, paternal age, fetal/neonatal hypoxic and obstetric insults and complications and maternal stress and other exposures (Brown AS, 2011). Postmortem human brain and developmental animal model of schizophrenia studies have shown abnormal neurodevelopment at sequential stages of brain development. Initial postmortem studies appeared to support the early neurodevelopmental model in neuronal migration and organization, considered fetal in origin (Jakob et al, 1986; Akbarian et al, 1993). Subsequent and more reproducible observations of reduced neuronal size and arborization, which could have developed later in life, indicated that the pathophysiological processes involved in schizophrenia need not be restricted to the pre- or perinatal period (Selemon et al, 1999). Candidate genes for schizophrenia are typically expressed across developmental periods, often in different brain regions.

Adhesion molecules are membrane-anchored molecules whose extracellular domains directly interact to help hold the membranes of two cells together. Adhesion might be a primary role of the interaction or it could be an epiphenomenon of ligand-receptor signals to the cell interior. The major families of adhesion molecules are cadherins, immunoglobulin superfamilies and integrins. Cadherins constitute a superfamily that is comprised of more than 100 members in vertebrates, grouped into subfamilies that are designated as classic cadherins, desmosomal cadherins, protocadherins, Flamingo/ CELSRs and FAT (Takeichi, 2006). Cadherins are calcium dependent, singlepass transmembrane molecules with five ectodomain repeats, which mediate mainly homophilic (more rarely heterophilic) adhesion

(Tepass *et al.*, 2000). Strong cadherin adhesion is believed to be dependent on the formation of *cis* which the bind in *trans* to form adhesive `zippers` (Shan *et al.*, 2000). The cytoplasmic domains of the cadherins contain binding sites for the catenins, which provide links to the cytoskeleton and mediate signaling (Yap *et al.*, 2003). N-cadherin was one of the first adhesion molecules shown to be concentrated in the synaptic cleft (Yamagata *et al.*, 1995), a localization subsequently shown for catenins and several other cadherins at several synaptic types. Immunoglobulin superfamily molecules contain varying numbers of extracellular cysteine-looped domains first described in immunoglobulins. Many have one or more fibronectin type III (FNIII) repeats between the immunoglobulin domains and the membrane (Rougon and Hobert, 2003). The integrin family of cell surface receptors is a major mediator of cell-cell and cell-extracellular matrix (ECM) interactions. Integrins can efficiently transduce signals to and from the external cell environment to the intracellular signaling and cytoskeletal compartments, while modulating signaling cascades initiated by other cellular receptors. Functional integrin receptors are formed by membrane spanning heterodimers of α and β subunits. There are at least 18 α and 8 β subunits that can form more than 20 different integrin receptors.

Major depressive disorder (MDD) is one of the mood disorders associated with significant morbidity. MDD is thought to be a multifactorial disease related to both environmental and genetic factors, though the genes responsible and the pathogenesis of major depression at the molecular level remain unclear. Among many environmental factors, repeated stressful events are associated with the onset of depression, and stress activates the hypothalamic-pituitary-adrenocortical (HPA) system (Gold *et al.*, 1988a, b; Post, 1992; Bartanusz *et al.*, 1993; Herman *et al.*, 1995; Aguilera and Rabadan-Diehl, 2000; McEwen, 2004; Sala *et al.*, 2004; Alfonso *et al.*, 2005; Dallman *et al.*, 2006). The negative feedback of corticosteroids on the HPA system occurs at the level of the hypothalamus and the anterior pituitary via the glucocorticoid receptors (Thomson and Craighead, 2008; Pariante and Lightman, 2008).

Dysregulation of this negative feedback mechanism is reported in patients with major depressive disease, which results in hyperactivity of the HPA system and higher basal levels of serum corticosterone (Carroll *et al.*, 1976; Holsboer *et al.*, 1984; Nemeroff *et al.*, 1984; Halbreich *et al.*, 1985a, b; Schatzberg *et al.*, 1985; Gold *et al.*, 1986a; Young *et al.*, 1993). In addition, many clinical cases demonstrate that elevated corticosterone levels trigger depressive symptoms (Schatzberg *et al.*, 1985; Gold *et al.*, 1986b; Chu *et al.*, 2001). These facts strongly indicate that sustained elevated levels of plasma corticosteroids are one of the causes of major depressive diseases.

Recent we showed that chronically elevated plasma corticosterone levels by exposing mice to repeated stress induced the upregulation of adhesion molecules such as N-cadherin, α -catenin, and β -catenin in the oligodendrocytes via the activation of phosphatidylinositol 3-kinase (PI3K)-3-phosphoinositide-dependent protein kinase (PDK1)-serum/glucocorticoid regulated kinase (SGK1)-N-myc downstream-regulated gene 1 (NDRG1) pathway, resulting in morphological changes in the oligodendrocytes (OLs) (Miyata *et al.*, 2011). These findings show that SGK1 changes adhesion molecules expression levels and regulates the plasticity of the processes of the OLs under the stressful condition.

It has been known that adhesion molecules such as cadherins and integrins played important roles in neuronal development and function. Furthermore, in recent years, genetic association studies have been supporting the involvement of adhesion molecules in

psychosis such as schizophrenia, bipolar disorder and autism. In this chapter, we will focus on the role of adhesion molecules in psychiatric disorders, especially schizophrenia and depression.

2. Schizophrenia and adhesion molecules

2.1 The major mental disorders related adhesion molecules

The major mental disorders such as schizophrenia, bipolar disorder and autism are substantially influenced by genetic factors. Recent genomic studies have identified a small number of common and rare risk genes contributing to these disorders and support epidemiological evidence that genetic susceptibility overlaps in these disorders (Lichtenstein *et al*, 2009). To date, a number of genetic association analyses have shown that genes coding adhesion molecules associated with schizophrenia, bipolar disorder and autism. A molecular pathway analysis applied to the 212 experimentally-derived pathways in the Kyoto encyclopedia of Genes and Genomics (KEGG) database identified significant association between the cell adhesion molecule (CAM) pathway and both schizophrenia and bipolar disorder susceptibility across three GWAS datasets (O'Dushlaine *et al*, 2011). Interestingly, a similar approach applied to an autistic spectrum disorders (ASDs) sample identified a similar pathway (Wang *et al*, 2009). Disruption of the NRXN1 gene has been reported in both schizophrenia and autism cases or families (Walsh *et al*, 2008; Szatmari *et al*, 2007). Axonal neuroligins form trans-membrane complexes with neuroligin on dendrites and are required for the formation of synaptic contacts and for efficient neurotransmission-including maintaining postsynaptic NMDA receptor function. CDH4 is a classical cadherin thought to be involved in brain segmentation and neurite outgrowth. Total cerebral brain volume was the only genome-wide significant finding to emerge from a GWAS study of brain aging using MRI and cognitive assessment of 705 healthy participants from the Framingham study. Reduced brain volumes are a recognized feature of schizophrenia and this may point to a role in maintenance rather than formation of neuronal connections (Seshadri *et al*, 2007). A recent GWAS study in bipolar disorder and subsequent replication efforts have provided some support for association with CDH7 (Soronen *et al*, 2010). Another GWAS study in autistic spectrum disorders (ASDs) identified association with the chromosome 5q14.1 region containing other members of the cadherin superfamily, CDH9 and CDH10 (Wang *et al*, 2009). A number of microdeletion/microduplication syndromes have been identified that are associated with schizophrenia, ASDs, intellectual disability, specific language delay and other neurodevelopmental phenotypes. Many of these disrupt genes involved in CAM pathways. For instance, disruption of NRXN1 has been reported in cases of both autism and schizophrenia. CASK deletions are reported in individual with learning disability and brain malformation phenotypes. Disruption of CNTNAP1 has been reported in autism, language disorder and schizophrenia. A deletion between two cadherin (CDH12 and CDH18) genes on 5p14 was identified in a monozygotic twin pair discordant for schizophrenia. This 11kb deletion is present in the affected but not in the unaffected twin. Taken together, it is possible that susceptibility to schizophrenia, bipolar disorder and ASDs may involve common molecular aetiology where an accumulation of small effects from many common genetic risk variants or more highly penetrant mutations induce neuronal dysconnectivity by disrupting adhesion molecule function.

2.2 Involvement of N-cadherin and β 1-integrin in neuronal development

Neural development and the organization of complex neuronal circuits involve a number of processes that require cell-cell and cell-matrix interaction. Vertebrate N-cadherin is expressed from the beginning of neural development, and its expression persists in differentiated neurons in various species (Hatta & Takeichi, 1986). Conventional knockout of the mouse N-cadherin gene causes early embryonic lethality, mainly because of heart defects (Radice *et al*, 1997). Therefore, the precise roles of N-cadherin in neuronal development at later developmental stages remain less clear. Nevertheless, some fragmental information on the specific role of N-cadherin in axon projection is available: studies using blocking antibodies against N-cadherin showed that this molecule is required for the correct innervations of specific laminae in the chicken tectum by retinal optic nerves (Inoue & Sanes, 1997). Some of the type II cadherins are involved in axon sorting and in the regulation of physiological function of the brain, such as long-term potentiation in the hippocampus. When a dominant-negative N-cadherin of which extracellular domain was deleted was expressed in the neural retina of *Xenopus* embryos, the extension of neurites from retinal ganglion cells was inhibited. Such N-cadherin mutant form was able to block the radial extension of horizontal cell dendrites, as well as their synaptic connections with photoreceptor cells in the retina. Furthermore, the mutant forms were used to show that cadherins are required for tangential migration of precerebellar neurons (Taniguchi *et al*, 2006). These results provide evidence that N-cadherin has important roles in neural cell-cell interactions and neurite extension in various systems.

As in the case of N-cadherin, β 1-integrin also expresses at early developmental stage of the nervous system. Neural crest cells express many integrins and migrate through an extracellular matrix (ECM)-rich environment (Bronner-Fraser, 1994). In mice, genetic ablation of β 1-integrin results in severe perturbations of the peripheral nervous system, including failure of normal nerve arborization, delay in Schwann cell migration, and defective neuromuscular junction differentiation. In addition to direct effects on migration, it has been shown that absence of specific integrin heterodimers compromises Schwann cell precursor survival, proliferation and differentiation (Pietri *et al*, 2004). Many of these observations are likely to reflect the roles of integrin receptors in regulating activation of MAP kinase, Rac, and other signaling pathways. In central nervous system, integrin deletion affects many aspects of forebrain and cerebellar development. Loss of β 1-integrin results in disruptions of the basal lamina that separates the brain from the overlying mesenchyme. As a result, the migration of neurons is perturbed, resulting in abnormal lamination of the cortex and cerebellum. Although some evidence indicates that integrins modulate neuronal interactions with radial glia which provide the substrate for the tangential migrations that establish the cortical lamination pattern (Sanada *et al*, 2004; Schmid *et al*, 2005), the major phenotype observed in β 1-integrin defect models appears to stem from disruption of signaling pathways controlling neuronal migration that require integrity of the basal lamina. Although localization studies indicate that integrins are present at synapses in the brain, genetic and pharmacological studies indicate that integrins are not required for synapse formation, but are required for normal synaptic plasticity. The presence of integrins in the mushroom body of the *Drosophila* brain was shown to be required for short-term memory. Studies in the murine hippocampus have demonstrated that β 1-integrin were required for normal LTP (Chan *et al*, 2006; Huang *et al*, 2006). Studies of mice with reduced expression of individual β 1-integrin heterodimers have suggested that specific integrins have different

functions at the synapse indicate that integrins are involved in regulation of both NMDA and AMPA receptor function and act through regulation of protein kinases and the actin cytoskeleton.

2.2.1 DISC1 is involved in neuronal development

Disrupted-in-schizophrenia 1 (DISC1) is a promising candidate susceptibility gene for major mental disorders, including schizophrenia. *DISC1* was originally identified at the breakpoint of a balanced (1;11) (q42.1;q14.3) translocation that segregates with major mental illnesses in a large Scottish family (Millar *et al*, 2001). Recent linkage and association studies demonstrated association between *DISC1* and schizophrenia in multiple populations, suggesting that *DISC1* is a general risk factor for schizophrenia (Jaaro-Peled *et al*, 2009; Chubb *et al*, 2008; Hodgkinson *et al*, 2004; Cannon *et al*, 2005). To investigate the physiological roles of *DISC1*, a number of groups, including ours, have identified *DISC1*-interacting proteins, such as the fasciculation and elongation protein zeta-1 (FEZ1) (Miyoshi *et al*, 2003), *DISC1*-binding zinc-finger protein (DBZ) (Hattori *et al*, 2007), kendrin (Miyoshi *et al*, 2004), NudE-like (NDEL1/NUDEL) protein (Ozeki *et al*, 2003; Morris *et al*, 2003) and BBS1 (Ishizuka *et al*, 2011). Other relevant interacting proteins include GSK3b and PDE4B (Millar *et al*, 2005), which are involved in intracellular signaling pathways. The endogenous expression pattern of *DISC1* is complex, and *DISC1* co-localizes with centrosomal protein, mitochondria, and F-actin. *DISC1* protein has conserved nuclear localization signals and has been found within the nuclei of certain cell types. Moreover, *DISC1* is involved in cAMP, CREB, Notch, Wnt and MAPK signaling pathways. Recent studies have suggested that *DISC1* plays various roles in cell proliferation, neural migration, dendritic development and synapse maintenance during neurodevelopment and influences adult brain functions.

2.2.2 DISC1 regulates N-cadherin expression

The strength of cell-cell adhesion is associated with the expression levels of cadherins at the cell surface (Steinberg & Takeichi, 1994). In neural cells, neural cell adhesion molecule (NCAM) and N-cadherin are two of the major adhesion molecules (Kiryushko *et al*, 2004). We have demonstrated that *DISC1* induced cell adhesion through an increase in N-cadherin expression in PC12 cells (Fig. 1.a.c.d). Furthermore, the increased N-cadherin was concentrated at the cell-cell contact zone, showing that increased N-cadherin functions at cell-cell contact sites (Fig. 1.b). Our real-time PCR analysis showed up-regulation and down-regulation of N-cadherin mRNAs by *DISC1* overexpression and knock-down in PC12 cells, respectively. Furthermore, the down-regulation of N-cadherin protein expression (at 72 hours after transfection) by *DISC1* siRNA followed that of N-cadherin mRNA expression (at 48 hours after transfection). The expression levels of N-cadherin protein in *DISC1*-overexpressing cells were correlated with those of mRNA. The results using NLS1-deleted *DISC1* (*DISC1*(46–854)-GFP) indicates that the expression of N-cadherin was regulated by nuclear *DISC1*. It is possible that nuclear *DISC1* regulates level of N-cadherin mRNA, because a role for nuclear *DISC1* in association with gene transcription was reported (Ma *et al*, 2002). Moreover, immunoprecipitation assays show that *DISC1* does not interact with either N-cadherin suggesting that *DISC1* does not regulate the expression of these molecules directly. In hippocampal neurons, *DISC1* also enhanced N-cadherin, which accumulated at cell-cell contact sites, suggesting that the enhanced N-cadherin also functions at cell surfaces of neurons (Fig. 3.).

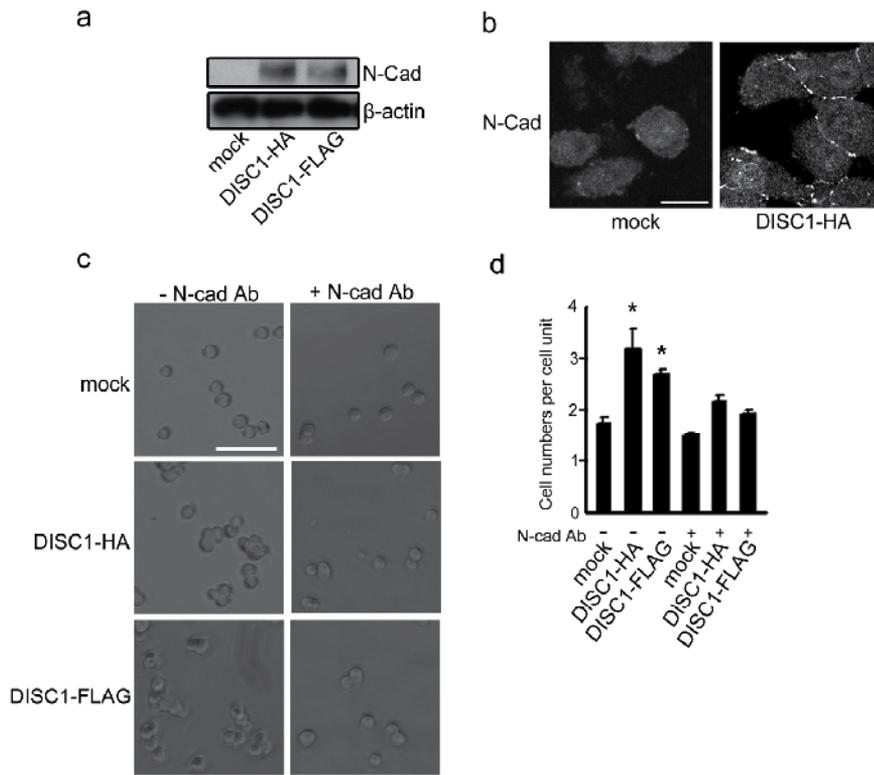


Fig. 1. DISC1 enhances cell-cell adhesion via increasing the expression level of N-cadherin. (a) Effect of DISC1 on the level of N-cadherin. PC12/mock, PC12/DISC1-HA and PC12/DISC1-FLAG stable cells were lysed and subjected to western blot analysis. (b) PC12/mock and PC12/DISC1-HA cells were fixed and immunostained with anti-N-cadherin antibody. (c) PC12 cells were dissociated with trypsin-EDTA and cultured on collagen-coated dishes for 2 hours in the presence of anti-N-cadherin antibody or rabbit IgG. Phase-contrast images are shown. Scale bar, 100 μ m. (d) To quantify the results in (c), the average number of cells per unit, which consisted of a single cell or a cluster of two or more cells, was determined. Over 100 cells were examined in each case. Values are the means \pm s.e.m. of at least three independent experiments. * p <0.05 vs mock in the absence of anti-N-cadherin (Student's *t*-test).

2.2.3 DISC1 regulates β 1-integrin expression

PC12 cells provide an excellent experimental system for studying the mechanisms of neurite outgrowth. It has been reported that DISC1 enhances neurite outgrowth of PC12 cells in the presence of nerve growth factor (NGF) (Miyoshi *et al*, 2003; Ozeki *et al*, 2003; Bozyczko *et al*, 1986). Neurite outgrowth of neuronal cells is directly mediated by integrin-ECM interactions in developing nervous systems, as well as in a PC12 neurite genesis model (Reichardt & Tomaselli, 1991; Tomaselli *et al*, 1987; Tomaselli *et al*, 1990). We have demonstrated that upregulation of β 1-integrin expression by DISC1 enhanced neurite outgrowth by regulating cell-matrix adhesion in PC12 cells (Fig. 2.). This finding is based on the following results (1) DISC1 overexpression enhanced NGF induced-neurite outgrowth (Fig. 2.b.c). (2) DISC1

overexpression increased β 1-integrin expression, especially in the presence of NGF (Fig. 2.a). (3) Inhibition of β 1-integrin with anti- β 1-integrin antibody suppressed the enhanced neurite outgrowth induced by DISC1 to the control level (Fig. 2.b.c). (4) overexpression of β 1-integrin rescued the suppressed neurite outgrowth of DISC1-knockdown cells. (5) DISC1 overexpression enhanced cell-matrix adhesion. The increased expression of β 1-integrin by NGF and DISC1 was localized at the cell surface and growth cones of neurites, showing that upregulated β 1-integrin at the cell membrane and growth cones of differentiating PC12 cells participates in neurite extension. In support of this idea, integrins, including β 1-integrin, have been shown to mediate the promotion of neurite outgrowth. Unlike

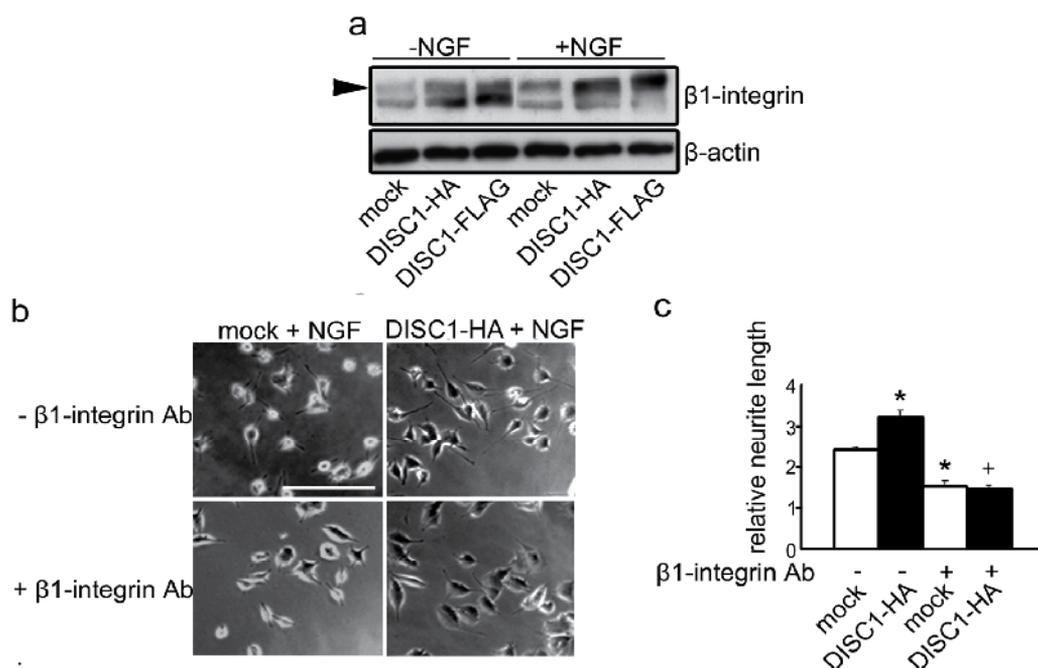


Fig. 2. DISC1 enhances neurite outgrowth via regulating the expression of β 1-integrin. (a) Effect of DISC1 on the level of β 1-integrin expression in the absence or presence of NGF. PC12/mock, PC12/DISC1-HA or PC12/DISC1-FLAG cells with or without NGF for 24 hours were lysed and subjected to western blot analysis. The arrow indicates the band containing full-length β 1-integrin. (a, b) PC12/mock or PC12/DISC1-HA cells treated with anti- β 1-integrin antibody were cultured in the presence of NGF for 24 hours. Shown are phase-contrast images of the cells. The left panels show the results for PC12/mock cells with NGF and the right panels results for PC12/DISC1-HA cells with NGF. The upper panels present findings for cells not treated with anti- β 1-integrin antibody and the lower panels show findings for cells treated with anti- β 1-integrin antibody. Scale bar, 200 μ m. (c) Quantification of neurite lengths. The neurite length was analyzed on randomly selected digital microscope images. Data are expressed as the means \pm s.e.m. of at least three independent experiments. At least 100 cells were counted in each case and analyzed in a blinded manner. * $p < 0.05$ vs. mock without β 1-integrin antibody, * $p < 0.05$ vs. DISC1-HA without β 1-integrin antibody (Student's t -test).

N-cadherin, the regulation of β 1-integrin expression by DISC1 is not transcriptional. The results using NLS1-deleted DISC1 indicate that the expression of β 1-integrin was not regulated by nuclear DISC1. In hippocampal neurons, DISC1 also enhanced the expression of β 1-integrin protein at the cell membrane of cell bodies and neurites (Fig. 3.). Therefore, it is possible that upregulation of β 1-integrin expression by DISC1 enhances neurite outgrowth by regulating cell-matrix adhesion in primary neurons.

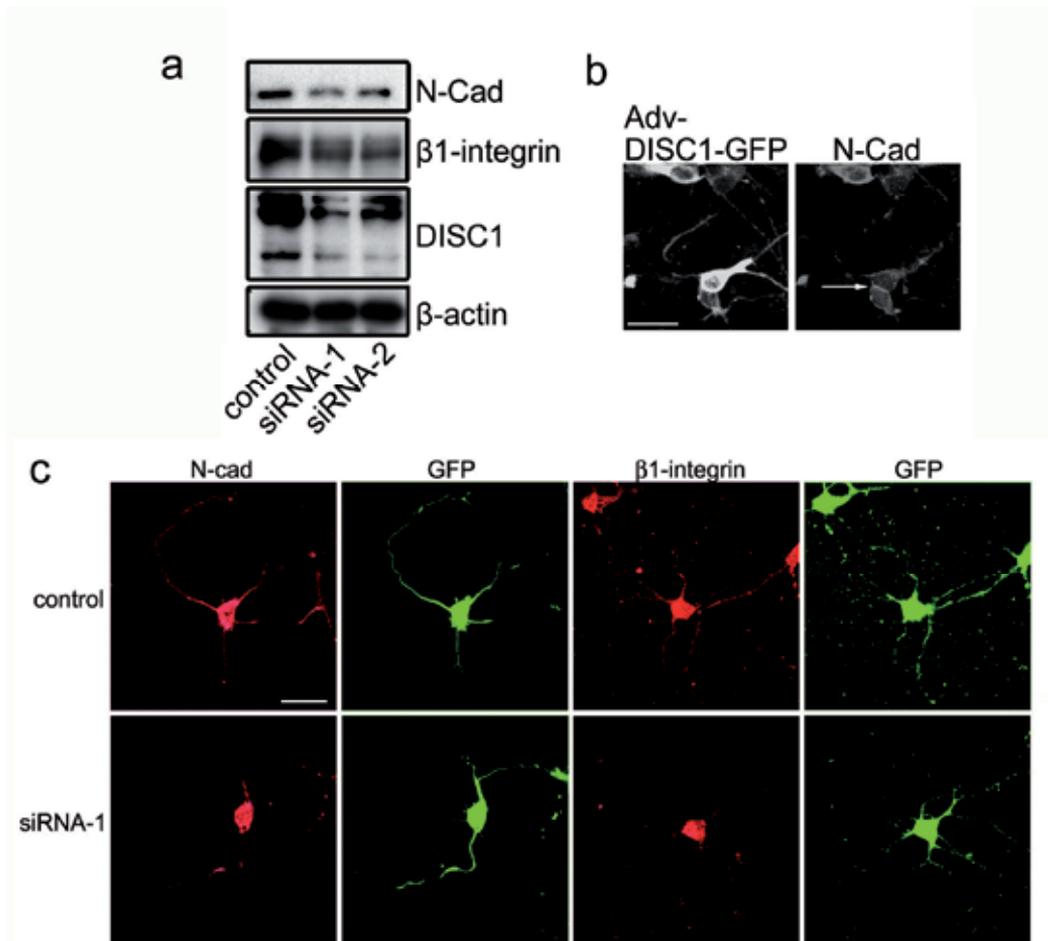


Fig. 3. (a) siRNAs targeting specific DISC1 sequences (siRNA-1 and siRNA-2) or scramble siRNA (control) was transfected into rat primary neurons at 1 DIV and cells were harvested at 4 DIV. The expression of DISC1, N-cadherin and β 1-integrin was assayed by western blotting. (b) Adv-DISC1-GFP-infected neurons (1DIV) were fixed (4DIV) and immunostained with anti-N-cadherin. Arrow indicates enhanced N-cadherin expression at cell-cell contact. (c) Scramble or siRNA-1 with GFP-expressing vector-transfected neurons (1 DIV) were fixed (4 DIV) and immunostained with anti-N-cadherin or anti- β 1-integrin antibody. Scale bars, 20 μ m.

3. Depression and adhesion molecules

Repeated stressful events are known to be closely associated with the onset of depression (Gold et al., 1988a, b; Post, 1992; McEwen, 2004; Sala et al., 2004; Alfonso et al., 2005). Furthermore, chronic stress activates the HPA system chronically by elevation of plasma corticosterone levels (Bartanusz et al., 1993; Herman et al., 1995; Aguilera and Rabadan-Diehl, 2000; Dallman et al., 2006). However, the molecular pathway in the brain caused by the excess level of plasma corticosteroids is hardly elucidated. Here we will show that chronically stressed mice indicates depression-like symptoms and the functional implications of changes in adhesion molecules in the mice brain exposed to chronic stresses.

3.1 Repeated WIRS exposed mice are suitable model of depression-like symptoms

The HPA system is initiated by the activation of the paraventricular nucleus (PVN) of the hypothalamus, leading to the secretion of corticotropin-releasing hormone (CRH) from the neuron terminals of the PVN neurons. CRH triggers the release of adrenocorticotropic hormone (ACTH) from the anterior pituitary. ACTH subsequently stimulates the release of cortisol or corticosterone in humans and rodents, respectively (Thomson and Craighead, 2008; Pariante and Lightman, 2008). However, the molecular pathway in the brain affected by excess levels of plasma corticosteroids is not known. We firstly established a suitable model of depression-like symptoms wherein the HPA system plays an important role.

The mice exposed to repeated water-immersion restraint stress (WIRS) (chronic stress exposure) demonstrated chronically elevated plasma corticosterone levels. Furthermore, these chronic stress exposed mice showed significant longer immobility times than control mice, indicating increased despair. In addition, exposing mice to chronic stress resulted in a significant decrease in neurogenesis in the hippocampus (Miyata et al., 2011). As demonstrated in the mice exposed to chronic stress, continuous upregulation of plasma corticosterone levels, increased immobility time, and neurogenesis inhibition in the hippocampus are well known to occur in patients with depression.

3.2 Elevation of SGK1 and phosphorylated SGK1 in the OLs after chronic stress exposure

The microarray technique was showed that *Sgk1* consistently altered expression in the medial prefrontal cortex of chronically stressed mice. Furthermore, we recently reported the first *in vivo* and *in vitro* demonstration of chronic stress increases SGK1 expression and SGK1 activation (Miyata et al., 2011). It was previously reported that subcutaneous injection of corticosterone causes the upregulation of SGK1 in OLs (van Gemert et al., 2006), suggesting that various stressors that induce increases in plasma corticosterone levels possibly upregulate SGK1 expression in OLs. Although mechanism that up-regulated corticosterone regulates *Sgk1* expression is still obscure (Webster et al., 1993a, b), it is probable that up-regulated corticosterone binds to *Sgk1* gene directly to elevate its expression in the OLs, because glucocorticoid responsible element is present at the promoter region of *Sgk1* gene (Maiyar et al., 1996, 1997).

The first step of the activation of SGK1 is phosphorylation at Ser422 by mTOR and other protein kinase (Feng et al., 2004; Hong et al., 2008). The form of phosphorylation of SGK1 Ser422 is substrate for the PDK1 which phosphorylates SGK1 at Thr256 in the SGK1 activation loop to cause the activation of SGK1 (Kobayashi et al., 1999; Biondi et al., 2001). In fact, chronic stress exposure resulted in an increase of phosphorylated SGK1 at Thr256 in OLs (Miyata et al., 2011).

3.3 Activated SGK1 up-regulates the expression of the adhesion molecules in OLs via elevation of the NDRG1 phosphorylation after chronic stress exposure

Several molecules interacting with Sgk1 in the brain are reported. For example, they are NDRG1, NDRG2, Tau, Huntingtin, I κ B kinase α (IKK α) and p300 (Murray et al., 2004; Rungone et al., 2004; Chun et al., 2004; Tai et al., 2009). Among them, NDRG1 has been shown to be localized in OLs in the brain (Okuda et al., 2008) and NDRG1 has shown as the substrate of SGK1 (Murray et al., 2004). The SGK1 and NDRG1 interact in OLs and chronic stress increased both SGK1 and NDRG1 phosphorylation levels (Fig. 4.). We reported that chronic stress elevates the expression of SGK1 and increased SGK1 is phosphorylated SGK1 by the activated PDK1 via PI3K signal pathway (Miyata et al., 2011). However, molecular

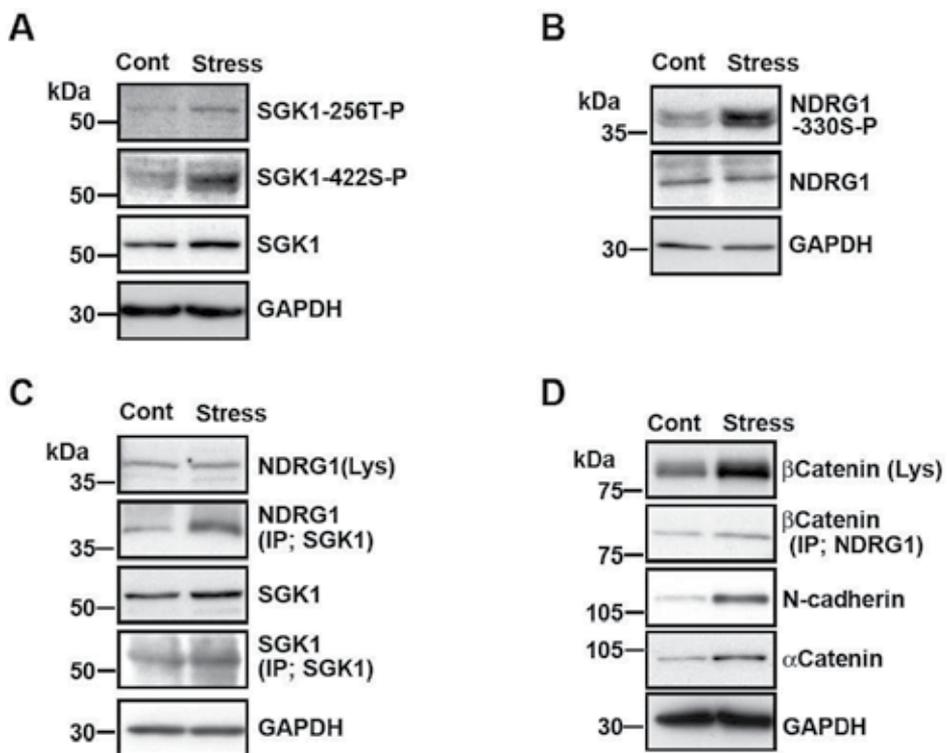


Fig. 4. Activated SGK1-NDRG1 pathway by repeated exposure to WIRS (chronic stress exposure) upregulates adhesion molecules expression levels in oligodendrocytes. (A) Western blot analysis shows SGK1 protein, its phosphorylation at positions T-256 (SGK1-256T-P) and S-422 (SGK1-422S-P) in the oligodendrocytes of the corpus callosum after chronic stress exposure. (B) Western blot analysis shows that repeated exposure to WIRS elevated phosphorylated NDRG1 levels in the corpus callosum. (C) Immunoprecipitation and western blot analysis show that chronic stress exposure elevated the interaction between SGK1 and NDRG1 (second column). However, NDRG1 expression did not increase in the corpus callosum (first column). (D) Immunoprecipitation and western blot analysis show that repeated exposure to WIRS elevated the interaction between NDRG1 and β -catenin (second panel), and that the expression levels of β -catenin, N-cadherin, and α -catenin were elevated in the corpus callosum. (Adapted with permission from Miyata et al. 2011.)

mechanism of the activation of PI3K signal pathway by enhanced plasma corticosterone level after chronic stress exposure remains unknown.

Recently, NDRG1 has been shown to play a key roll in stabilizing the adherens junctions by up-regulation of recycle of E-cadherin in the prostate cancer cells (Kachhap et al., 2007; Song et al., 2010). We further reported that expression of adhesion molecules such as N-cadherin, α -catenin and β -catenin was increased in the corpus callosum after chronic stress exposure and interaction between NDRG1 and β -catenin (Fig. 4.).

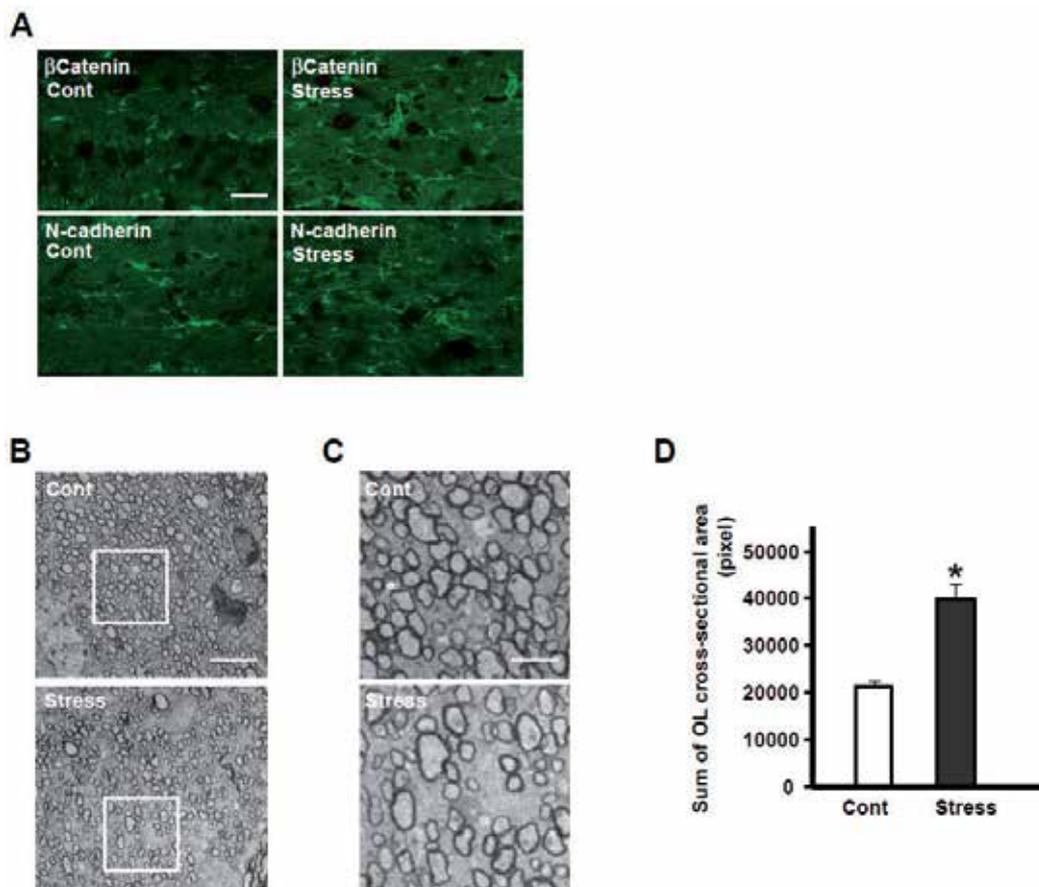


Fig. 5. Chronic stress exposure causes morphological alterations in OLs.

(A) Immunohistochemical analysis of β -catenin and N-cadherin in the corpus callosum demonstrates increased labeling of the processes of the oligodendrocytes (i.e., greater number and intensity) in mice exposed to repeated WIRS. Scale bar = 50 μ m. (B, C)

Representative transverse electron micrographs of the corpus callosum from control (upper panels of B and C) and chronic stress exposed mice (lower panels of B and C). Scale bars = 5 μ m. (E) The higher magnification of the square region of (D). Scale bar = 2 μ m. (F) Results of the quantification of the sum of oligodendrocytes in the cross-sectional area. The results are expressed as the mean \pm SEM of 3 independent experiments. * $p < 0.05$, t-test. (Adapted with permission from Miyata et al. 2011.)

3.4 Up-regulation of the adhesion molecules expression in OLs causes the morphological changes of OLs and MDD

Adhesion molecules such as N-cadherin, α -catenin and β -catenin are key molecules composing the adherent junction (Aberle et al., 1996). Therefore, increase of the expression of these molecules suggests the extension of the site where OLs are adjacent to other elements. Cellular membrane of OLs and their processes labeled by the N-cadherin and β -catenin after chronic stress exposure increased markedly, showing that chronic stress exposure induces the morphological change of OLs (Fig. 5.). The volume of OL processes occupying the intrafibrillar space increased markedly in the corpus callosum of the chronic stress exposure mice comparing with that found in the normal mice (Fig. 5.). Furthermore, the abnormal arborization of OLs and depression-like symptoms returned to the control levels after mice recovered from the chronic stress (Miyata et al., 2011).

4. Conclusion

To date, genetic association studies have been showing that adhesion molecules such as cadherins strongly associated with the development of psychosis including schizophrenia, bipolar disorder and autism, because these disorders have common abnormalities in molecular pathways. Adhesion molecules play important roles in neurodevelopmental events such as neuronal migration, neurite extension, synaptogenesis and synaptic plasticity from early embryo to postnatal stages. Furthermore, we clarified that DISC1, a candidate susceptibility gene for major mental illness, regulates the expressions of adhesion molecules, which affect cellular adhesion and neurite outgrowth. Taken together these results, abnormality of adhesion molecules caused by genetic susceptibility in genes encoding adhesion molecules and DISC1 may result in impairment of brain development. Our data has shown that DISC1 expressed in the developing cerebral cortex, hippocampus and cerebellum of rat brain. N-cadherin and β 1-integrin also express in the developing cerebral cortex and hippocampus, which suggesting that DISC1 might be involved in neuronal migration, formation of axon, dendrite and spine and synaptic plasticity by regulating these adhesion molecules in such areas. To clarify this possibility, investigating the alteration of the expression and functions of adhesion molecules in DISC1 transgenic or knockout mice is necessary. In addition, N-cadherin and β 1-integrin express not only in neurons but also in glial cells and regulate the differentiation of radial glial cells and oligodendrocytes. In recent report, DISC1 also expresses in these glial cells. Further studies are needed to clarify the role of DISC1 and adhesion molecules in glial cells in brain development.

Recent several studies have reported that MDD impair OLs function, for example, decrease of myelin basic protein (Honer et al., 1999), reduction of corpus callosum of female depression patients (Lacerda et al., 2005), the low density of total glia and OLs in amygdala (Hamidi et al. 2004), and the reduction of the expression of OL-related genes in the temporal cortex (Aston et al., 2005). Furthermore, recent our study indicated that the SGK1-NDRG1-adhesion molecules activation causes excess arborization of OL processes and this abnormality in the OL is related to depression-like symptoms (Fig. 6.). Elucidating the functional roles of the SGK1-NDRG1-adhesion molecules pathway in the OLs is a primary goal of future study for the pathogenesis of MDD.

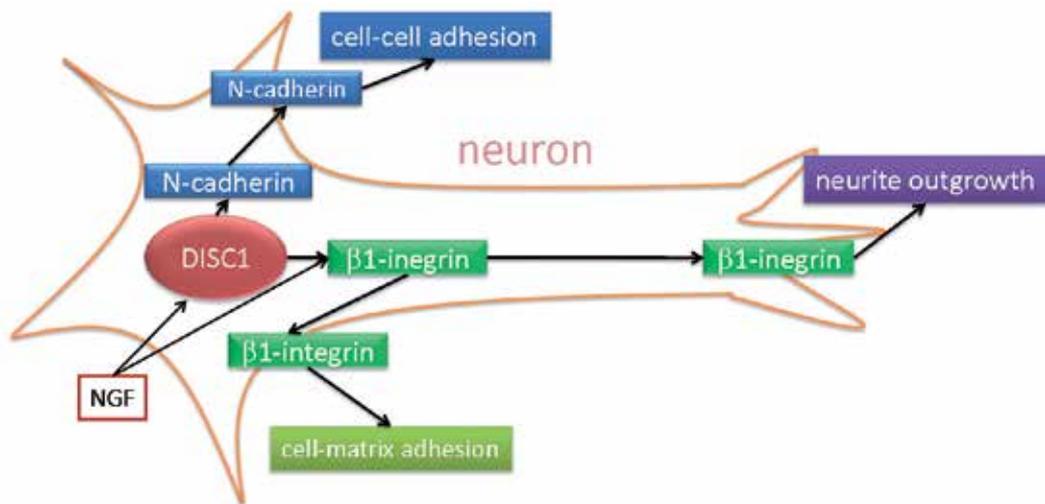


Fig. 6. DISC1 enhances cell-cell adhesion via increasing N-cadherin expression at the cell-cell contact. DISC1 also increases the expression of β 1-integrin at the cell surface, which enhances cell-matrix adhesion and neurite outgrowth. Both DISC1 and β 1-integrin are positively regulated by Nerve Growth Factor (NGF).

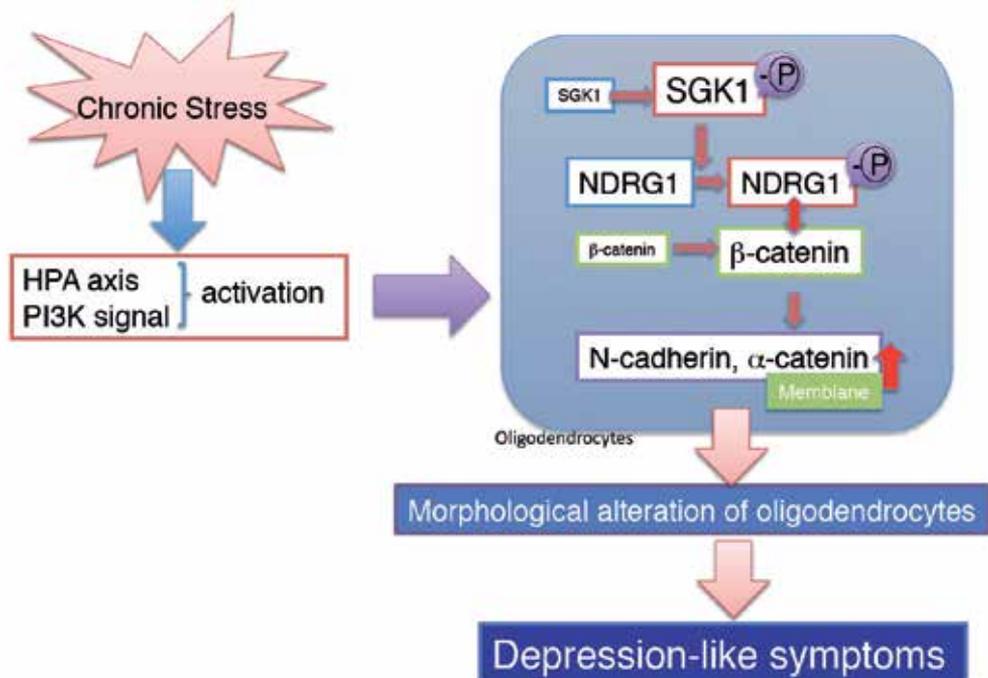


Fig. 7. Elevation of corticosterone induced by chronic stress induce the adherent molecules and morphological change in the oligodendrocytes of corpus callosum via the activation of SGK1-NDRG1 pathway. (Adapted with permission from Miyata et al. 2011.)

5. Acknowledgement

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Phenotype in Psychiatric Genetic Research

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1. Introduction

Mental illnesses differ from medical conditions in their lack of objectively assessable biological markers for the establishment of a diagnosis. In the absence of clear external validators such as laboratory tests or radiological examinations, accurate assessment of the clinical picture and phenomenology becomes crucial. Common diseases with successful genetic mapping studies are generally characterized by diagnostic assessments that are objective, have a clear biological basis, and measure phenotypic features shared relatively uniformly among affected individuals. For example, type 2 diabetes is diagnosed based on elevation in blood glucose above a generally accepted threshold, as assessed by a simple assay. This phenotypic feature is at the core of the diagnosis, even though other disease components may vary between affected individuals. For mental illness, however, no biological assays are currently available for diagnostic purposes; the phenotypic features are generally assessed by subjective ratings, and individuals are assigned a diagnosis based on report of symptoms, no one of which is present in all individuals assigned that diagnosis. There is now considerable interest in identifying quantitative assessments, which may provide a more objective means of rating psychopathology.

Many researchers on psychiatric genetics have given attention to populations that are more genetically homogeneous due to historical reasons. These isolated populations have been useful for the identification of genes for disorders in other medical fields. In addition to the genetic homogeneity, these unique groups may also help in the definition of the phenotype. Particularly, psychiatric disorders with psychosis such as schizophrenia (SZ), schizoaffective disorder (SCA) and bipolar disorder type I with psychosis (BPI) are major public health burdens and their biology is still largely unknown. It is unlikely that these disorders represent a single illness, however they overlap on many dimensions, including symptoms, neurocognition, and treatment. Families of individuals with SZ very often have other members with BPI and SCA (Kendler et al., 2010). Many authors argue that modifying genes may determine why one person develops SZ and another develops BPI or SCA (Van Erp et al., 2002). Nevertheless, the question whether or not phenotype uncertainty is responsible of the presumed genetic overlap remains unanswered.

The use of multiple sources of information in the diagnostic process is essential in genetic studies of mental illness. A best-estimation diagnostic approach ensures diagnostic precision and reduces misclassifications getting better phenotype characterization of the study subjects. Along with the clinical complexity and the assumed genetic heterogeneity, environmental factors play an important role in the final outcome of most psychiatric disorders. In this instance, stressful environmental factors have been clearly associated with

increased risk for suicidal behaviour (Perez-Olmos et al., 2007). In this way, external factors interact with genetic predisposition in the occurrence of suicide. Likewise, subjects with chronic psychosis who experience a high number of adverse life events could be at particular risk to develop depression depending of their genetic susceptibility.

2. Psychiatric genetic research in the Central Valley of Costa Rica

The isolated Costa Rican Central Valley population (CRCV) was founded by approximately 86 Spanish families. These families colonized the area between 1569 and 1575 and intermarried with indigenous Amerindians. By the beginning of the 18th century, the population grew rapidly with little subsequent emigration for almost 200 years (Escamilla et al., 1996). Psychiatric genetic research in CVCR began on mid-1990s. Participants have been selected with regard to their ancestry by completing a genealogical search. Thus, the majority of the great-grandparents of each subject are descended from the original founding population of the CVCR. Documentation of the birthplace of the great-grandparents is possible due to the centralization of birth records. This yield to link up approximately half of these subjects to a founder couple who came into Costa Rica in the 17th century, which demonstrates the founder effects in this population.

At present, more studies are being conducted for SZ, SCA and BPI in the CVCR. It has been found that subjects recruited independently of each other within this population can be linked together once genealogies are studied. This suggests that accurate genealogical screening is crucial for selecting subjects whose ancestors are predominantly from the founder population. This research approach represents an advantage for fine mapping and the identification of susceptibility genes. Because both linkage and association approaches depend on the probability that affected individuals will share disease-susceptibility genetic variants and marker loci identical due to descent from a common ancestor, human geneticists have long been interested in identifying study samples characterized by relative genetic homogeneity.

3. The phenotype in psychiatric genetic studies

Segregation analyses, adoption studies and twin studies have consistently shown that regardless of the population studied, genetic factors play an important role in determining the risk of developing SZ, SCA and BPI. Evidence suggests that these disorders share common genes (Badner & Gershon, 2002). Although genetic studies of these disorders have made progress in recent years, the field lags behind other complex diseases in the identification of disease-related genes. SCA patients have increased familial risk of SZ and mood disorders. Relatives of SZ probands have increased risk for SCA and major depressive disorders. Many patients with SZ have concomitant major depression at some point in their illness, and the longitudinal course of this depression (which is difficult to accurately assess) is often the determining factor in assignation of a diagnosis of SCA versus SZ. A clinical characterization study from a Costa Rican sample reported that more than half of the patients with SZ have mood symptoms particularly depressive symptoms (Contreras et al., 2008). Conversely, many patients with BPI endorse lifetime history of psychotic symptoms. As illustrated in figure 1, SZ, SCA and BPI with psychosis share a common domain, psychosis. Another report from the same population found that 97.6% of the bipolar I patients have history of psychosis which might explain the clinical similarities found between patients with SZ versus BPI (Pacheco et al., 2009).

Their clinical complexity is not well considered in the current diagnostic system, which may explain some of the misclassification biases yielding to misleading research findings. Categorical diagnosis appears to be a poor predictor of correlation between the phenotype and the specific genotypic variants that contribute to an individual's risk of developing these mental disorders. In the absence of measurable biomarkers for most of these conditions, accurate assessment of the clinical picture and phenomenology of patients becomes even more crucial. It is now generally agreed that phenotypes (diagnoses) are best made by comprehensive characterization of lifetime clinical symptomatology based on information gathered from several sources (Maziade et al., 1992). The scientific rationale for such a recommendation is that systematic evaluation of all sources of information conduct to a best-estimate diagnosis that reduces diagnostic error (Merikangas et al., 1989).

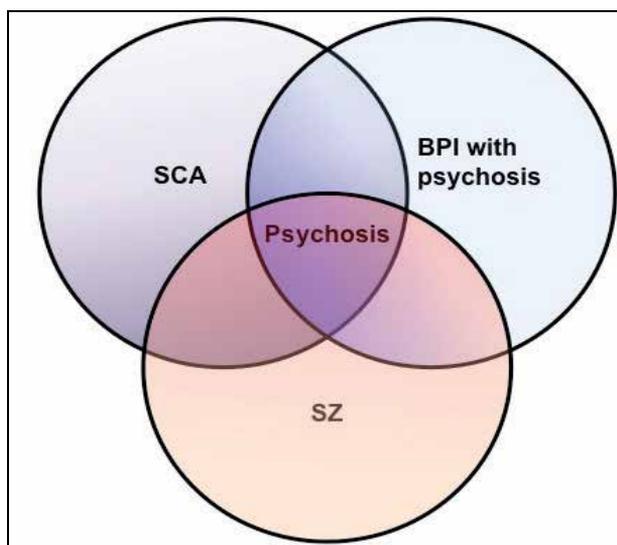


Fig. 1. Psychosis: the shared domain in SZ, SCA and BPI with psychosis.

3.1 Best estimation and consensus diagnostic process

The best estimation process uses a consensus-based approach to arrive at final diagnosis (Leckman et al., 1982). Clinical information is gathered from the Diagnostic Interview for Genetic Studies (DIGS), (Nurnberger et al., 1994), a Family Interview for Genetic Studies (FIGS) (Maxwell, 1992) and medical records.

The DIGS was developed by the National Institute of Mental Health (NIMH) in 1994. Its polydiagnostic capacity enables a detailed assessment of the course of the illness, chronology of the affective and psychotic disorders and comorbidity, as well as an additional description of symptoms including the possibility of an algorithmic scoring. The DIGS is an diagnostic instrument that allow psychiatrist form around the world to speak the same language; it includes a section describing the temporal relationships between affective disorders, anxiety disorders, psychosis and substance abuse disorders. It is reliable and valid instrument for genetic studies and has been used as a research instrument in other biological marker studies, given its diagnostic capacity for both the current and previous episodes. The direct interviews (DIGS) are conducted by trained psychiatrists and inter-rater

reliability is evaluated to ensure consistency of the instrument. The psychiatrist is blind to family history, medical records, or any other information other than that they derived from the direct interview.

Final diagnoses is obtained through a consensus process where two independent psychiatrists review all available information, arrive at independent diagnoses, discuss the case and then arrive at consensus diagnoses. Each best estimate rater also score each affected subject for lifetime dimensions of psychosis using the Lifetime Dimensions of Psychosis Scale (LDPS) developed by Levinson et al; 2002. The LDPS creates a profile of the lifetime characteristics of each case based on retrospective ratings, encompassing dimensions of positive psychotic, depressive and manic symptoms, complicating factors and deterioration. Dimensional information allows researchers to capture subsyndromic symptoms used to define spectrum conditions like SZ, SCA, BPI. For instance, LDPS has been used to study disorganization and negative symptoms (dimension for hebephrenia) in a Costa Rican sample. It was found that prominent lifetime scores for disorganization and negative symptoms are associated with the cannabinoid receptor 1 gene (CNR1) (Chavarría-Siles et al., 2008). The defined dimension for hebephrenia resembles the chronic cannabinoid-induced psychosis.

In spite of a good research instrument such as the DIGS, additional sources of information are required to accurately capture the diagnosis of patients with psychotic disorders. A study comparing direct interview and consensus based multi-source methods found that the DIGS alone have low agreement for the diagnosis of SZ (Contreras et al., 2009). Disagreement is more commonly observed on those diagnoses involving mixed symptomatology (psychotic and affective symptoms). The lack of clarity in the DSM-IV criteria for SCA, the difficulty of accurately assessing the duration of mood symptoms and/or psychotic symptoms and their overlap may explain the poor agreement rate in this disorder. This finding provides more evidence on the importance of a final best-estimate and consensus diagnostic process for psychiatric genetic research.

4. Endophenotype

While psychiatric nosology defines SZ, SCA and BPI as unique illnesses with distinctive clinical characteristics, and presumably separated aetiologies, there is growing evidence that they share common susceptibility genes (Walss-Bass et al., 2005). Although it is unlikely that they are a single illness, there is an overlap on many dimensions, including symptoms, neurocognition, and effective treatment. To date, most genetic research has been focused on the categorical classification and few have explored quantitative phenotypes. Imprecision of psychiatric phenotyping might explain the failure of genetic research to identify susceptibility genes of these disorders where research diagnoses is attained by subjective assessments. Growing evidence supports the study of quantitative processes mediating between the genotype and gross clinical phenotype (endophenotype) (Preston et al., 2005). Imprecision of psychiatric phenotyping might explain the failure of genetic research to identify genes that contribute to susceptibility of these disorders (Bearden et al., 2004). It is assumed that genes involved in endophenotypic variation are likely to represent more elementary phenomena than those involved in complex psychiatric diagnostic entities. It is also used interchangeably with the term 'intermediate trait,' describing a heritable quantitative phenotype believed to be closer in the chain of causality to the genes underlying the disease (Bearden & Freimer, 2006).

Clinical heterogeneity occurs when more than one clinical condition can be brought about by the same cause; causal heterogeneity occurs when two or more causes can, on their own, lead to the same clinical syndrome. Some individuals will have the “full disorder”, which mean a clinical syndrome meets diagnostic criteria for a specific diagnosis. Others will not meet criteria for the full disorder yet will show the abnormalities that are called “spectrum conditions”. There is a third group, cases of illness that mimic a genetic disorder but are not caused by genes, “phenocopies”. It is likely that phenocopies account for many diagnostic errors whereby a patient is diagnosed with a genetic condition but actually has some other disorder. Hence, phenocopies are a dramatic form of causal heterogeneity where disease genes cause some cases and others are not. Most probably, the “other” cases are caused by some environmental event. Defining disorders as “genetic” and “nongenetic” can lead to controversial position. Some authors argue that it would make more sense to view the genetic and environmental contributions to illness as varying among people. By chance, some patients will have primarily genetic disorders and others will have primarily environmental disorders. Most of them are likely to have a mix of both types of causes as seen in clinical daily practice.

Gottesman proposed that SZ does not have a single cause but it is caused by the combination of many genes and environmental factors, each having a small additive effect on the expression of SZ. This view has been called “the multifactorial theory of SZ” because it proposes that multiple causes lead to illness. This theory posits that it is possible to separate patients into groups with greater and smaller genetic contributions to their disorder but most of them will fall between the two extremes of “primarily genetic” and “primarily environmental.” This approach result of help for patients and their family members to better understand the causes of mental illness. It shows the role of environmental circumstances and how psychosocial therapies can help people with mental disorders even though many of these disorders are believe to be biologically based conditions reflecting the dysregulation of brain systems.

The “spectrum conditions” are used to describe mild psychopathology or other abnormalities of unknown clinical significance that occur among the otherwise well relatives of psychiatric patients. It supports the theory that most psychiatric disorders are not a discrete condition. Instead, it places many mental disorders within a continuum of psychopathology where genes and environmental insults determine the susceptibility to develop a psychiatric disorder. Figure 2 illustrates how this vulnerability is viewed as a quantitative or continuous trait. Many psychiatric disorders display a signature of complex inheritance. The liability to develop the disease is defined by a particular threshold of phenotypic severity. Milder forms of the illness are defined by less severe phenotypic features, and so there is familial aggregation of a spectrum of conditions that vary in severity. This pattern is consistent with models of inheritance that include multiple genes that interact with each other and environmental factor to confer susceptibility to illness.

An endophenotype is a heritable quantitative trait that is genetically correlated with disease liability, can be measured in affected and unaffected family-members and provides greater power to localize disease-related genes than affection status alone (Gottesman & Shields, 1973). They are less dependent on diagnostic certainty than more traditional genetic designs. Currently, an increasing number of researchers are using quantitative endophenotypes in extended pedigrees, which is considered the most powerful approach for localizing genes for affective and psychotic illnesses. Nevertheless, some geneticists argue against the endophenotype-based approach in psychiatry, noting the lack of evidence that such

intermediate phenotypes are more closely related to risk genes than are the diseases themselves.

Personality traits and neurocognitive measures are inexpensive endophenotypes that can be collected in large-scale family-based studies. Many candidate endophenotypes for BPI (e.g. neurocognitive functions, behavioural traits, sleep abnormalities) have been proposed (Gottesman & Gould, 2003; Hasler et al., 2006). Research of candidate endophenotypes for SZ and BP has also been conducted in the population of the CVCR. It was observed that neurocognitive traits are strong candidate endophenotypes for SZ and BP separately. For instance, a processing speed measure (Digit-Symbol Coding) was a strong candidate endophenotype for both illnesses (Glahn et al., 2010) and closely related to genetic liability for SZ (Glahn et al., 2007).

A study of quantitative measure of anxiety as a candidate endophenotype for BPI in the CVCR was also performed. It was found that quantitative measurements of both, state and trait anxiety are highly heritable and share some genetic factors but only anxiety trait is associated with Costa Rican BPI (Contreras et al., 2010). Hence, quantitative trait of anxiety meets criteria for a candidate endophenotype in the studied sample. The relevance of this work can be summarized as follows: (1) Quantitative anxiety measures as an endophenotype may facilitate the identification of genes that predispose individuals to develop BPI. (2) Confirmation of this result will aid researchers to understand the essential pathophysiology underlying bipolar spectrum disorders. (3) If this trait is proven to be an endophenotype, it will be of help in diagnosing and treating BPI patients in a more reliable and biologically valid manner than our current classification allows. This will also have direct epidemiological implication on public health policies. (4) As for other bipolar endophenotypes, anxiety traits can be modelled in animal research. Several genetic, pharmacological, and behavioural animal models have long been used to establish animal anxiety-like phenotypes, as well as to assess their memory, learning, and other cognitive functions (Ennaceur et al., 2006; Kalueff & Murphy, 2007; Waikar & Craske, 1997; Wang et al., 2007; Yokoyama et al., 2009). Specifically, chronic oxytocin has been used to attenuate the high level of trait anxiety in rats (Slattery and Neumann, 2009). Some innate fear responses may also underlie the type of elevated anxiety levels found in the subjects with BPI.

Factor analysis of this trait in subjects with lifetime history of manic/hypomanic syndrome led to the classification of these individuals in two groups, worry and rumination, based on the nature of the symptoms (Contreras et al., 2011). Comorbid obsessive compulsive disorder in BP is characterized by episodic course, higher rates of certain obsessions (e.g. aggressive/impulsive, sexual, religious, and obsessional doubts) that require more frequent hospitalizations and complex pharmacological interventions (Perugi et al., 2002). A defining characteristic of obsessive compulsive disorder is unsuccessful suppression of unwanted thoughts. Obsessive symptoms have else been positively associated with rumination and inversely associated with perceived thought control ability (Grisham & Williams, 2009). Rumination involves repetitive thought about past events, current mood states, or failure to achieve goals (Martin & Tesser, 1996). Evidence suggests that rumination predicts the future occurrence of anxiety in anxious depressed comorbid conditions (Nolen-Hoeksema, 2000). In subjects with history of mania/hypomania, rumination may play an important role in triggering depressive episodes too. This analysis represents an important contribution to the understanding of underlying constructs in bipolar patients with sub-syndromic anxiety.

Further research will test whether these component factor scores are heritable, whether they share the same genetic factors, which (if they are not highly correlated) may further help define the components underlying BPI and other psychiatric disorders with a history of mania/hypomania.

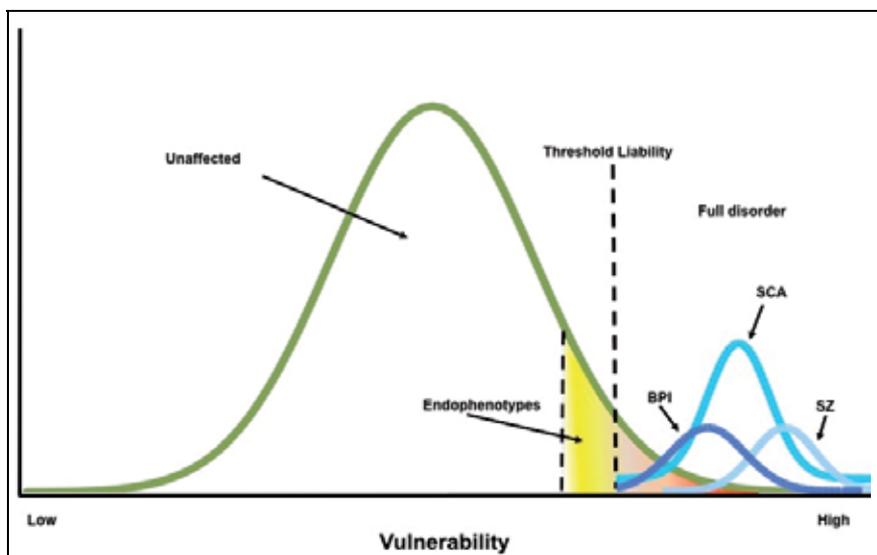


Fig. 2. Multifactorial vulnerability model for complex disorders.

5. Gene/environmental interaction

Gene-environment interactions result when genetic polymorphisms alter the ability of a specific region of the genome to be epigenetically altered in response to an environmental factor. Interaction between genes and environment plays an important role when studying the underlying etiological process of these psychiatric disorders (Kim et al., 2007). Many candidate genes have been studied, especially those directly implicated in the monoamines pathways. For example, allele-specific epigenetic modifications have been associated with “risk” polymorphisms in psychiatric candidate genes including the C/T(102) polymorphism in the serotonin receptor 2A gene (Poleskaya et al., 2006) and the Val66met polymorphism in the brain-derived neurotrophic factor gene (BDNF) (Mill et al., 2008). Increasing evidence suggests that epigenetic processes can be influenced by external environmental factors (Sutherland et al., 2003). Epigenetic events such as DNA methylation has been shown to vary as a function of nutritional, chemical, physical, and even psychosocial factors. As epigenetic changes are inherited mitotically in somatic cells, they provide a possible mechanism by which the effects of external environmental factors at specific stages in the life course can be propagated through development, producing long-term phenotypic changes. Epigenome seems to be particularly susceptible to disruption during rapid cell replication (Dolinoy et al., 2007).

In the same way, the polymorphism of the gene that codes for the serotonin transporter protein has been associated with specific clinical outcomes when interacting with environmental factors. This single gene (SLC6A4, Locus Link ID: 6532) has been mapped to

chromosome 17q11.1-q12 (Murphy et al., 2004). This protein plays a crucial role in regulating the intensity and duration of serotonergic signalling at synapses and has been a target for many psychiatric drugs (Alessandro et al., 2008). There are at least two polymorphic variants that play a role in differential expression of the SLC6A4 gene. The short allele of these variants results in decreased expression of the serotonin transporter protein (Glatz et al., 2003). Several studies have analyzed the role of these variants in anxiety and depression (Uher et al., 2008). Depressive symptoms and suicidality have been associated with having one or two copies of the “s” allele, but only in the context of stressful life events (Caspi et al., 2003). Kendler and colleagues were able to replicate Caspi’s finding showing in an independent sample that individuals with two “s” alleles showed an increased risk for depressive episodes in the context of stressful life events (Kendler et al., 2005).

Patients with SZ and SCA are at great risk for lifetime history of a full depressive syndrome or episode. One can hypothesize several potential pathways that might explain the high rates of depression in persons with a psychotic disorder. Lack of personal security, living conditions potentially harmful to the patients, psychological wellbeing, persecution and discrimination, bad peer relationships and unemployment are all potential consequences of interaction between the psychotic individual and his / her environment. For persons whose psychosis carries a paranoid element, the presumed threat from persecutors to the individuals’ wellbeing may be sufficient to trigger depression and fear. For those patients who have sufficient insight to be aware of their illness and how it impacts their life, awareness of illness may be a direct trigger for a potentially dysphoric response. Postpsychotic depression, for instance, is a common occurrence in persons who are treated for first-break psychosis. By this mean, chronic psychosis might itself act as a “stressor” which interact with the “s/l” serotonin transporter variant to increase depression in persons with at least one copy of the “s” variant.

There is increasing evidence supporting the role of this gene in the course of mood symptoms in the context of psychosis (Contreras et al., 2008). A replication of the previous work was conducted using a narrower phenotype. Only subjects with SZ from the CVCR were included in the analysis. It was found that schizophrenic subjects carrying at least one short allele have higher risk for depressive syndromes (Contreras et al., 2010). Contrary to other scientific reports the authors did not find association between suicidal behaviour and the genetic variant.

6. Conclusion

Mental illnesses pose significant economic burdens, are associated with substantial morbidity and mortality rates and their etiological factors are poorly understood. Isolated populations such as the CVCR are essential for conducting studies of complex disorders. A centralized of health care; large family sizes and high rate of compliance of patients make this population ideal for genetic studies on mental illness. Within founder populations, genetic variants that are rare in other populations may also account for a greater proportion of the genetic cases, thus increasing the opportunity to identify predisposition genes of these common disorders.

Although genetic studies of SZ, SCA and BPI have made progress in recent years, the field lags behind other complex diseases in the identification of disease-related genes. The difficulty in finding genetic loci most likely derives from the complex nature of the illnesses.

The observed differences in social and functional decline among these psychiatric conditions support the original dichotomy described by Kraepelin based on chronicity and periodicity. By following this dichotomic concept some researchers have focused their work on a more severe and homogeneous phenotype. In this case, the categorical classification of the current diagnostic system has been utilized to define narrow phenotypes. Another group of researchers prefer to combine the traditional diagnostic approach with quantitative measurements. Thus, the measurement of more sophisticated dimensions such as neurocognitive endophenotypes and personality traits in multiplex multigenerational families have gained importance. Regardless of the diagnostic approach, a best estimation process is vital to avoid misclassification biases. The use of direct interview together with information from family members can help to identify problematic symptoms during diagnostic process. All efforts are oriented not only to the improvement of genotyping techniques and clinical classification but else to the understanding of the interaction of genes with environment. Some of the main limitations in this field of research are explain by the clinical and genetic complexity of psychiatric disorders, the lack of large sample sizes needed to detect associations at appropriate levels of statistical significance, the underlying stratification of study groups and the effect of medications on behavioural measurements. In order to overcome those obstacles, research is moving toward a more quantifiable and dimensional rating system. This will allow scientist to understanding the pathophysiology of mental illness that is of great public health significance. Identifying genes that contribute to risk of these diseases will provide critical information leading to the development of novel diagnostic and therapeutic strategies.

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Abuse in Childhood and HPA Axis Functioning in Mentally Ill Patients

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1. Introduction

In 1986 The European Council described family abuse as 'each activity or negligence of one of the family members that are life- threatening and can jeopardise physical and psychological integrity or freedom of another member of the same family or they seriously harm the development of his personality'. Ney et al. (1987)¹ ranked the types of violence and negligence according to the extent of destruction of an individual. The most traumatic forms of violence are:

- physical violence: hitting on the face, asphyxiation, striking with a belt, agitation, burns, bone fractures
- verbal violence: intimidation, blaming, embarrassing, discrimination
- sexual violence: gang rape, oral sex, forced masturbation, forced intercourse, forced participation in pornography

The epidemiological data point out the existence of the problem of abuse and using violence by parents towards children. It was stated that in the USA, from 11% to 62% of women (McCauley et al., 1997; Wyatt 1985)^{2,3} and from 3% to 39% of men (Kercher et al., 1984)⁴ were victims of sexual abuse in childhood. Different forms of abuse such as physical and emotional violence were believed to be an epidemic in the USA. What was researched were the traumatic experiences from childhood and later psychopathology. It was stated that sexual abuse in female children can later result in PTSD occurrence and concerns 10% of women in the USA (Kendler et al., 1995)⁵.

¹ Ney, P.G. (1987). Does verbal abuse leave deeper scars: a study of children and parents. *Canadian Journal of Psychiatry*, Vol. 32, pp. 371-377, ISSN 0706-7437.

² McCauley, J, Kern, D.E. et al. Clinical characteristics of woman with a history of childhood abuse: unhealed wounds. *JAMA*. 1997, 277; 1362- 1368, ISSN 0098-7484.

³ Wyatt, G.E. (1985). The sexual abuse of Afro- American and white- American women in childhood. *Childhood Abuse Neglect*, vol.9, pp. 507- 519, ISSN 1097-6256.

⁴ Kercher, R.C. & McShane M. (1984). The prevalence of child sexual abuse victimization in adult sample of Texas residents. *Childhood Abuse Neglect*, vol.8, pp. 495-502, ISSN 0145-2134.

⁵ Kendler, K.S.; Kessler, R.C.; Walters E. et al. (1995). Stressful life events, genetic liability and onset of an episode of major depression. *American Journal of Psychiatry*, vol.152, pp. 833- 842, ISSN 0002-953X.

Cawson's research (Cawson et al., 2000; Cawson, 2002), which was carried out on a population of 2869 young British adults aged 18- 24 chosen randomly, found that maltreatment was experienced by 16 per cent of them⁶. Serious physical abuse by parents was experienced in the childhood of seven per cent of those researched, and six per cent of them experienced emotional maltreatment. Serious absence of care was experienced by six per cent of the sample; whereas five per cent of them suffered a serious absence of supervision. Childhood sexual abuse by parents was reported by 1 per cent of the sample. At the same time, 15 per cent experienced sexual abuse by other relatives or a known person, four per cent by a recently met stranger. Intermediate sexual abuse by parents affected 14 per cent of the sample in their childhood and intermediate absence of care- nine per cent, intermediate absence of supervision was experienced by 12 per cent (Cawson et al. 2000 & 2002). In the United States, it has been estimated that 11- 62% of women (Wyatt 1985; McCauley and Kern, 1997)^{7,8} and 3- 39% of men (Kercher & McShane, 1984)⁹ have been victims of sexual abuse in childhood. Other forms of maltreatment such as physical and emotional abuse are regarded as widespread in the US.

While conducting research over various kinds of violence, Ney (1997) concluded that verbal violence, more than any other kind of it, influences the alteration of self- and world perception in the researched children. Verbal violence causes symptoms of fear of abandonment in children, mood disorders, difficulties in establishing and maintaining relationships, a feeling of guilt as well as auto- destructive behaviours. Children who are subject to physical violence are more aggressive, have a low self- esteem, impaired ability of achieving happiness in their lives, difficulties in expressing empathy, and - in case of a long-lasting violence - a connection can be noted between physical violence and the suppression of intellectual development, depression and aggressive behaviours (Heim et al., 2001; Ney, 1987; Ney, 1997; Rossman, 1985)^{10,11,12,13}.

The outcomes of a variety of nowadays' scientific research indicate that there is a sound impact of some stressful events from childhood (trauma) on mental health (Ossowska 2002, Twardowska & Rybakowski 1996)^{14,15}. The research mainly concern sexual abuses,

⁶ Cawson P., Wattam, C.; Brokers, S.& Kelly, G. (2000). *Child maltreatment in the United Kingdom*, NSPCC, ISBN 1-84228-006-6, London, United Kingdom.

⁷ See 3

⁸ See 2

⁹ See 4

¹⁰ Heim, Ch. & Nemeroff, Ch.(2001). The role of childhood trauma in the neurobiology of mood and anxiety disorders; preclinical and clinical studies. *Biological Psychiatry*, Vol.1, No. 49, pp. 1023-1039, ISSN 0006-3223.

¹¹ See 1

¹² Ney, P.G. & Peeters M.A. (1997). *The centurion's pathway*, Pioneer Publishing, ISBN 9780920952061, Victoria, USA.

¹³ Rossman, P.G.(1985). The aftermath of abuse and abandonment: a treatment approach for ego disturbance in female adolescence. *Journal of American Academy of Child and Adolescent Psychiatry* , Vol.24, pp. 345-352, ISSN 0002-7138.

¹⁴ Ossowska, G.(2002). *Poszukiwanie leków zapobiegających następstwom stresu przewlekłego. Nowy model „depresji” u szczurów*. Praca habilitacyjna, Akademia Medyczna w Lublinie, Zakład Poligraficzny BiS, Lublin, Poland.

¹⁵ Twardowska, K. & Rybakowski J. (1996). Oś limbiczno - podwzgórzowo - przysadkowo - nadnerczowa w depresji (przegląd piśmiennictwa), *Psychiatria Polska*, Vol. 5, pp. 741 - 756, ISSN 0033-2674.

violence, lack of emotional support, loss of parents, separation, lack of parental warmth, familial conflicts, mental illnesses and psychoactive substance abuse by parents. The influence of sexual abuse and physical violence on a child's development has been put into a meticulous scrutiny here.

The experience of abuse in childhood is closely related to an increased number of traumatic experiences during a lifetime. The abuse may also enhance the susceptibility to the later development of PTSD through the change of psychological (e.g. the development of patterns of affection) and biological (the disruption of HPA axis functioning) developmental processes, including the interaction with genetic factors. In spite of the fact that different (except for abuse) types of traumatic experiences in childhood (e.g. a house burn-down or participation in a traffic accident), can force us to speculate that they will have an adverse effect on development, most of the current research points out childhood abuse and the linked stressful familial/ interpersonal events in life in the predictability of a wide range of later psychological and somatic problems.

The reasons for this state of matters are not yet fully understood, however, some of the potential explanations are the following:

1. In comparison to different types of traumatic events, childhood abuse happens more often in the context of the family ,
2. Every type of abuse in childhood is connected with an increased probability of exposure to another types of abuse and with an increased intensity of stressful situations connected with family/ parental dysfunctions (e.g. the psychoactive substance abuse by parents) , and
3. In comparison to some different types of exposure to trauma, childhood abuse is a frequently repeated experience, not only a single episode (e.g. multiple episodes of sexual abuse by the exact same tormentor for several years).

In McEwen's work (2003)¹⁶ it was described that one of the most important factors influencing a life- long health is the stability in the early period of life. Unstable parent-child relationships as well as an explicit abuse in childhood may lead to the development of behavioural and physical problems in childhood that also persist in the adult life. In people who experienced abuse in childhood, there was an increased mortality and morbidity of various diseases. On the other hand, however, the less extreme familial environmental features also cause an increased risk of somatic and mental disorders in children. As it was stressed in the current review of research, in families that are characterised by the lack of warmth and support or an insufficient supervision of the parents, there is an increased risk of somatic and mental disorders. The consequences of childhood abuse and familial dysfunction in an early period of life include a significant increase in substance abuse, depression and suicidal tendencies; promiscuity; an incidence of heart disease, cancer, chronic lung disease, extreme obesity, skeletal fractures and liver disease.

Abuse and negligence in early childhood is also connected with neuro- chemical imbalance which is related to low levels of serotonin as well as the development of hostility, aggression, substance abuse and suicide. Research on primate apes have shown than an early maternal deprivation lowers the levels of serotonin in the brain and it also enhances the tendency towards alcohol and aggressive behaviours. It also lowers affiliate behaviours.

¹⁶ McEwen, B.S. B.S.(2003). Early life influences on life-long patterns of behavior and health. *Mental Retardation and Developmental Disabilities Research Reviews*, Vol. 9, pp.149-154, ISSN 1080-4013.

Data from the research on humans point out similar patterns of an altered physiological function in children who were brought up in 'risky families' (i.e. families that are characterized by aggression, lack of parental warmth or an excessive/ insufficient regulation). Children from such families show irregular HPA axis activity, especially the increased levels of activity in this specific hormonal system.

In the Easton et al. research¹⁷(2000) from Yale University School on the group of 105 addicts, a high incidence of abuse in childhood was observed. It was shown that 14% of the group were victims of family violence. The addicts that experienced this form of abuse showed a greater severity of depression symptoms that were estimated with the use of Beck's Depression Scale and more aggravated symptoms of addiction researched by Michigan Alcoholism Screening Test. They also required a more intensive individual therapy.

A lot of research was conducted that associated traumatic experiences from childhood with the later psychopathology.

Using violence towards children creates a possibility of occurrence in the adult life of the following: depression (Briere & Runtz, 1990; Wyatt 1985; Sweet et al. 1990)^{18,19,20} anxiety disorders (Agid et al. 2000)²¹, addictions (Agid et al. 2000, Kedler et al. 1995)^{22,23} and personality disorders (Herman et al. 1989, Ogata et al. 1990)^{24,25}.

Analysing the impact of various kinds of stress on mental state, it is important to divide them into those taking place during the recent time and in the past, including childhood. In the light of the latest work of Heim et al., the trauma experienced in the early years of childhood can cause a preserved biological state that can be the risk factor for mental disorders development in the later life. For this reason, the ascertainment of childhood abuse should be considered as a crucial risk factor of the occurrence of mental disorder just as tobacco smoking is the risk factor of lung cancer²⁶.

2. Trauma as a chronic stress and its pathogenic role

The occurrence of a long- lasting activation of HPA axis, autonomic system and various executive centres during chronic stress causes many adverse effects of the organism, it

¹⁷ Easton , C.J. (2000). Prevalence of family violence In clients entering substance abuse treatment. *Journal of Substance Abuse Treatment*, Vol.18, pp.23-28, ISSN 0740-5472.

¹⁸ Briere J. & Runtz, M. (1990). Differential adult symptomatology associated with three types of abuse. *American Journal of Psychiatry* , Vol. 14, pp. 357, ISSN 0145-2134.

¹⁹ See 3 Wyatt

²⁰ Sweet, C.; Surrey, J.; Cohen, C. (1990). Sexual and physical abuse histories and psychiatric symptoms among male psychiatric patients. *American Journal of Psychiatry*, Vol. 147, pp 632, ISSN 0002-953X.

²¹ Agid, O.; Kohn, Y.; Lere, B. (2000). Environmental Stress and psychiatric illness. *Biomedical Pharmacotherapy* vol. 54, pp. 135, ISSN 0753-3322.

²² See 16.

²³ See 5.

²⁴ Herman, J.L; Perry, J.; Kolk B.A. (1989). Childhood trauma in borderline personality disorder. *American Journal of Psychiatry*, Vol. 146, pp. 490, ISSN 0002-953X

²⁵ Ogata, S.N.; Silk K. (1990). Childhood sexual and physical abuse in adult patients with borderline personality disorder. *American Journal of Psychiatry*, Vol. 147, pp. 1008, ISSN 0002-953X.

²⁶ Heim, Ch.; Newport, D.J.; Stacey, H.; Graham, Y.(2000). Pituitary-adrenal and autonomic response to stress in woman after sexual and physical abuse in children. *JAMA* Vol.,2, pp. 592-597, ISSN 0098-7484.

predisposes to the development of pathological processes that are mostly linked with chronic hypercortisonism and the activation of autonomic system. Stress activates many of the organism's systems, including the HPA axis and noradrenergic brain system, is also controls autonomic input. Chronic stress can lead to the development of numerous kinds of disorders. In the case of chronic stress, the number/ sensitivity of the corticosteroid G receptors decreases which maintains the existing stress reaction. This is how it comes to an eventual weakening of the vital mechanism that naturally reduces its severity- the negative feedback, due to which the increased cortisol inhibits the activity of superior stress centres. Chronic stress, therefore, in contrast to an acute stress, should be considered as a non-adaptive reaction. Thus, through the persistent hyperactivity of the HPA axis and its accompanying neuro- hormonal imbalance, it leads to the occurrence of disorders in organism functioning. The persistent hypercortisonism and hyperactivity of sympathetic system or its imbalance during chronic stress can lead to:

- Weakening of memory processes (most probably connected with the degeneration of CA₃ cells in hippocampus)
- Immunosuppression
- Inhibition of sex hormones production and osteoporosis
- Hypertension, tachycardia , decrease in the variability of heart rhythm/ cardiac dysrhythmia

The above processes favour the development of various diseases of the cardiovascular system, as well as metabolic, endocrine and neoplastic diseases. Chronic stress plays a major role in the pathogenesis of insulin resistance syndrome. It is characterised by:

- Hyperinsulinemia, glucose intolerance and hyperglycemia
- Hypertension
- Decrease of fraction HDL cholesterol density and increase of triglyceride concentration
- Abdominal obesity

Insulin resistance syndrome predisposes to various metabolic and cardiovascular diseases such as diabetes type II, atherosclerosis as well as ischemic heart disease (Lewandowski 2001)²⁷.

Persistent increased level of corticotrophin- releasing hormone (CRF), causes such symptoms as deterioration of mood and sexual drive, anxiety, sleep and eating disorders. The pathogenic action of chronic stress happens also on the level of genetic expression. After entering the cell, corticosteroids together with the receptors, create a complex that, after activation, enters the cell's nucleus and induces the genetic transcription through binding to the regulation site of specific genes. Under the influence of chronic stress, on a one hand, an increase in cortisol concentration appears , on the other, however, there is a decrease in the number/ sensitivity of corticosteroid receptors which is why it can contribute to the occurrence of disorders concerning these processes and the activation of genetic predisposition towards some diseases (Budziszewska & Lasoń,2003)²⁸. The coincidence of subsequent stressful events in the adult life with the existing sensitivity of the HPA axis results in disorders of an enhanced production of cortisol and corticotrophin- releasing hormone (CRF) production reuptake in brain. CRF is a neuropeptide that influences the

²⁷ Landowski, J. (2001). Depresja jako przewlekły stres. *Dyskusje o Depresji*, Vol 17, pp.2.

²⁸ Budziszewska, B.; Lasoń W. (2003). *Neuroendokryne mechanizmy działania leków przeciwdepresyjnych*, ISBN 83-917041-3-0, Wrocław, Poland.

production of ACTH through the pituitary gland, it is simultaneously a neuromodulator of many different neurotransmitter systems. It also has a significant influence on the brain adrenergic system through the locus coeruleus by altering the secretion of noradrenalin, serotonin and dopamine. The tonic activity of locus coeruleus changes into a fluctuating one, causing alterations in secretion of monoamines and subsequent anxiety symptoms (changes in 5-HT secretion), anhedonia as well as slowness and difficulties in concentration (changes of DA secretion) (Harro & Orleand 2001)²⁹. Thus, a compilation of stresses in adult life on the childhood- originated sensitization in the range of the endocrine axis, Hypothalamus- Pituitary- Brain (HPA) can lead to a start of a cascade of abnormalities in monoaminergic systems which can be manifested by various clinical symptoms (Strickland et al. 2002)³⁰.

3. Hypothalamus- pituitary- adrenal axis

Monoaminergic neurotransmitters - noradrenalin (NA), serotonin (5-HT) and dopamine (DA) play an important role in various brain processes, including the limbic system functioning. The hypothalamus controls endocrine and vegetative systems. The Hypothalamus- Pituitary- Adrenal axis is a neuroendocrine system, in which there are mutual connections between the brain, hormones and various bodily organs. This system is engaged in the organism's reactions to stress. The activity of HPA axis shows 24 hour- long variations which are controlled by the central clock of suprachiasmatic nucleus, sending direct and indirect projections to the hypothalamus (Herbert J et al. 2006)³¹.

Under the influence of stress and hence, various transmitters such as noradrenalin (NA), gamma- amino- butyric acid (GABA), serotonin (5-HT) as well as acetylcholine (ACH), hypothalamus produces, through the synthetic pathway, a hormone called Corticotrophin-Releasing Factor (CRF) that stimulates the anterior pituitary which leads to the synthesis and release of an adrenocorticotrophic hormone (ACTH). By the means of ACTH, there occurs secretion of hormones called corticosteroids in the adrenal gland. The main representative of this group of hormones in humans is cortisol (which is believed to be the main hormone of the sympathetic nervous system). The presence of cortisol in blood inhibits production of ACTH and corticotrophin- releasing hormone (CRF). The inevitable condition for an appropriate adjustment for stress is the termination of the stress reaction after the termination of the stimulus causing it. The defect of the stress reaction expiration or a situation of exposure to chronic stress may lead to pathological phenomena³² (Parker et al. 2003). Naturally, homeostatic mechanisms in healthy people regulate an excessive physiological excitement. Abnormalities in HPA axis functioning may lead to prolongation

²⁹ Harro, J.; Oreland, L. (2001). Depression as a spreading adjustment disorder of monoaminergic neurons: a case for primary implication of the locus coeruleus. *Brain Research Review*, Vol. 38, pp. 79-128, ISSN 0165-0173.

³⁰ Strickland, P.; Dekin, W.; Percival C. (2002). Bio-social origins of depression in the community. Interactions between social adversity, cortisol, and serotonin neurotransmission. *British Journal of Psychiatry*, Vol. 180, pp.168, ISSN 0007-1250.

³¹ Herbert, J.; Goodyer, I.M.; Grossman, A.B. (2006). Do corticosteroids damage the brain? *Journal of Neuroendocrinology* Vol.18, pp. 393-411, ISSN 0953-8194.

³² Parker, K.; Schatzberg A.; Lyons D. (2003). Neuroendocrine aspects of hypercortisolism in major depression. *Hormones and Behavior*, Vol. 43, pp. 60-66, ISSN 0018-506X.

of stress; they also seem to play a vital role in the pathogenesis of some somatic diseases and mental disorders (e.g. affective disorders) (Ehlert et al. 2001 & Porter et al. 2006)^{33,34}.

The dynamics of stress response in the HPA system consist of three phases:

1. Basal activity which reflects the non- stress- stimulated HPA activity
2. Stress activity in which the cortisol level increases above the basal level, indicating the beginning of the stressor activity.
3. Stress recovery in which the cortisol level returns to the basal level, indicating the expiration of the stressor (Burke et al. 2005)³⁵.

The consequences of stressful events in childhood are the disorders of neuroendocrine hypothalamus- pituitary- adrenal (HPA) axis' functioning manifested by its excessive activity (sensitisation) in an adult life.

In response to the stressor stimulus, an organism mobilises mechanisms of defence. The most important mechanism related to the organism reaction to stress is a proper functioning of the axis Limbic System- Hypothalamus- Pituitary- Adrenal (LHPA). Corticosteroids, which are produced by adrenal glands, inhibit the production and secretion of hormones by the superior centres: corticotrophin- releasing hormone (CRF) by the hypothalamus and adrenocorticotrophic hormone (ACTH) by the pituitary gland. This process takes place due to the corticosteroid receptors localized in the hypothalamus, pituitary or the limbic system, especially in the hippocampus. The most essential role in the control system is played by the prefrontal cerebral cortex as well as limbic system.

An increased concentration of corticosteroids may be also responsible for changes of a neurodegenerative nature in hippocampus as well as distortions in neuronal plasticity. In the research conducted on animals it was stated that corticosteroids in high concentrations:

- enhance neurodegenerative changes in hippocampus caused by various factors
- inhibit the formation of new cells (neurogenesis) in the Ammon's horn
- cause the decrease of the length and number of branching of apical dendrites of pyramidal cells of CA3 region in hippocampus (Lyons et al. 2001)³⁶.

The HPA axis enables an organism to adjust to the physiological and psychosocial changes in its environment. Both of the above systems were frequently examined in disorders associated with stress and depression. Scientific data suggest that those systems are interconnected by the corticotrophin- releasing hormone (CRH). It is believed that anxiety disorders activate neuroendocrine systems in brain, however, it is not clear whether the situation is similar in case of depression .

On the basis of extensive basal and clinical results it was stated that the corticotrophin-releasing hormone and a group of related substances seem to play a key role in stress-related disorders, such as anxiety and depression.

³³ Ehlert, U.; Gaab, J.; Heinrichs, M. (2001). Psychoendocrinological contributions to the etiology of depression, posttraumatic stress disorder, and stress-related bodily disorders: the role of the hypothalamus-pituitary-adrenal axis. *Biological Psychology*, Vol. 57, pp.141-152, ISSN 0301-0511.

³⁴ Porter, R.J.; Gallagher, P. (2006). Abnormalities of the HPA axis in affective disorders: clinical subtypes and potential treatments. *Acta Neuropsychiatrica*, Vol. 18, pp. 193-209, ISSN 0924-2708.

³⁵ Burke, H.M.; Davis, M.C.; Otte, C.; Mohr, D.C. (2005). Depression and cortisol responses to psychological stress: a meta-analysis. *Psychoneuroendocrinology*, Vol.30, No.9, pp. 846-856, ISSN 0306-4530.

³⁶ Lyons, D.M.; Yang, C; Sawyer-Glover, A.M.(2001). Early life stress and inherited variation in monkey hippocampal volumes. *Archives of General Psychiatry*, Vol. 58 pp.1145-1154, ISSN 0003-990X.

CRH is thought of as a brain fundamental mediator of stress response in relation to its participation in producing a neuroendocrine, autonomic and behavioral response to a stressful situation (Reul i in. 2005)³⁷.

Another hormone that participates in reaction to stress is dehydroepiandrosterone (DHEA) belonging to a group of steroid hormones and it is synthesized in the zona reticularis of the adrenal cortex from pregnenolon. Dehydroepiandrosterone is found in human blood plasma in the form of DHEA steroid of low plasma saturation stability and sulphate (DHEA-S) with half-life around 10- 12 hours.

The secretion of DHEA hormone is stimulated in similar way to the cortisol, i.e. by CRH and ACTH. In the brain, DHEA works as an agonist of the receptors of gamma- amino- butyric acid type A (GABA A), it protects neurons from the toxicity of glutamates and beta- amyloid peptides that secrete neurotoxic amino acids (Ritsner et al. 2004)³⁸, blocks the excitability of neurons, having an anxiolytic, tranquilizing, sleep- inducing, mood- and cognition- improving effect.

DHEA-S, however, works antagonistically to the GABA A receptors through stimulation of the central nervous system, increasing its plasticity and susceptibility to convulsions. It also takes part in releasing pituitary and hypothalamic neuropeptides.

Another function of DHEA-S is enhancing the release of dopamine, noradrenalin and acetylcholine in the frontal lobes and limbic system what intensifies the memory and learning processes. DHEA-S works protectively in relation to the neurotoxicity of cortisol, especially in the hippocampus region (Goodyer et al. 2001, Zaluska & Janota, 2009)^{39,40}.

It is exactly the hippocampus as well as the limbic region where the concentration of DHEA is very high. However, it has not yet been agreed whether it is being produced there despite of the fact that there were quite a few reliable research reports completely devoted to its neurosteroidal genesis. Unfortunately, they also did not explain the mechanisms regulating the activity of cells producing neurosteroids (Holka- Pokorska 2005; Ritsner et al. 2004)^{41,42}.

The research conducted both in the laboratorial and natural conditions, allow a conclusion to be formulated in the range of the meaning of DHEA- a hormone circulating not only in the blood, but also in the brain, that regulates the neurogenesis in the hippocampus as well as it modulates the lowering of elevation of corticosteroids, especially cortisol, thus influencing the formation of new neurons and increasing their survival (Herbert 2007).⁴³

³⁷ Reul, J.M.& Holsoer, F.(2005). Corticotropin-releasing factor receptors 1 and 2 in anxiety and depression. *Current Opinion in Pharmacology*, Vol. 2, No.1, pp.23-33, ISSN 1471-4892.

³⁸ Ritsner, M.; Maayan, R.; Gibel, A.; Strous, R.D.; Modai, I.; Weizman, A. (2004). Elevation of the cortisol/dehydroepiandrosteron ratio in schizophrenia patients. *European Neuropsychopharmacology*, Vol. 14, pp.267-273, ISSN 0924-977X.

³⁹ Goodyer, I.M.; Park, R.J.; Netherton, C.M.; Herbert, J. (2001). Possible role of cortisol and dehydroepiandrosterone in human development and psychopathology. *British Journal of Psychiatry*, Vol. 179, pp..243-249, ISSN 0007-1250.

⁴⁰ Zaluska, M.; Janota, B. (2009). Dehydroepiandrosteron (DHEA) w mechanizmach stresu i depresji. *Psychiatria Polska*, Vol.3. No.43, pp.263-274, ISSN 0033-2674.

⁴¹ Holka-Pokorska,J. (2005).Dehydroepiandrosteron w leczeniu depresji. *Wiadomości Psychiatryczne*, Vol. 8, No.3, pp.149-155, ISSN 1505-7429.

⁴² See 38

⁴³ Herbert, J. (2007). DHEA, In: *Encyclopedia of stress*, Eds. G. Fink (Ed.) 788-791,, Academic Press, ISBN 978-0-12-088503-9 ,London, United Kingdom.

Dehydroepiandrosterone serves a neuromodulating function as an agonist of GABA A receptors and an antagonist in relation to the action of cortisol, which is why the hypothesis of its vital importance in terminating the stress reaction and restoration of organism homeostasis is often supported. The hormone achieves it by the improvement of the strategy of handling stress (Zaluska & Janota, 2009)⁴⁴.

The ratio of two steroid hormones (cortisol and DHEA) is an important indicator of their relative activity. A natural cortisol level and a lowered DHEA level can cause a harmful ratio for the brain's functioning. The ratio of hormones is described with the use of the term 'endocrine risk' with a greater probability of the occurrence of depression in a short period of time, more significantly in the afternoon measurements of cortisol levels than every single value considered separately.

The proportion of cortisol/ DHEA may be used as an indicator of the ability to maintain homeostasis when in stress. The available research results describe the influence of stress and the values of cortisol to DHEA ratio. In an acute stress, levels of both of the hormones (cortisol and DHEA) are subject to elevation and in chronic stress, a decrease of the concentration of cortisol, DHEA and DHEA- S can be observed, most probably as a sign of adaptive changes of an organism (Meewisse et al. 2007; Yehuda et al. 2006)^{45,46}.

4. The influence of cortisol on the formation of fear symptoms

Fear arises as a result of a distortion of an interaction between the hippocampus system (conscious memory) and amygdale (emotional memory). Cortisol, being a stress hormone, leads to the decrease of the cohesion and density of hippocampus cells, impairing its function. This process is happening in the following way: a stressor that acts on individual and is emotionally recognised by the amygdale as a dangerous one, also stimulates both the hypothalamus and pituitary, leading to an elevation of the acetylcholine level, which subsequently increases the cortisol level. If a high cortisol level is maintained for a longer period of time (an induced one), it has an adverse effect on the hippocampus, interfering with the ability of conscious learning and memorising. The cortisol level, being an endocrine designatum of stress, lowers 'the possibility of creation in the hippocampus of a long-lasting strengthening of synapses, which is a metabolic substrate of conscious memorising'. In the research "the shrinkage of neuronal fibres in hippocampus during a forceful, even a short lived stress" was also proved (Herzyk 2003)⁴⁷.

What was described in the literature and research were the events of experiencing stress that positively influences the ability of conscious memorising, so called flash light effect, which is the result of the adrenalin action as a consequence of stress being rated by an individual as moderate. If, however, in the aftermath of a stressful event, the cortisol level is elevated, it

⁴⁴ See 37

⁴⁵ Meewisse, M.L.; Reitsma, J.B.; De Vries, G.J., Gersons, B.P. & Olf, M. (2007). Cortisol and post-traumatic stress disorder in adults: systematic review and meta-analysis. *British Journal Psychiatry*, Vol. 191, pp.387-392, ISSN 0007-1250.

⁴⁶ Yehuda, R.; Brand, S.R.; Golier, J.A. & Yang R.K.(2006). Clinical correlates of DHEA associated with post-traumatic stress disorder. *Acta Psychiatrica Scandinavica*, Vol. 114 No.3, pp.187-193, ISSN 0001-690X.

⁴⁷ Herzyk, A.(2003). *Mózg, emocje i uczucia. Analiza neuropsychologiczna*. Wydawnictwo UMCS, ISBN 83-227-2152-8 ,Lublin, Poland

will subsequently amplify the activity of amygdala and the emotional subconscious memory, which influences destructively on the conscious memory. This is most probably the reason why the fear memory, encoded in the amygdala structure, remains for the whole life in human brain, being out of the reach of the consciousness. (Herzyk 2003)⁴⁸.

5. The genetics of stressor resistance

A hypothesis could be developed that any trauma experienced in childhood models the neuroplasticity of the brain, depending on the genetic basis (the genetic liability to stressors).

Some people have the ability of managing the most extreme kinds of stress, i.e. they have a high resilience to stress. In others, however, the influence of stressors from childhood and the piling up of another in the later adult life gives rise to a number of mental disorders such as PTSD, depression, anxiety disorders or others. The research concerning the gene liability to falling ill under the influence of chronic stressor factors can be of use while explaining personal differences. Polymorphisms of different genes were examined. The research of Binder and others (2008) concerning the polymorphisms of genes that regulate the activity of the glucocorticosteroid receptor (GR) gave very interesting results. The pre-clinical research point out that the FKBP5 gene localized on chromosome 6 modulates the binding of glucocorticosteroids with an appropriate GR receptor, thus regulating the response to stress. Protective alleles (RS 9296158 as well as RS 9470080) were found that have the ability to protect from falling ill. What was also found where the alleles of the risk of falling ill (RS 3800373 and RS 1360780) for this gene (4 from 8 SNP).

Different research suggests the role of a transcription factor (Δ FosB) which is induced by reward and stress in the nucleus accumbens (NAc). The activity of Δ FosB simplifies the creation of synaptic connections and adaptive behaviours by the reduction of an emotional load with NAc, thanks to the repression of excitement of the glutaminergic system. Experience induces the activity of the Δ FosB gene which leads to the increase of resilience to stress (Vialou 2010)⁴⁹.

6. Disturbances in reaction to stress in depression

Many research concerning the risk factors of depression was performed. The inheritance factors, gender and personality features have vast influences over the occurrence of depression. Except for the constitutional predisposing factors, an important role in the pathogenesis of depression is played by the environmental factors. Many works indicate a relationship between the psychosocial stress and the incidence of depression. Research proved that stress caused by some exceptional life events that happened in a specific, short period of time is of great importance for the development of depression (Bilikiewicz et al. 2002)⁵⁰. It was also shown that there exists a connection between chronic stress (linked with e.g. work or marital problems) and the occurrence of depression.

⁴⁸ See 36

⁴⁹ . Vialou, V et al. (2010). Δ FosB in brain reward circuits mediates resilience to stress and antidepressant responses. *Nature Neuroscience*, Vol. 13, pp.745, ISSN 1097-6256.

⁵⁰ Bilikiewicz, A.; Pużyński, S.; Rybakowski, J.& Wciórka, J. (2002). *Psychiatria, tom I*, Wydawnictwo Medyczne Urban & Partner, ISBN 83-87944-67-X, Wrocław, Poland.

A greater risk of major depression occurrence in adults that were molested in childhood was stated. For instance, in women who were victims of such abuse, the possibility of occurrence of major depression is 4 times as high and as for the risk of suicidal attempts, it is 44 times greater than in general population(Heim et al. 2001)⁵¹.

What was also concluded was that the earlier in childhood the stress took place, the earlier the depression can occur in the adult life. In these particular cases the depression disorders have the tendency to be longer and the incidence of remission is lower. On the basis of the research conducted in the United States, it can be drawn that various marital problems, parental divorce, abuse in the family, psychoactive substance abuse and many various mental disorders of parents are the result of a greater risk of falling victim of depression in the offspring (Nemeroff, 2002)⁵². According to other research there is a connection between the loss of parents and the development of depression in an adult age. There are research data suggesting that an increased susceptibility to depression in people who had lost their parents, occurs only in the case when they were left without a proper supervision in childhood. Also, a longer separation from parents might be the factor directly predisposing to becoming depressed. There is also a linkage between the lack of an appropriate mother care and the occurrence of depression (Twardowska & Rybakowski 1996, Nemeroff 2002)^{53,54}.

A great number of data coming from different researches points out that traumatising experiences in childhood are strictly connected with a greater frequency of occurrence of depression in an adult life. Traumatising events before the 17th year of age include:

- lack of contact with mother for over a year
- staying in a hospital for over two weeks
- parents' divorce
- a long period of parent's unemployment
- experiences so traumatic that memories of them lasted for several years
- an abandonment without parental care because of one's bad behaviour
- alcohol or other psychoactive substances abuse by parents which caused problems in the family
- physical abuse (Bremner et al. 2000, Heim et al. 2001)^{55,56}.

In comparison to children that were not exposed to maternal stress (especially depression in mother), children in the age of 4,5 year that were exposed to it showed a significantly higher cortisol concentration in saliva, but only in the case when the maternal stress was present in the infancy of the child, as well as in the period preceding the examination. In comparison to the 4,5- year old children with a lower cortisol concentration, the children with a higher level of it were subject to a greater risk of mental disorder occurrence, especially the

⁵¹ Heim, Ch.; Owens, M. (2001). Znaczenie negatywnych wydarzeń z dzieciństwa w patogenezie depresji, In. *WPA Bulletin on Depression*, Vol.22, No.5, pp.3-7.

⁵² Nemeroff, Ch., Wainwright, N.W.J; Surtees, P.G . (2002). Childhood adversity, gender and depression over the life-cours. *Journal of Affective Disorders*, Vol. 72, pp.33-44, ISSN 0165-0327.

⁵³ See 51

⁵⁴ See 15

⁵⁵ Bremner, J.D.; Vermetten, E.; Mazure, C.(2000). Development and preliminary psychometric properties of an instrument for the measurement of childhood trauma: The Early Trauma Inventory. *Depression and Anxiety*, Vol. 12, pp. 1-12, ISSN 1091-4269.

⁵⁶ See 26.

internalizing symptoms. These results show that the maternal stress is the factor that sensitises the infants that experience, in later life, the hyperactivity of the HPA axis during the exposition to a stressful situation from their mothers. An elevated concentration of cortisol in children with both: early- and later- occurring proneness to stress might be a marker of disorders in the stress response system that are clearly manifested in such developmental challenges as e.g. beginning school. It may lead to the increase of the risk of depression as well as anxiety disorders (Essex et al. 2000)⁵⁷.

In people with depression, signs of hyperactivity of the limbic system- hypothalamus-pituitary- adrenal axis (LHPA) can be observed, which is manifested by an elevated CRF level in the cerebrospinal fluid, an elevated cortisol level in blood, daily alterations in its secretion, lack of the cortisol response to the inhibiting action of dexamethasone (Ossowska 2002)⁵⁸ as well as a hypertrophy of the pituitary and adrenal glands. An autopsy research states the increase of CRF mRNA in the hypothalamus and a decrease of the number of CRF receptors; it also shows an elevation of mRNA encoding proopiomelanocortin in the pituitary. The persisting hyperactivity of the HPA axis in depression can result from a defect concerning the stress- activated mechanisms leading to the expiration of a stress reaction. There are certain premises that claim that there is a virtual malfunction of the action of corticosteroid receptor in the limbic system that might be responsible for the inability of the stress reaction to expire. (Ossowska 2002, Heim 2002)^{59,60}. There was also a decrease of the number of these receptors on lymphocytes in people with depression. The distortion of action of the limbic system and hypothalamus by a chronic hypercortisonism leads (by a rule of vicious circle) to a further over- secretion of cortisol.

In the majority of cases of depression, one can find features of hyperactivity of the adrenal cortex, which are manifested by an excessive secretion of cortisol (hypercortisonism), changes in a daily cortisol secretion (longer and more frequent periods of secretion) as well as an increase urine elimination of the 17- hydroxysteroids and free corticosteroids. In recent years, in CT studies - structural signs of hyperactivity in the adrenal cortex were also noted in depression (an increase in the volume of the glands) (Heim et al. 2001, Twardowska & Rybakowski 1996)^{61,62}.

7. HPA axis functioning disorders in depression

Psychosocial stress activates the HPA axis, however, it does not pose a mechanism of causing depression by stress. Depression occurs in the situation of the lack of a persisting hypercortisonism and the depressive patients usually have a lowered morning cortisol levels, which might be linked with a coexisting anxiety. The lead of 5- HT2 on the central level is strengthened in depression and is related to random events. It is compatible with the notion that the serotonergic system is responsible for the CUN level response to some unpleasant life events.

⁵⁷ Essex, M.J. et al. (2002) . Maternal stress beginning in infancy may sensitize children to later stress exposure: Effects on cortisol and behavior. *Biological Psychiatry* Vol.52, pp.776-784, ISSN 0006-3223

⁵⁸ See 14

⁵⁹ See Ossowska

⁶⁰ See heim

⁶¹ See 26

⁶² See 15

Strickland et al. (2002) study revealed an elevated cortisol level in the afternoon, after the action of some serious stress of the psychosocial kind in a current period of time; what is important, however, it was only observed in the female patients. It might mean that there is a primary dysregulation in the HPA axis in some types of social depression which may result in an excessive reaction of cortisol secretion in a response to some stressful and solidified life difficulties. The primary dysregulation of the axis might be responsible for the often reported elevated cortisol levels in the in-patients (hospitalized for depression), in whom the stress connected with the hospitalization might have co-existed with the HPA axis hyperactivity.

An increased activity of the HPA axis seems to have the most significant meaning in the pathogenesis of depression as well as in the mechanism of antidepressant drugs action. In the experimental research it was stated that corticosteroids and/ or the corticotrophin-releasing hormone may influence and intensify most of the changes observed in animals' models of depression.

In some of the depressed patients there is an elevated concentration of cortisol observed in the blood, urine and the cerebrospinal fluid, changes in the daily profile of cortisol secretion as well as an elevated corticotrophin-releasing hormone concentration in the cerebrospinal fluid. An increased activity of the HPA axis in depression is caused by hypersecretion of the corticotrophin-releasing hormone. In depression, there is a dysfunction of the HPA axis, which might have a genetic basis, however, the meaning of the past life events is also not excluded. The signs and symptoms that are characteristic for depression, include the changes in the HPA system, which in the majority of the patients, results in the alteration of corticotrophin (ACTH) regulation and a change in the secretive activity of cortisol. More detailed analyses of the HPA system have revealed that the signal of the corticosteroid receptor (CR) is distorted in severe depression, which leads, among all, to an increased production and secretion of corticotrophin-releasing hormone (CRH) in various regions of the brain, which is considered to be one of the main causes of depression (Holsboer, 2000)⁶³. What also accompanies depression is the activation of the HPA axis and a lowered sensitivity to the negative feedback, when in the anxiety disorders it seems that the functioning of the HPA axis stays correct. (Young and others 1991, 1993, 2000, 2004; Abelson and Curtis, 1996).

8. Neuroendocrine mechanisms of antidepressive drugs action

What underlies the antidepressants' action are the adaptive changes in the neurotransmitter systems that occur under the influence of their constant administration. These changes include:

- decreased density and reactivity of β -adrenergic receptors
- increased density of α_1 -adrenergic receptors
- decreased density of α_2 -adrenergic receptors
- changes in density and reactivity of serotonin (5HT_{1A}, 5HT_{2A} and dopamine (D2/ D3) receptors, the calcium channels type I dependent on the voltage and glutaminergic receptors

⁶³ Holsboer, F. (2000). The corticosteroid receptor hypothesis of depression. *Neuropsychopharmacology*, Vol. 23, pp. 477-501, ISSN 0893-133X.

A long- lasting period of antidepressant administration lowers the concentration of corticotrophin- releasing hormone in the hypothalamus, corticosterone and ACTH in blood (especially during stress), they also inhibit some of the corticosteroid and stress effects (7).

Tricyclic antidepressants, fluoxetine and tianeptin lower the hyperactivity of the HPA axis that is caused by the activation of the immune system (the administration of LPS, endotoxin of Gram- negative bacteria increasing the synthesis of proinflammatory cytokines).

The normalizing effect of antidepressants on the HPA axis activity has led to drawing a hypothesis that they can increase the density or functional activity of corticosteroid receptors engaged in the inhibition mechanism of the negative feedback. Two types of corticosteroid receptors were distinguished in the central nervous system:

1. Type I (mineralocorticoids, MR)
2. Type II (glucocorticosteroids, GR)

The MR receptors, with a high affinity for the natural glucocorticosteroids (cortisol and corticosterone) and a mineralocorticoid (aldosterone), are found in a high concentration in the hippocampus (a concentration similar to the GR one) and the prefrontal cortex (1/3 of the GR's concentration). In other regions of the brain, they are encountered in concentrations that are ten times lower if compared to the GR one. The type II receptors are relatively uniformly spaced in the brain.

The GR connection increases by about 10% in basic conditions (with a low blood concentration of corticosterone) to up to 70 - 90% during stress or in the period of maximal secretion of this steroid in the daily cycle. The MR stimulation (with the use of aldosterone or low concentrations of corticosterone) enhances the excitability of neurons, amplifies the stimulating activity of stimulant aminoacids and it lowers the inhibiting action of serotonin to the activity of neurons in the CA1 region of hippocampus proper. Conversely, the activation of GR inhibits the excitability of neurons as well as it weakens the stimulating action of the stimulant aminoacids and noradrenalin. While examining the participation of GR and MR in the regulation of the HPA axis' activity it was found that in its inhibition during stress there are engaged mainly the GR whose connection with corticosterone increases depending on the concentration of the steroid.

The observed weakening of the inhibition mechanism of the negative feedback in depression is explained by the lowering of the density or sensitivity of the GR. Damage in the hippocampus or the frontal part of the cerebral cortex causes hypercortisonism, whereas the implantation of corticosterone to these regions of brain lowers the ACTH concentration and corticosterone which are elevated during stress. The GR receptors located in the amygdala are engaged, on the other hand, in positive feedback reaction and they also enhance the activity of the HPA axis. In spite of the fact that the HPA axis hyperactivity might be the result of density changes of the receptors localized in different brain structures, the GR show their most intense activity in the hippocampus proper⁶⁴.

The majority of antidepressants normalize the activity of the HPA axis by:

- increasing the density of the GR receptors in the hippocampus, thus strengthening the inhibition mechanism of the negative feedback
- lowering the synthesis of proinflammatory cytokines which release CRF from the hypothalamus
- directly repressing the gene encoding the CRF

⁶⁴ Yehuda, R. (1999). Linking the neuroendocrinology of post-traumatic stress disorder with recent neuroanatomic findings. *Seminars in Clinical Neuropsychiatry*, Vol 30, pp.1031-1048 ISSN 1084-3612..

9. Own research concerning the HPA axis disorders in depression and anxiety- depressive disorders

Numerous studies confirmed elevated cortisol and CRF levels in people suffering from depression if compared to the healthy ones. Next to the excessive secretion of this hormone, the researchers also observed distortions in its regulation. Many of the works regarded the Dexamethasone Suppression Test (DST). Originally, the researchers pointed out the test as being a useful diagnostic tool (Carroll & Feinberg, 1981; Holsboer, 2000)^{65,66}. In patients with depression, there were changes in the secretion of cortisol and the pituitary- dependent hormones (Pfohl et al., 1985)⁶⁷. The research suggests that the depressed patients have an elevated cortisol level for the whole day, not only in the morning, as it happens in the healthy controls. The recent studies have considerably widened the knowledge about the pathomechanism of stress and depression, especially in the range of the role of the hypothalamus- pituitary- adrenal (HPA) axis. It has been proved that as much as in the acute phase of depression an excessive secretion of CRH, ACTH and cortisol occurs, in the chronic depression, the secretion of ACTH decreases. It is most probably the result of a strong negative feedback inhibiting the influence of cortisol.

Own empirical research was performed concerning the connection of the HPA axis- functioning disorders with stressors and clinical symptoms in the depressed patients, if compared to the healthy ones.

9.1 The group under study

94 people were examined (66 women and 28 men), including 36 people with depression (according to ICD 10 F.32.), 22 of whom were treated due to the anxiety- depressive disorders (according to ICD 10- F. 41) and 36 healthy people, not treated at all as a control group.

The average age of the population was 34.9 (SD= 12.8). Patients with depression were, on average, 42.8 years old (SD=12.6), those with neurosis- 34.8 (SD=11.9) and the healthy ones- 27.5 (SD=8.4) years old. In the subgroups of the healthy individuals and those with neurosis, prevailed singles (58.3% and 59.1%, respectively), whereas among the depressed ones 52.8% were married.

The cross- section of the education level varied in every group. In the group of the depressed, 1/3 of them was on pension, whereas the other 1/3 was vocationally active. In the subgroup of the people treated for neurosis, approximately 1/4 constituting every of the following was respectively: employed, pensioners and unemployed.

9.2 Method

Blood samples were taken twice a day, at 08:00 (K1) and 16:00 (K2) in order to measure the cortisol level. On the next day, the Dexamethasone Suppression Test was made by administering orally 1 mg of dexamethasone (Dexamethasone tablets 1mg, Polfa Pabianice

⁶⁵ Carroll, B.J.; Feinberg, M. (1981). A specific laboratory test for the diagnosis of melancholia : Standardization, validation, and clinical utility. *Archives of General Psychiatry*. Vol. 38, pp. 15-22, ISNN 0003-990X.

⁶⁶ See 63

⁶⁷ Pfohl B.; Sherman B.; Schlechte. J.; Stone, R. (1985). Pituitary adrenal axis rhythm disturbances in psychiatric depression. *Archives of General Psychiatry*, Vol.42, pp.897-903, ISNN 0003-990X.

PL) at 23:00 hour. On the next day, the blood samples were taken again in order to measure the cortisol level, at 08:00 and 16:00 (K3 and K4). All of the patients considered were acquainted with the examination procedure and gave a written consent for it. The research was approved by the University Bioethical Committee. The marking of the concentration in the blood was made with the use of Elisa method.

The load of the stressful childhood events was examined with the use of the Early Trauma Inventory which was developed by the J.D. Bremner's group in the 2000⁶⁸. The inventory examines 4 aspects of abuse in the childhood period:

General traumatic experiences (ETI I), Physical abuse (ETI II), Emotional abuse (ETI III), Sexual abuse (ETI IV).

Childhood Trauma Load Index was used for statistical calculations. The index is the sum of all the Indexes of all the above individual subscales (ETI S).

The level of anxiety and depression was assessed with the use of HADS Scale which was developed by Zigmond and Snaith. The Scale includes separate scores for anxiety- A (HADS A) and depression- D (HADS D). The severity of depression was measured with Beck's Scale for Measurement of Depression (BECK). The level of anxiety as a state (x- 1) and as a feature (x-2) was scaled with Spielberger's Inventory (STAI).

In order to assess the impact of stressors experienced in the last 12 months on the mental state, the PsychoSocial Stress Scale was used which was developed in 1967 by Holmes and Rahe. The Scale states that from 250 points there is an excessive stress load (STRES).

The obtained results of the research were subject to the statistical analysis, a U- Mann-Witney's test, a test of the validity of correlation coefficient of R Spearman, which was a non- parametric equivalent of a variation analysis test ANOVA of the Kruskal- Wallis' range.

9.3 Results and discussion

A naturalistic level of cortisol in blood at 08:00 should fall into the range of 60- 285 ng/ml (K1), whereas at 16:00 (K2) it should range from 40 to 150 ng/ml according to the laboratory norms.

An average morning cortisol concentration before the dexamethasone suppression proved to be the lowest for depression: K1= 185.7ng/ml, whereas the afternoon one for neurosis and depression: K2= 84.5 ng/ml. These results did not differ statistically in any significant way.

The threshold was agreed to be 40 ng/ml of the value of cortisol after the administration of dexamethasone, which was an indication of whether the suppression of cortisol secretion is correct or impaired; if the value was below the threshold, it meant a correct suppression.

The weakest suppression was found in the depressed patients with the K3 being 40.8 ng/ml and K4- 31.8 ng/ml. Therefore, an average morning cortisol level in depression patients after suppression (K3) was higher than the threshold value and indicates impaired cortisol suppression in the researched group. The strongest suppression occurred in the control group: K3= 12.1 ng/ml and K4= 18.1 ng/ml. The healthy people, with no clinical symptoms were characterized by a correct feedback inhibition of cortisol secretion after dexamethasone administration, which means an appropriate handling of an excessive supply of cortisol.

The anxiety- depressive patients achieved medium results that were similar to the results obtained by the healthy group. Only the morning cortisol level, before and after the administration of dexamethasone at 08:00, proved to be higher in anxiety- depressive

⁶⁸ See 55

patients than in the healthy ones. Thus, it seems that people with anxiety- depressive disorders might be characterized by less severe disorders of the HPA axis than the depressed ones. Nonetheless, there can also appear some abnormalities in functioning of the stress axis in this group.

The differences between the groups did not seem to be statistically significant (see: table 1).

Group		Number of results	Min.	Max.	Mean	Standard deviation
Control group	K1	35	79.40	358.00	198.1486	54.59455
	K2	35	10.55	187.00	84.9717	44.91104
	K3	32	3.37	122.00	12.0597	20.42394
	K4	28	4.53	105.87	18.0975	26.04248
Depression	K1	36	65.22	332.02	185.7139	64.87991
	K2	36	7.74	231.02	86.9161	44.02321
	K3	33	4.37	239.58	40.8391	61.36999
	K4	32	5.24	151.45	31.8594	39.31164
Neurosis	K1	20	90.52	329.35	217.0290	73.67715
	K2	18	13.13	200.31	84.5167	46.59056
	K3	20	4.13	208.08	20.6395	45.18454
	K4	15	3.72	162.97	19.0120	40.04291

Table 1. Average cortisol levels before (K1 and K2 and after dexamethasone suppression (K3 and K4) in individual groups of the people under examination in ng/ml.

A differentiating tendency in the morning cortisol concentration after suppression K3 ($p=0.06$) was observed in people with depression compared to the control group.

Statistical analyses were conducted in order to find differences in reactions to dexamethasone (DST) depending on the gender.

In table 2 results concerning the cortisol concentration in relation to the gender were shown.

The feature of gender did not significantly statistically differ between the researched groups.

The morning cortisol concentration (K1) was the highest in both men (K1=241.9 ng/ml) and women with anxiety- depressive disorders (217.6 ng/ml). Similarly, the afternoon cortisol concentration was the highest in men with anxiety- depressive disorders (K2= 104.1 ng/ml).

The cortisol suppression by dexamethasone influenced the cortisol levels quite differently depending on the gender of the researched. In women with depression there was the lowest suppression and thus the highest morning cortisol concentration K3=6.3ng/ml in comparison to the patients with anxiety- depressive disorders (K3=6.3 ng/ml) and the healthy ones (K3= 8.8ng/ml). The difference was statistically valid on the level of $p=0.03$.

Those differences, however, were not observed in the male group.

The afternoon cortisol concentration after suppression in women with depression was also the highest (K4=34.7 ng/ml). In the male group, the patients with the anxiety- depressive disorders showed the lowest tendency towards cortisol suppression, where K3=39 ng/ml and K4=30.7 ng/ml, those differences, however, were not statistically valid.

It is therefore correct to state that the HPA axis functioning disorders in women with depression, in comparison to men, may have a different character. In the research on

Gender		Group	Mean	Standard deviation	N
Women	K1	Healthy	210.9000	53.25796	20
		Depression	189.0058	64.46846	26
		Neuroses	217.6429	87.80601	7
		General	201.0500	63.80486	53
	K2	Healthy	91.2750	38.30435	20
		Depression	89.0304	35.32379	26
		Neuroses	68.5600	37.10318	7
		General	87.1738	36.73782	53
	K3	Healthy	8.7970	4.62600	20
		Depression	43.4262	64.65060	26
		Neuroses	6.3486	2.08270	7
		General	25.4615	48.32329	53
	K4	Healthy	18.5310	28.63269	20
		Depression	34.7012	42.01123	26
		Neuroses	7.5986	4.86375	7
		General	25.0196	35.42213	53
Men	K1	Healthy	174.0667	66.76546	6
		Depression	179.1200	41.86135	6
		Neuroses	241.9071	61.88564	7
		General	200.6563	63.66812	19
	K2	Healthy	89.6500	52.28678	6
		Depression	75.6150	20.34181	6
		Neuroses	104.1071	49.93306	7
		General	90.5442	43.02977	19
	K3	Healthy	25.6100	47.24780	6
		Depression	31.5650	55.14208	6
		Neuroses	39.0771	74.78656	7
		General	32.4521	57.98278	19
	K4	Healthy	19.3483	22.75644	6
		Depression	19.5450	23.08311	6
		Neuroses	30.6971	58.35932	7
		General	23.5916	38.18667	19

Table 2. Cortisol concentration levels in the researched group with the division of gender

animals it was proved that the female gender predisposes to a greater reactivity and a longer time of the HPA axis' reaction to stress. These differences in people, however, would result from the influence of the gender- related steroids and the differences in the organisation of the brain structure (Kudelka et al.)⁶⁹. In the research it was confirmed that in

⁶⁹ Kudelka, B.M. & Kirschbaum, C (2005). Sex differences In HPA axis responses to stress: a review. *Biological Psychology*, Vol.69, pp.113-132, ISSN 0301-0511.

comparison to men, women with depression had a weaker ability of self-regulation after the action of cortisol.

The assessment of the intensity of anxiety and depression with clinical scales (HADS, STAI, BECK) has shown increased, statistically valid intensifications of anxiety and depression in the group of patients with depression and the anxiety- depressive disorders in comparison with the healthy people from the control group, which is consistent with the clinical symptoms profile. The psycho- social stress level (STRES) proved to be the highest among the depressed- 158.3 points (SD=98.8) and it differed in a statistically significant way in comparison with the healthy individuals ($p<0.05$). Recurrences of depression in the course of affective unipolar disorders might be dependent on the triggering stress factors experienced in the last twelve months.

In table 3 average results of the childhood trauma load (ETI) in the studied subgroups were shown.

Group		N	Min.	Max.	Mean	Standard deviation
Healthy	ETI I	36	0	28	6.83	6.648
	ETI II	36	0	186	50.39	52.166
	ETI III	36	0	258	52.33	67.496
	ETI IV	36	0	30	2.33	6.770
	ETI SUM	36	1	484	111.61	115.867
Depression	ETI I	36	1	31	14.81	7.191
	ETI II	36	0	216	77.39	65.057
	ETI III	36	0	348	113.72	117.884
	ETI IV	36	0	126	12.50	25.632
	ETI SUM	36	1	538	218.31	180.604
Neuroses	ETI I	22	0	52	13.50	11.538
	ETI II	22	0	300	83.73	84.741
	ETI III	22	0	679	152.95	186.645
	ETI IV	22	0	182	19.45	45.654
	ETI SUM	22	12	880	269.64	280.553

Table 3. Childhood trauma load (ETI) in the studied subgroups.

It was stated that the statistical differences in the intensity of the childhood trauma load between people with depression and those suffering from anxiety- depressive disorders in the range of general traumatic events (ETI I), psychological violence (ETI III) and summary trauma (ETI SUMA) were on the level of $p<0.05$. The highest wholesale intensities of childhood trauma load (ETI SUMA) were diagnosed in people with depression as well as with the anxiety- depressive disorders. Similarly, psychological abuse in childhood (ETI III) and general traumatic events (ETI I), afflicted patients from both groups significantly more often than healthy ones. These results are consistent with the results of other studies. Research suggests that exposing laboratory animals in their early period of life to stressor factors leads to lasting changes in the HPA axis activity and disturbances in functioning of

the noradrenergic as well as serotonergic systems (Manji et al. 2001)⁷⁰. The disturbances in the functioning of the above systems are expressed as symptoms of anxiety and depression. Therefore, the dependencies between the HPA axis functioning and clinical symptoms were analysed.

In table 4 the dependencies of the cortisol concentration on other examined features are shown on the statistically valid level (Rho Spearman's) for the entire researched group (**Correlation is valid on the 0.01 level (bilaterally))

			K1	K2	K3	K4
Whole group	HAD A	Correlation coefficient	.037	-.083	.289(**)	.215
	HAD D	Correlation coefficient	-.014	-.095	.340(**)	.249(*)
	STAIX- 1	Correlation coefficient	.291(*)	-.026	.318(**)	.302(*)
	STAIX- 2	Correlation coefficient	.298(*)	.089	.254(*)	.194
	BECK	Correlation coefficient	.214	-.053	.299(*)	.192

Table 4. Statistically valid (Rho Spearman's) dependencies of the cortisol concentration on other examined features for the whole group.

The morning cortisol level before the suppression (K1) was positively correlated for the whole group with the feature and state of anxiety (STAI). We can therefore conclude that the actual experience of anxiety (STAI X-1) and the apprehensiveness' feature (STAI X- 2) are correlated with an increased release of morning cortisol from the adrenal glands in every person in the group.

What was also observed for the entire group were statistically significant positive correlations ($p < 0.05$) of the level of depression (HADS D, BECK) and anxiety (HADS A, STAI) with the morning cortisol level after the dexamethasone suppression (K3). The afternoon cortisol concentration after suppression (K4) was essentially dependent on the intensity of depressiveness (HADS D) and the anxiety state (STAI X- 1) for the entire group. It was proved that the greater the depression and anxiety intensity, the greater the cortisol levels after dexamethasone suppression, which means a weaker suppression. This proves the connection of the anxiety symptoms and depression with the HPA axis functioning disorders and its feedback inhibition for the whole group.

In table 5 there are the dependencies of cortisol concentration from different examined features shown. They are statistically valid (Rho Spearman's) for the subgroups of the studied people.

In the control group it was stated that the greater the anxiety state (STAX- 1), the higher the afternoon cortisol concentration after suppression K4 (weaker suppression). A currently

⁷⁰ Manji, H.K.; Drevets, W.C.; Charney D.S.(2001)The cellular neurobiology of depression. *Nature Medicine*, Vol. 7, pp. 541-547, ISSN 1078-8956.

Group			K1	K2	K3	K4
Healthy	STAI X- 1	Correlation coefficient	.142	.104	.168	.430(*)
Depression	STRES	Correlation coefficient	-.413(*)	-.318	-.287	-.299
	ETI IV	Correlation coefficient	-.023	-.177	-.451(**)	-.440(*)

*Correlation is valid on the 0.05 level (bilaterally), **Correlation is valid on the 0.01 level (bilaterally)

Table 5. Statistically valid (Rho Spearman's) dependencies of the cortisol concentration from different examined features for the whole group.

experienced feeling of anxiety or fear causes a distortion in the feedback inhibition of the HPA axis as well as its hyperactivity in the form of the persisting elevated cortisol level in healthy people.

The morning cortisol concentration before suppression (K1) was negatively connected with the level of psychosocial stress (STRES) in depression. It can be therefore concluded that the resilience to the current stressors (that occurred during the last 12 months) is lowered in people with depression. Usually, an appropriate reaction in stressful situations is the release of cortisol and its concentration increases in blood which is an adaptive reaction of an organism to fight the stressor. In people with depression, however, there is a lowering of the cortisol level under the influence of stressor factors which might be associated with an insufficiency in fighting any traumatic events. As it was given in the introduction, the HPA axis in people with depression is insufficient which may be the result of some developmental and plasticity disorders of the brain in some of the depressed, which is subsequently the result of trauma experienced during childhood. The piling up of another stressor factors in the adult life influences the intensity of depression symptoms. As the research reveals, especially sexual abuse (ETI IV) in childhood, had a significant impact on cortisol suppression (K3 and K4) in people suffering from depression ($p < 0.05$). In the people with neuroses the dependencies that would be statistically valid were not found. The data concerning the influence of sexual abuse in childhood on the HPA axis are consistent with previous reports. The experience of sexual abuse in early childhood in people with affective disorders, increases the risk of an earlier occurrence of the symptoms, coexistence of different disorders (especially drugs and alcohol) as well as a more severe course of illnesses (Leverich et al. 2002)⁷¹.

9.4 Conclusions from the research

1. The greater depressiveness and anxiousness, the weaker the cortisol suppression (higher K3 and K4 levels) for the whole studied group.
2. In people with depression, however, the current stress factors (STRES) and sexual abuse in childhood (ETI IV) worsened the suppression (higher results of K3 and K4).

⁷¹ Leverich ,G.S.; McElroy, S.L.; Suppes, T, et al(2002).Early physical and sexual abuse associated with an adverse course of bipolar illness. *Biological Psychiatry*, Vol.51 No. 4, pp. 288-297, ISSN 0006-3223.

3. The weakening of cortisol suppression in the DST test in women suffering from depression in comparison to the healthy ones seemed to be especially statistically valid (for K3, $p=0.03$)
4. The results confirm the data regarding the association between the HPA axis disorders and stressors in people with depression and anxiety- depressive disorders if compared to the healthy people

10. Further research directions- different symptoms, common pathomechanism

What has been presented above is an attempt to find an aetiology that would fit into a broad trend of different research currently taking place over the influence of trauma on the incidence of mental disorders.

Literature concerning various traumatic events has documented a great variety of different symptoms that are often associated with an interpersonal abuse in the childhood and adult ages (e.g. an earlier sexual maltreatment of a child, rape or beating the spouse). The connection between these symptoms, which are less closely related with PTSD, and both of the traumatic persecutions (a childhood life- and adult life- related ones) have led to the fact that a lot of scientists have started to perceive the psycho- traumatic disorders, which include neither PTSD nor ASD as such (e.g. Herman, 1992) in a much broader way. More important in this case are: anger because of the persecution, depression, dissociation, sexual problems, interpersonal difficulties, self- mutilation and an excessive or disordered sexual activity. The research presented above fits into the range of influence of trauma on the occurrence of anxiety and depression symptoms in the adult life. Depressiveness is one of the symptoms of complex PTSD.

The term of 'Complex PTSD' was introduced in 1992 by J.L. Herman⁷². It includes PTSD, the diagnosis of which is present in ICD- 10 and DSM- IV classifications, accompanied by additional disorders such as: somatisation, dissociation, prolonged depression and personality disorder of broader- line type⁷³.

In American researches (Seng, 2005) the probability of Complex PTSD occurrence among children and female teenagers suffering from serious somatic illnesses was analysed. Increased frequency of Complex PTSD occurrence was found among young girls suffering from parasitic infections, endocrine, metabolic and immune system disorders. The presence of cardiovascular and skin diseases also increased the risk of complex PTSD occurrence⁷⁴.

Other American researches including women treated for mental disorders, both in ambulatory care and hospitalised indicated the occurrence of high levels of alexithymia among patients with PTSD coexisting with dysregulation, dissociation and somatisation

⁷² Herman, L. (1992). Complex PTSD: A syndrome in survivors of prolonged and repeated trauma. *Journal of Traumatic Stress*, Vol. 5, pp. 377-391, ISSN 0894-9867.

⁷³ Allen, J.G. (2001). *Traumatic Relationships and serious mental disorders*. John Wiley & Sons, ISBN 0-471-49102-0, Chichester, England

⁷⁴ Seng, J.S.; Graham- Bermann, S.A. ; Clark, M.K.; MaCarthy, A.M.; Ronis, D.L. (2005). Posttraumatic stress disorder and physical comorbidity among female children and adolescents: results from service-use data. *Pediatrics*, Vol.116, No.6, pp.767-76, ISSN 0031-4005.

(Complex PTSD) (McLean et al. 2006)⁷⁵. German researches conducted on patients hospitalized in Psychiatric Ward for the accused revealed that 59% of them were neglected in their childhood, 75% were mentally and 52% physically abused. Complex PTSD developed among 44 per cent of the abused (Spitzer et al. 2006)⁷⁶. PTSD patients during MRI examination appeared to characterize with a decreased volume of hippocampus, mostly its left side, subthalamic- pituitary- suprarenal axis disorders in the form of decreased cortisol concentration and increased night- and- day level of noradrenalin and adrenalin secretion. In comparison, endogenic depression patients have increased cortisol level in blood circulation system. Neurochemical examinations indicated an increased level of interleukins: IL- 1an IL- 6 among PTSD patients (Bilikiewicz 2002)⁷⁷.

The disorders in the range of humoral response and interleukins level were also observed in depression.

In some of the studied people with depression or anxiety- depressive disorders with childhood trauma load, there can be a comorbidity recognised, i.e. Complex PTSD symptoms, where the superior unit seems to be the Complex PTSD diagnosis. Depression in different patients may have a different profile of symptoms, yet it still is a 'bag' of such symptoms as pyrexia in contagious diseases. It is therefore vital that the aetiology of either depression, anxiety- depressive disorders or any other disorders, such as the dissociation ones is not yet known. It seems that in some of the patients with depressive symptoms, the aetiopathogenesis of illness after taking into account all the criteria and factors other than only the symptomatic ones, as in ICD- 10, can be established.

A common aetiopathogenetic path for a part of depressive, anxiety or even psychotic disorders could be:

1. Genetic liability
2. Early traumatic experiences tend to change the route of brain development under the influence of the neuroplasticity alterations which are made by hormones secreted during the activity of chronic environmental factors in childhood
3. Lasting HPA axis functioning disorders in adulthood
4. The piling up of stressor factors in the adult life distorts the relative and delicate balance, causes the occurrence of an illness' symptoms and a growth of abnormalities in the HPA axis functioning.
5. Environmental factors modeling the aetiopathogenetic path leading to falling ill; with the negative piling up of stressors, they may protectively influence the development of mental disorders. According to current results these are:
 - an adequate care in childhood
 - social support

⁷⁵ Mclean, L.M.; Toner, B.; Jackson, J.; Desrocher, M.; Stuckless, N. (2006).The relationship between childhood sexual abuse, complex post-traumatic stress disorder and alexithymia in two outpatient samples: examination of women treated in community and institutional clinics. *Journal of Child Sexual Abuse*. Vol.15, No.3, pp.1-17, ISSN 1053-8712.

⁷⁶ Spitzer, C.; Chevalier, C.; Gillner, M.; Freyberger, H.J.; Barnow, S. (2006). Complex posttraumatic stress disorder and child maltreatment in forensic inpatients. *Journal of Forensic Psychiatry &Psychol*. Vol.17, No.2, pp.204-216, ISSN 1478-9949

⁷⁷ See 50

- psychotherapy and antidepressive drugs
- health- promoting personality factors such as the sense of coherence (developed by Antonovsky)

Antonovsky has developed the term of the sense of coherence which includes all three of the following: clearness, controllability (sense of resourcefulness) and reasonability. Clearness is associated with a cognitive aspect of a situation that a person is in. Controllability (sense of resourcefulness) is the sense of the disposal with abilities of handling life's challenges, an active influence on a situation in which one is found. Reasonability is a sense being expressed as a conviction that engaging into things is worth the attempt of investing energy in one's own life and challenges it brings. People differ among each other by the level of the sense of coherence. The greater sense of coherence, the greater the probability of fighting an likely illness, including depression⁷⁸.

In conclusion, it is high time to leave the routine thinking based on symptomatic classifications of mental illnesses and start searching aetiopathogenetic paths leading to the occurrence of an illness in a particular patient. It is postulated that it would be advisable to head towards a personalized medicine, which is already happening in case of oncology for instance. Going through the history of a patients' life, his/ her genotype and the actual symptoms will disallow the disrespectful classification of a patient as a disorder unit, moreover, it will make it possible to recognize the aetiology of his/ her illness and subsequently treat the patient in an adequate way.

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⁷⁸ Antonovsky, A. (1995). *Rozwikłanie tajemnicy zdrowia. Jak radzić sobie ze stresem i nie zachorować*. Fundacja IPN, ISBN 83-85705-24-4, Warszawa, Poland.

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Breaking a Diagnosis of Dementia

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1. Introduction

There are 700,000 people in the UK living with Dementia (Knapp et al, Dementia UK: The full Report Alzheimer's Society 2007). This has prompted the government to publish the first National Dementia Strategy which has made dementia a national priority. Dementia has a huge impact on physical, psychological and social aspects of care and also poses ethical challenges. One major ethical challenge which looms large, is the difficulty faced by clinicians in disclosing the diagnosis of dementia. The National Dementia strategy acknowledges this. 61% General practitioners routinely withhold diagnosis (Vassilas C & Donaldson J, 1998) and 60% Old Age Psychiatrists do not always disclose diagnosis as 20% do not see any benefit (Downs et al, 2002). This is similar to disclosure practices with cancer patients in the 1960's whereby 90% of physicians did not disclose the diagnosis of cancer to their patients (Oken et al 1961). This however saw a fundamental shift in the seventies when only 10% of physicians withheld the diagnosis of cancer (Novack et al, 1979). This may be related to new cancer medications and patient rights. There are many reasons for not disclosing a diagnosis of dementia. Physicians fear causing harm to their patients. (Pinner G & Bouman W, 2002). Some medical practitioners find it hard to share a diagnosis of dementia (Illife, S et al, 03) and others report explaining a diagnosis of dementia is more difficult than for other diseases (Glosser et al, 1985). This can lead to variability in diagnostic disclosure which I will address here. Since the last decade great progress has been made in identifying biomarkers and molecular changes in the brain associated with Alzheimer's disease. With various disease modifying medications like Bapineuzumab in phase III trials showing promising results, diagnostic disclosure is finding itself in the limelight for ethical and scientific reasons.

2. Problems with diagnosis of dementia

There are inherent problems with diagnosing dementia itself due to the insidious nature of the condition and difficulty in detecting transition between normal ageing and the onset of dementia. Diagnosis is based on clinical criteria and takes into account history, physical and neurological examination along with appropriate laboratory investigations. Due to the lack of a single and definitive tool for diagnosing Alzheimer's disease and other forms of dementias, one can easily miss out on early diagnosis. A definitive diagnosis of dementia is only possible at post-mortem. Several diagnostic tools are available with their own unique problems. The widely used Mini-mental state exam had demonstrated less sensitivity to

mild dementia in highly educated people and those with non-cortical dementias. (Rothlind & Brondt, 1993). The NINCDS-ADRDA criteria (McKhann et al, 1984) have a high degree of sensitivity but low specificity for the diagnosis of possible Alzheimer's disease (Knopman et al, 2001). This may lead to over diagnosis of some patients without dementia. All this can lead to diagnostic uncertainty and when coupled with therapeutic nihilism may lead to resistance in the disclosure of diagnosis. Although there is a substantial body of evidence which favours diagnostic disclosure there is a huge variability in all the aspects of disclosure (Carpenter & Dave, 2004). Bamford and colleagues concluded from their meta-analysis that the process of disclosure is not easy. People with dementia are less often told of their diagnosis than their family members. There is widespread use of euphemisms and family members generally prefer not to inform the diagnosis to their relatives.

3. Ethical principles in diagnostic disclosure

According to duty based ethics developed by the German philosopher Emmanuel Kant, it is morally wrong not to disclose the diagnosis even if it has harmful consequence. This may directly contradict the ethical principle of non-maleficence i.e. avoiding harm. So there is an ethical dilemma as to whether all treatments and interventions which may lead to harm whether psychological or in the form of side-effects should be avoided on the grounds that "avoiding harm always takes priority over doing good".

Autonomy: Patients have the right to think, decide, and act on the basis of such thoughts, freely and independently. Clinicians are faced with a dilemma of respecting patients' autonomy on one hand and concerns of carers at the same time. This has now been clarified by the Nuffield Council of Bioethics in its report *Dementia: Ethical issues* (Nuffield Council of Bioethics .*Dementia: Ethical issues*, Oct 2009). It suggests a broad concept of autonomy called "Relational autonomy" for patients suffering from dementia. (Nuffield Council of Bioethics. *Dementia: ethical issues*.2009). It suggests that as patient's sense of self is grounded in their social network, the whole family should be helped to support the autonomous wishes of the patient. This concept in my view is very helpful as on one hand it helps to maximise patients' freedom and on the other hand helps to minimise risk. It also recommends that clinicians should actively encourage patients to share details about their illness with their family.

General Medical Council recommends that doctors must give their patients information they request for. In practice, patients with dementia rarely ask for information, so should we hide the diagnosis if they don't ask for it? Is this ethical?

4. Current practice

Views of consultants, patients and family members in sharing the diagnosis are different (McWilliams, 1998) Patients prefer to be told of their diagnosis (George & Gove, 2007) however in reality things are different. Only half of geriatricians openly discuss the diagnosis with their patients (Carpenter & Dave, 2004). Family members generally prefer not to inform people with dementia, despite agreeing that they would want to know the diagnosis if they were in that situation. (Bamford et al, 2004).

Keady & Gilleard (2002) report that the experience of patients about assessment and disclosure is negative. Patients' perceived it as a controlling, insensitive process with feelings of insecurity, uncertainty and anxiety. Delays in assessments in the memory clinic was unsettling and patients felt stigmatised to the diagnosis and location of the memory

clinic. (Pratt& Wilkinson, 2001) report that patients had feelings of shock, anger and denial after receiving the diagnosis. They felt pressured to perform well on the memory tests because of drug therapy. Patients were concerned about late disclosure of diagnosis and lack of information on prognosis.

Reasons against diagnostic disclosure: are largely based on the principle of non-maleficence (Drickamer et al, 1992). This is due to the following reasons

1. concerns for causing harm, distress to patients i.e. Therapeutic lying (Bakhurst,1992)
2. lack of definitive diagnosis
3. No curative treatment.
4. Concerns about ability to understand information in advanced dementia.
5. No benefits, costs outweigh benefits.
6. Stigma associated with dementia.

Reasons for diagnostic disclosure are based on the ethical principle of autonomy.

1. Patient has the right to honest information, to know about their diagnosis according to the above principle. Hiding diagnosis will breach autonomy.
2. Several studies confirm that patients with dementia prefer to be informed of the diagnosis of dementia(Erde et al,1988 Maranski,2000.,Clare,2003.,Van Hout et al,2006)
3. Non disclosure can upset, confuse patients and break trust(Bamford et al,2004)
4. Patients feel relieved after diagnosis(Derksen et al,2006)
5. It helps patients plan for the future.
6. For travel and vacation purposes.
7. Obtaining a second opinion.

There is more evidence base for diagnostic disclosure as opposed to non- disclosure. Patients prefer to be informed of the diagnosis and are distressed if they are not informed of their diagnosis (Clare, 2003; Pratt& Wilkinson, 2003). The work done by (Jha et al, 2001) emphasises that there is no evidence that disclosing diagnosis leads to harm in the form of stigma, depression or suicide.

Criticisms of the studies. Most of the above studies are surveys of convenience samples which compromise validity of results. The questionnaires may not be valid and reliable and can lead to social desirability effect. The study done by Erde and colleagues has recruited younger mostly cognitively intact patients which is not a representative sample.

There are various models of diagnostic disclosure but one should embrace a person-family centred approach based on breaking bad news. It should be a gradual educative process involving discussions with both the patient and family maintaining the dignity of the patient.

4.1 Impact of new medical technology on diagnostic disclosure

There is a growing evidence base for use of MRI, CSF amyloid, tau assays in Early Diagnosis of Dementia Duara and colleagues (Duara et al, 2008) highlights the role of structural MRI in the early diagnosis of AD. Medial temporal atrophy has consistently been shown to represent an early imaging feature of AD and to predict conversion from MCI to AD. (DeCarli et al, 2007) CSF assays and PET amyloid tracer uptake are sensitive at the earliest stage of Alzheimer's disease. 18F PET and MRI are sensitive at the Mild cognitive impairment stage and continue to change well into the dementia stage. This will greatly improve accuracy of early diagnosis and hence will have an impact on diagnostic disclosure .This will end uncertainty of diagnosis especially at the Mild cognitive impairment stage and clinicians will become more confident in diagnostic disclosure.

4.2 Preparation for a diagnostic assessment

Factors influencing diagnosis. (Bamford et al, 2004)

1. Disease factors
 - a. Severity of cognitive impairment.
 - b. Diagnostic uncertainty.
2. Clinician Factors
 - a. Beliefs and type of clinician
 - b. Age and time since clinician qualified.
 - c. Clinician's attitude to early diagnosis.
3. Patient Factors
 1. Age of patient.
 2. Patient's desire to be told.
 3. Insight of patient
 4. Personality of the patient
 5. Emotional stability of patient
 6. Comorbidity of patient.
4. IV) Carer Factors
 - a. Age of carer
 - b. Carer's desire for patient to be told of the diagnosis.

More research is needed as to which of the above factors strongly influences the clinician during diagnostic disclosure. There is an emerging body of evidence on how cultural and religious beliefs of doctors influence End of Life care decisions and similar studies regarding personal values, religious and cultural beliefs influencing diagnostic disclosure are necessary.

5. Outcomes of disclosure for patient's with dementia

1. Positive Outcomes.
 - a. End to uncertainty
 - b. Confirmation of suspicions
 - c. Increased understanding of problems
 - d. Access to support
 - e. Helps to develop positive coping strategies
 - f. Planning and short term goals
2. Negative Outcomes
 - a. Negative effects on self esteem and personhood
 - b. Preoccupation with Diagnosis
 - c. Anxiety about increasing disability.
 - d. Restricted activities
 - e. Crisis after diagnosis
 - f. Hyper vigilant state after diagnosis

These outcomes need to be discussed with patients following which there needs to be sufficient space for patient's emotions. Clinicians may find it particularly challenging to disclose diagnosis in uncertain cases with comorbid psychiatric disorders. or for patient's who have normal tests. Patients with premorbid high IQ may score within the normal range on neuropsychological assessments and this may prove challenging for the clinician breaking the diagnosis.

6. Pre assessment Counselling framework

- a. Consent & Choice
- b. Collaboration & Control
- c. The person and their context

a. Consent- The patient should be informed about the reasons for the referral, process of assessment and beyond, outcomes of their assessment, implications of receiving a diagnosis of dementia as one of the possible outcomes of assessment. Every competent patient is considered to be autonomous and hence has the right of control over his body and hence we should obtain consent for diagnostic disclosure. An important step here is to give all the information to the patient before the disclosure. Not giving sufficient information before and after the diagnosis is not ethical. Also if the patient is not offered enough information to make their decision, their consent may not be valid. Ability to give consent may depend on context and patients should be given a choice.

b. Promoting Control and Collaboration: Patients should know that they have a choice regarding diagnostic disclosure. Their preference regarding type of feedback and location of the feedback should be honoured to prevent distress. Patients should be encouraged to share their diagnosis with their family members keeping in line with the new concept of "Relational Autonomy".

c. The Person and their context- Current life difficulties and their own ideas about their difficulties should be explored. Things that are going well should also be looked into. Coping strategies should be looked into and past crisis and response to it need to be explored. Their support networks and perceptions of significant others should be explored. Prior experiences of people they know with memory problems should be discussed. Past experiences of psychiatric services should be explored.

Post Diagnostic information

1. Emotions should be explored. Depression, denial, Anxiety are common. Earlier emotional experiences may be experienced again.
2. Cognitive changes and its impact should be addressed. Information about general loss of information processing, loss of function of recognition which may trigger emotions like anxiety and fear should be explained.
3. Losses e.g. loss of identity, loss of social role should be explored.
4. Future impact on relationships and attachments should be explained- Importance of bonds and relationships for support should be explained.
5. Environment and its impact- Loss of sense of familiar places should be explained.
6. Information about services like cognitive stimulation groups, support groups, Alzheimer's Society café, Admiral Nurses, Intermediate care team should be provided.

6.1 Case Study 1

Andrew who is a retired engineer lives with his wife Joan who suffered from memory lapses for several years. They have an outpatient clinic appointment in hospital for assessment of her memory problems. Joan was assessed by the doctor and asked to wait in another room. John who was outside in the waiting area was called in all by himself and the news that his wife has Alzheimer's disease was broken to him and the symptoms were confirmed.

Andrew was in the room with 3 strangers who sat looking at him waiting for his reaction. He was asked whether his wife Joan should be informed of her diagnosis. Andrew asked for

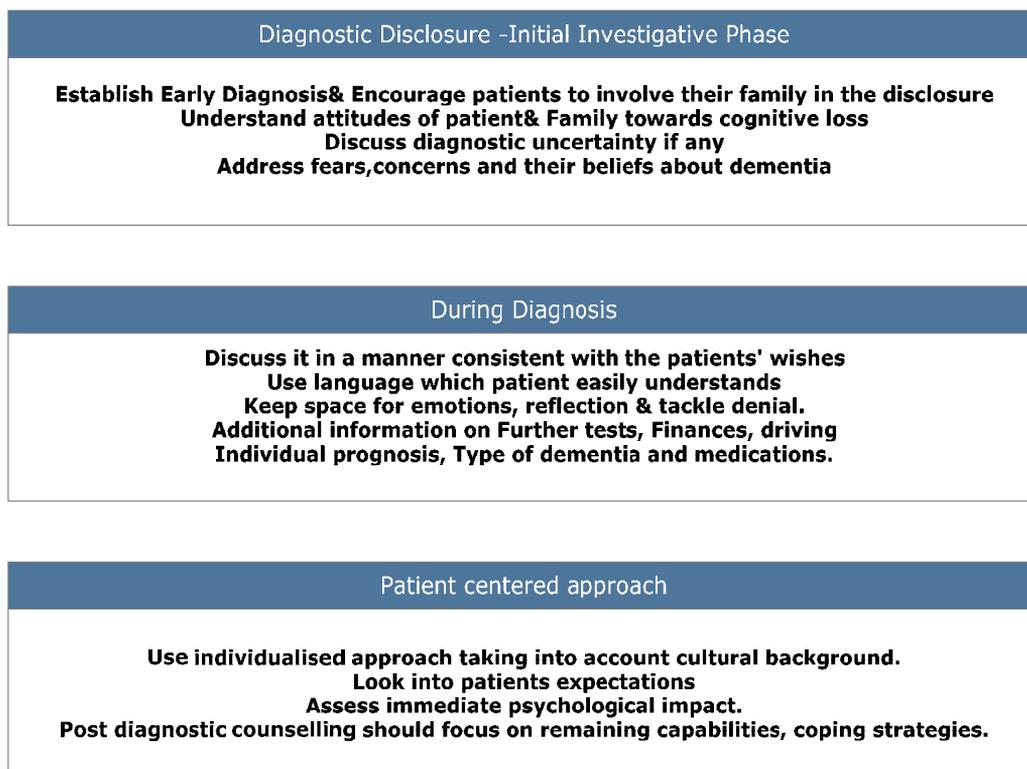


Fig. 1. Evidence based approach for diagnostic disclosure of Dementia.

advice from the doctor who informed him that it was ultimately his decision. Andrew decided to call Joan in the clinic room as he thought that Joan was a mature lady and would understand and adapt to the situation. Andrew felt he could perhaps help her realise that she did have a progressive memory problem. Andrew was informed of the diagnosis and she sat motionless, disbelieving in the diagnosis. For a while after the diagnosis was disclosed Joan was calm. She however had frequent appointments in the memory clinic with further tests due to which she began to rebel. Andrew helped her to go to a local day centre which worked for a while after which she refused to go. Joan started developing verbally aggressive behaviour towards Andrew and he bore the brunt of it. He was hence put in touch with the admiral nurse service for carer distress and is trying very hard to cope.

Case study 1 highlights several ethical problems, examples of bad clinical practice and is not the best example of patient centred care. Early diagnosis is beneficial and helpful (Milne& Wilkinson, 2002). It helps patients to prepare and plan for the future. People with dementia want early disclosure of the diagnosis (Jha et al, 2001). People have the right to be informed of their diagnosis and this should not be withheld on the grounds that patient has dementia or memory problems. In the case study 1 the patient Joan suffered from lapses of memory for several years which went unnoticed. Early or even timely diagnosis would have helped the patient to plan for her future care and treatment. Patients' autonomy should be respected and patient should be informed of the diagnosis and then at the same time encouraged to share the diagnosis with their family and carer. In Case 1 Joan's autonomy

was not respected and instead the patient's husband was informed of the diagnosis first and asked if the diagnosis can be broken to Joan when in fact Joan was capable of understanding the information. This also amounts to breach in confidentiality. In any memory service, patients' right to be informed of their diagnosis should be respected and diagnosis should not be withheld solely on grounds that it may provoke anxiety and suffering. Confidentiality should be maintained and if the patient clearly refuses for a disclosure this should be respected. Diagnosis should be a process, a series of steps (Aminzadeh et al, 2007) which was not the case in Case study1 where it was a sudden event. Diagnosis should be disclosed in a compassionate manner and should involve the patient maintaining dignity and a sense of hope (Connel C et al, 2004). This did not happen in case study1 where the disclosure was insensitive and not person-centred. Dignity and solidarity were not maintained. Since the users and carers are quite vulnerable during this process, it is quite important to have space for emotions and reflection (Derksen E et al, 2006). Information on the illness, prognosis and necessary services was not provided in Case study 1 which is morally wrong. Giving clear and factual information to the patient in different forms is necessary. Post diagnostic counselling to focus on the remaining capability of the patient was not in place. This needs to be tailored specifically to the needs of the patient. (Derksen E et al, 2006).

Ethical issues.

Several ethical issues stand out in Case 1 however the second point is quite important.

1. Early diagnosis was not made
2. Patient's autonomy was not respected as carer was informed of the diagnosis prior to patient.
3. Confidentiality was breached.
4. Disclosure was sudden, insensitive and not person-centred.
5. No information and support was given after diagnostic disclosure to both patient and carer.

In Case study 1 it was ethically wrong that the carer was informed of the diagnosis first and asked if the diagnosis should be disclosed to the patient. Ethics dictates that a doctor should give an honest response about the diagnosis, even if it is uncertain to respect the patient's wellbeing and autonomy. Joan appears to have capacity to absorb the relevant information and hence is autonomous. The doctor should have respected Joan's autonomy and should have disclosed the diagnosis to her. After this disclosure the doctor should have taken Joan's consent to disclose the diagnosis to her husband. This ethical dilemma is commonplace in clinical practice and should be considered carefully. Clinicians are faced with a dilemma of respecting patient's autonomy on one hand and concerns of carers on the other hand. Nuffield Council of bioethics suggests a broad concept of autonomy called "Relational Autonomy" for patients suffering from Dementia. It suggests that as patient's sense of self is grounded in their social network, the whole family should be helped to support the autonomous wishes of the patient. This is a very useful concept and should be practiced.

6.2 Case Study 2

Elizabeth is a married lady in her early sixties who lives with her husband . Elizabeth works as a school teacher and teaches classical languages. Her work colleagues recently noticed some minor word finding problems which they found unusual taking into account her

command on languages. Her husband noticed this too but put it down to anxiety as their son recently met with an accident and was in hospital due to which she has become somewhat distractable. They hence went to see the G.P. on insistence of their daughter. Her husband confirms that her word finding problems have not deteriorated but has noticed that Elizabeth avoids using the phone. Her husband also noticed that she can drift off from conversations but tends to get back to the original point. She on occasions can go to the kitchen and forget the very purpose of it and at times can mislay her personal belongings.

Her G.P. carried out blood investigations and CT scan which were normal. She scored 28/30 on the MMSE. Her G.P. made a referral to Old Age Psychiatric services as he was unsure if Elizabeth was developing memory problems or if this was related to anxiety due to her son's accident.

The G.P. referral was discussed in the Old age Psychiatry referral meeting and was allocated to be seen by the Neuropsychologist. An MRI with a medial temporal view was also ordered by the Consultant. The MRI sequences were discussed with the Neuroradiologist and agreed by him.

Elizabeth saw the Neuropsychologist in 2 weeks time for a Neuropsychological assessment which revealed early signs of cognitive impairment. She also had a MRI scan the same week which showed advanced involutinal changes with both central and peripheral atrophy along with moderate bilateral hippocampal atrophy. She saw the Consultant the following week in his clinic. Elizabeth and her husband were called in together in the clinic. They were made comfortable and the purpose of the consultation was discussed. Elizabeth was asked if she wanted to know of her diagnosis and if she was happy to share it with her husband. After obtaining her consent, she was asked what she thought about her word-finding problems and what did she put it down to. She was given space to voice her concerns and her thoughts on the matter. She was then given a detailed feedback of the neuropsychological test she had last week and the findings were explained to her. She was then asked if she would like to see the MRI images on the computer and after taking her consent. The MRI scan findings were explained to her visually on the computer. Following this the diagnosis of dementia was broken in a very sensitive manner giving reasons as to why this was a disease process rather than normal ageing or a anxiety disorder. Elizabeth was given space for her emotions following which she was given a choice about the available medications. She was given patient information leaflets about local services. Patient was asked if she would like the letter copied to her and was given a choice about attending the post diagnostic counselling group and the Living Well Programme.

Discussion: This is a very good example of diagnostic disclosure and also how medical technology assists in speedy and early diagnosis. The G.P. was quite candid that he was not able to come to grips of what was going on as so often is the case for Mild cognitive impairment and hence referred Elizabeth to old age psychiatric services. The expertise of the Consultant was very valuable as this patient required higher investigations ie MRI scan with specific sequences and also a Neuropsychological assessment.

The patient pathway was effective and the waiting time was reasonable. This did not cause undue distress to the patient or her family. The consultation was good and it was clear that the clinician breaking the diagnosis was experienced and did the diagnostic disclosure in a patient centred manner.

His communication skills were good and he did give space for emotions which is very important. MRI Brain images were shown which is a very powerful tool useful in diagnostic disclosure and also for tackling denial if any.

7. Conclusion

Disclosure of diagnosis of dementia is not straightforward. It involves not only the patient but multiple people, professionals and family members. There is robust evidence which favours diagnostic disclosure. Most studies indicate that patients would like to be told of their diagnosis and would like their carers to be informed as well. Patients who are autonomous have the right to be informed of their diagnosis and doctors should try to involve family members. The new concept of Relational Autonomy is quite useful and hence should be practiced widely. In my view each case should be considered individually, choices should be respected irrespective of the dementia stage and disclosure should be an ongoing process. Questions still remain as to how much information should be disclosed in patients with advanced dementia who are not capable to understand the information. How do we balance autonomy on one hand and carers wishes not to disclose the diagnosis? Is disclosure an absolute right or a relative one?

8. References

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Mentalizing Skills Deficits in Schizophrenia as a Clue for Drug Choice: Clozapine Versus Other Antipsychotics on Keeping Outpatients Stable

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1. Introduction

Despite the proven efficacy of antipsychotic drugs approximately 10-30% of all schizophrenic patients show poor response or remain resistant to antipsychotic medications, and up to an additional 30% of patients have partial responses to treatment, meaning that they exhibit improvement in psychopathology but continue to have mild to severe symptoms (Barnes, 2011; Miyamoto et al., 2005). The proportion considered to be 'treatment resistant' varies according to the criteria used (Barnes et al., 2003; Barnes, 2011; Conley and Kelly, 2001; Pantelis and Lambert, 2003). A minority (around 10%) of patients receiving conventional or atypical antipsychotics do not achieve remission even after the first episode (Crow et al., 1986; Lambert et al., 2008). More commonly, treatment resistance develops as the illness becomes progressively more unresponsive to medication (Barnes 2011; Wiersma et al., 1998). Kane et al. (1988) defined treatment refractoriness as lack of periods of good functioning for 5 years, no response to two different classes of neuroleptics and presence of moderate to severe symptomatology including positive and negative symptoms, as well as disorganized or violent/aggressive behaviour, thought disorder and suicidal ideation. Predictors associated with an unfavourable response to treatment are cognitive functioning deficits (Rabinowitz et al., 2000), poor premorbid functioning (Crespo-Facorro et al., 2007; Duñó et al., 2008), earlier age of onset (Gogtay et al., 2011), duration of untreated psychosis (Farooq et al., 2009) and male gender (Caspi et al., 2007). It remains uncertain whether treatment resistant schizophrenia should be considered simply as the more severe end of the illness spectrum or as a distinct subtype of schizophrenia for which neurocognitive markers of resistance should be explored (Barnes, 2011).

Social cognition generally refers to mental operations that underlie human transactions, including perceiving and interpreting social stimuli as well as responding to socially relevant inputs, such as dealing with intentions and behaviours of others. Theory of Mind (ToM) or mentalizing, a subdomain of social cognition, is defined as the ability to think

about people in terms of their mental states (Green et al., 2008a). The bulk of evidence has shown consistent social cognitive impairments in schizophrenia (Green et al., 2008b), that can be present at early phases (Brüne et al., 2011; Chung et al., 2008; Couture et al., 2008) and persist through different phases of the illness (Green et al., 2011), and several reviews and meta-analysis have established that patient-control differences on mentalizing skills are large and persistent across the chronic phase of illness (Bora et al., 2009; Brüne 2005).

Clozapine is the only antipsychotic that has been found to show superior efficacy for treatment-resistant patients when compared to conventional and atypical antipsychotic drugs. Clozapine is the most effective antipsychotic for severe refractory schizophrenia (approximately 30-60% of patients who fail to respond to other antipsychotics may respond to clozapine), and moderately refractory illness (Barnes, 2011). Further, there are other important benefits with clozapine, including improvement in cognitive function (Bilder et al., 2002; Machado de Sousa and Hallak, 2002; Purdon et al., 2001), reduction in suicidality (Meltzer et al., 2003) and an anti-hostility action or improvement in persistent aggression and behavioural disturbance (Krakowski et al., 2006; Volavka and Citrome, 2008; Volavka et al., 2004). Despite of the abundance of findings about social cognitive deficits in schizophrenia, only a few reports have related these handicaps to the clinical improvement obtained with antipsychotic treatment. Mizrahi et al. (2007) and Harvey et al. (2006) offered some evidence that the atypical risperidone and olanzapine enhanced performance on particular social cognition abilities (Kee et al., 1998; Littrel et al., 2004). Accordingly, Savina and Beninger (2007) found that olanzapine and clozapine but not typical neuroleptics or risperidone may either improve ToM ability or protect against its decline, probably by restoring or improving neural activation at the mPFC. Another study in the same line carried out by Lund et al. (2002) cohered with these results. Contrary to that, Sergi et al. (2007) and Penn et al. (2009) found no differences among medications or within each medication group over time, on these measures. In remitted schizophrenics anomalies in social cognition were worse in the more severe patients (Sprong et al., 2007) and some of the abovementioned studies reported reductions of social cognitive dysfunctions with a specific antipsychotic drug. In this context, the present study attempted to determine which pharmacological treatment (conventional, atypical antipsychotics or clozapine) exhibited superior efficacy to improve ToM skills and whether the deficits on ToM might be linked with resistance to antipsychotic treatment in stable schizophrenic patients. Given that abnormalities in mentalizing are particularly severe in patients with poor premorbid adjustment (Duñó et al., 2008), and that poor premorbid adjustment is considered a factor of refractoriness to treatment, we expected to find a link between the degree of ToM deficit and an increased risk of antipsychotic drug resistance.

2. Method

Fifty-eight schizophrenic patients fulfilling diagnostic and statistical manual (DSM) IV criteria were recruited in a consecutive fashion during the years 2001–2005. Subjects who did not give their consent to participate and those with a visual or auditory disability limiting test application, neurological disease, or another chronic/acute condition that could interfere with cognitive performance were not recruited. Patients with additional DSM-IV diagnosis on Axis I/II were also not recruited. Participants showing an IQ below 70 (Blyler et al., 2000) were excluded from the study. All subjects were on clinical remission at 5 months after discharge from the Day Hospital of the Psychiatry Unit, Parc Taulí University

Hospital (Sabadell-Barcelona, Spain). Clozapine treatment was prescribed only to patients who met the criteria for antipsychotic treatment resistance (Kane et al., 1988).

The schizophrenic group was compared to a control group of forty-eight patients with no psychiatric diagnosis who had been admitted to the Orthopedics and Surgery Department of the same hospital. Control subjects were recruited at the same time as the group with schizophrenia and were matched by sex, age and educational level. The exclusion criteria for this group included a history of psychiatric disorders, the presence of psychopathology and distress at the time of the evaluation according to the three global indices of the Symptom Checklist-90-Revised scale (SCL-90-R) (Positive Symptom Total, Global Severity Index, Positive Symptom Distress Index) (Martinez-Azumendi et al., 2001) medical prescription of psychoactive drugs and an IQ score below 70 (Blyler et al., 2000). Sociodemographic factors of this group are described in Table 1.

2.1 Assessment

Patient's symptom severity was assessed with the positive and negative syndrome scale (PANSS) (Kay et al., 1987). Premorbid adjustment with the Premorbid Adjustment Scale (PAS) (Cannon-spoor et al., 1982; Silverstein et al., 2002). Four false belief ToM tasks were applied: two first-order tasks, "the cigarettes" (Happé, 1994) and "Sally and Anne" (Baron-Cohen, 1989) and two second-order tasks, "the burglar" (Happé and Frith, 1994) and "the ice-cream van" (Baron-Cohen et al., 1985). Stories were read aloud by the examiner and subjects had to listen and answer two questions. The first one (a ToM question) had to be answered on the basis of the mental state of one of the characters and concerned that character's false belief within the situation. The second one (control question) reflected the subject's comprehension of the story. These tasks were rated according to the following:

- correct ToM (task score = 1): correct answers in both ToM and control questions;
- ToM deficit (task score = 0): failure in ToM question and correct answer in control question;
- comprehension error: correct answer in ToM question and failure in control question or failure in both (data in this category omitted from the analysis).

Patients were excluded from the study if they showed comprehension errors in more than two ToM tasks. If the comprehension error was in a second-order ToM task, none of the second-order ToM tasks were considered for analysis, while first-order ones were. The same criteria were applied when comprehension errors appeared in first-order ToM tasks. Subsequently, three categorical subgroups of ToM performance were established for both first- and second-order tasks by adding up scores as follows: 0=two tasks with scores of 0 (severe ToM deficit); 1=one task scoring 1 and the other scoring 0 (low ToM performance); 2=scoring of 1 in both tasks (good ToM performance). Neurocognitive measures were grouped into several domains, from basic to high-level processing according to Nuechterlien et al. (2004) criteria: Speed processing (Trail Making Test A (TMT-A) (Reitan, 1993), Working Memory (Digit Span Backward) (Wechsler, 1999), Executive functions (Stroop Color-Word (Golden, 1994), Trail Making Test B [TMT-B] (Reitan, 1993), Block Design (Wechsler, 1999).

Antipsychotic treatment included 3 groups of drugs: conventional, atypical (olanzapine, risperidone aripiprazol) and clozapine. Drug doses for each group were converted to haloperidol equivalents (mg/day). Patients were assessed on these all measures at 5 months

after discharge from hospital, except PANSS scale, which was further administrated at start and end of hospitalization.

Long-term Follow-up: 6-10 years later these patients were contacted again through telephone calls. All were retraced except 3 who were dead, 4 who had changed address and 2 who were hospitalized. From the remaining, 21 patients refused to collaborate and 24 accepted and were re-examined. Symptom severity was assessed with the positive and negative syndrome scale (PANSS) (Kay et al., 1987) and ToM tasks were assessed applying the same tasks and methodology as stated above.

2.2 Statistical analysis

Socio-demographic data as well as neuropsychology and social cognition measures were compared in patients and controls by means of either the χ^2 -test (for categorical variables) or t-tests. Relations among antipsychotic treatment and haloperidol equivalents doses with PANSS scale were studied through descriptive analysis. Comparative analysis between social cognition and dosage of haloperidol equivalents were carried out through U Mann-Whitney tests. Relations between first- and second-order ToM tasks scores and antipsychotic treatment were studied by the χ^2 -tests. Ordinal regression models were employed to analyze the association between the results of first-order and second-order ToM tasks with socio-demographic variables, premorbid adjustment, neuropsychological scores and antipsychotic treatment as possible explanatory variables of treatment resistance. Starting with regression models including gender and PAS for social isolation, further explanatory variables were included if they significantly improved the model fit and yielded maximum R-square values. Several links for ordinal regression models were considered and those that yielded maximum R-square values were chosen. Finally, it was proved that the models for first- and second-order ToM tasks held the assumption of parallel lines (Chen and Meharry, 2004). Statistical analysis was performed with the statistical software packages SPSS, version PASW 18 version 18.0.0 and R, v. 2.11.1, in particular using the contributed package “exact RankTests” (Hothorn and Hornik, 2011). P-values below 0.05 were considered statistically significant. For the long term follow-up measures only a descriptive analysis was carried out.

3. Results

Sociodemographic and clinical data of schizophrenic patients and controls are shown in Table 1, as well as, neuropsychological and social cognition measures in Table 2. Clear differences between patients and controls appeared in independence, paternity and occupational status. Premorbid adjustment in the patients was poor, worsening from childhood into late adolescence. Patients scored significantly lower in Trail Making Test A, Stroop word-colour and Trail Making Test B. Table 3 displays changes over time in PANSS scale in relation to antipsychotic drugs and dosage haloperidol equivalents at discharge and follow-up study. Total PANSS scores improved over time in all groups. Patients on clozapine had higher scores at each PANSS subscales at baseline and lesser scores at the end of assessment. At the long-term follow-up these scores in general decreased slightly, being more pronounced for atypical and clozapine. First- and second-order ToM tasks performance relations to mean dosage of haloperidol equivalents are shown in Table 4. Dosage haloperidol equivalents were inferior in category 2 on both measures.

	Schizophrenia group (N=58)	Control group (N=48)	p-value
Males	41 (70.7%)	36 (75.0%)	
Age	31.4 (8.1)	33.9 (8.6)	
Years of education =< 8 years	42 (72.4%)	37 (77.1%)	
Living with own family	15 (25.9%)	35 (72.9%)	$\chi^2=23.336$; $p<0.001$
Children	8 (13.8%)	26 (54.2%)	$\chi^2=19.650$; $p<0.001$
Employed	12 (20.7%)	41 (85.4%)	$\chi^2=44.014$; $p<0.001$
Age of illness onset	21.6 (4.9)		
Psychiatric diagnosis (DSM-IV)			
Paranoid schizophrenia	39 (67.2%)		
Non-paranoid schizophrenia	8 (13.7%)		
Schizofreniform disorder	6 (10.3%)		
Schizoaffective disorder	5 (8.6%)		
Global activity (DSM-IV)	61.6 (11.7)		
SCL-90-R¹			
Positive Symptom Total		24.9 (11.2)	
Global Severity Index		0.27 (0.12)	
Positive Symptom Distress Index		1.19 (0.20)	
PAS			
Childhood	0.27 (0.2)		
Early adolescence	0.39 (0.2)		
Late adolescence	0.44 (0.2)		
Years of illness evolution	9.6 (7.7)		
Drugs			
Mean dose haloperidol equivalents (mg/day)	8.7 (7.3)		
Conventional antipsychotic	14 (24.1%)		
Atypical antipsychotic	35 (60.3%)		
Mixed antipsychotic	6 (10.3%)		
Clozapine²	17 (29.3%)		
None³	3 (5.2%)		
Anticholinergic	8 (13.8%)		
Antidepressant	15 (25.9%)		

Results are presented as mean (standard deviation) in case of continuous variables and as frequency (%) in case of categorical variables. Gender, age, and educational level were matching variables; hence, no statistical tests for comparison are applied.

¹ Mean normative values: Positive Symptom Total, 25.32 (SD: 14.3); Global Severity Index, 0.51 (0.36); Positive Symptom Distress Index, 1.75 (0.48).

² Patients on clozapine from the total 35 on atypical antipsychotics.

³ At evaluation, 5 months after discharge.

DSM-IV-Diagnostic and Statistical Manual Disorders, Fourth Edition;

SCL-90-R-Symptom Checklist-90-Revised; PANSS=Positive and Negative Syndrome Scale.

Table 1. Sociodemographic and clinical characteristics of study cohort

Figure 1a and 1b display relations between antipsychotic drugs and performance of first-order ToM tasks at discharge and follow-up respectively: 78.6% of patients performed correctly at discharge, with a slight non-significant advantage for atypical drugs, whereas 83% performed right, with a moderate advantage for clozapine at follow-up. Figure 2a and 2b display antipsychotic drugs and performance of second-order ToM tasks at discharge and follow-up: 63.9% of patients performed correctly at discharge, with a slight non-significant advantage for atypical drugs, whereas 79.2% performed right, with moderate advantage for clozapine at follow-up study. Tables 5a and 5b show the variables included in the ordinal regression models for first- and second-order ToM tasks, respectively. The negative sign of the regression coefficients corresponding to premorbid adjustment (PAS social isolation) in both models indicates a negative relationship between that variable and the outcome. That is, ordinal regression analysis revealed a main association between deficits in first-order and second-order ToM tasks both with poor social premorbid adjustment (social isolation). In first-order ToM tasks, deficits were also related to poor performance on Trail Making Test B. The test showed the highest significant association between second-order ToM tasks with block design, males and clozapine treatment. R-square values amounted to 0.300 and 0.657, respectively. No association was found between first-order ToM tasks with variables of treatment resistance, whereas second-order ToM tasks deficits were linked to factors of unfavourable response to treatment.

	Schizophrenia group (N=58)	Control group (N=48)	p-value
Neuropsychological measures			
General cognition abilities			
Intelligence Quotient	96.8 (19.2)	104.1(19.5)	t=-1.918; p=0.060
Speed of processing			
Trail Making Test A	43.1 (16.8)	30.9(10.1)	t=4.333; p=0.000
Working Memory			
Digit span backward	5.5 (1.1.9)	5.3(1.7)	t=0.708 p=0.481
Executive function			
Stroop word color	36.1 (11.2)	42.3 (10.7)	t=-2833; p=0.006
Trail Making Test B	106.9 (51.9)	84.8 (27.3)	t= 2.829; p=0.01
Block design	40.6 (11.9)	44.1 (11.6)	t=-1504; p=0.136
Social cognition measures			
ToM category			
First order			
0	11.8%	0%	$\chi^2=12602$; p=0.002
1	11.8%	0%	
2	76.5%	100%	
Second order			
0	11.5%	4. %	$\chi^2=6917$; p=0.031
1	26.9%	10.6%	
2	61.5%	85.1%	

Results are presented as mean (standard deviation) in case of continuous variables and as frequency (%) in case of categorical variables

Table 2. Neuropsychology and social cognition measures of study cohort

PANSS	<u>Conventional</u>	<u>Atypical</u>	<u>Clozapine</u>
POSITIVE <u>Main measures</u>			
Hospitalization starts	20.9(4.9)	15.2(7.2)	22.8 (6.6)
Hospitalization ends	13.8(3.9)	10.5(4.7)	13.1 (4.1)
5 month after discharge	12.0(3.9)	10.2(3.7)	13.7 (4.3)
<u>Follow-up</u>	12.8(3.9)	10.6(3.1)	10.6(4.9)
NEGATIVE <u>Main measures</u>			
Hospitalization starts	21.9(9.5)	28.7(10.4)	27.4 (13.5)
Hospitalization ends	13.8(4.0)	10.5(4.7)	13.1 (4.1)
5 month after discharge	18.5(7.4)	18.8(10.8)	14.1 (10.5)
<u>Follow-up</u>	19.0(12.3)	11.7(6.9)	13.4(6.1)
GENERAL <u>Main measures</u>			
Hospitalization starts	43.2(9.5)	46.5(10.5)	48.9(8.3)
Hospitalization ends	33.7 (5.7)	34.6(12.8)	31.8(8.9)
5 month after discharge	34.1 (8.0)	31.6(9.7)	30.4(10.1)
<u>Follow-up</u>	27.2(9.5)	26.0(12.0)	25.9(8.3)
TOTAL <u>Main measures</u>			
Hospitalization starts	88.0(19.2)	90.4(19.3)	97.7(23.9)
Hospitalization ends	66.9 (11.9)	62.9(22.2)	66.5(13.2)
5 month after discharge	65.1 (15.1)	61.1(18.8)	58.1(22.7)
<u>Follow-up</u>	59.0(24.5)	48.3(18.5)	49.9(13.3)
DOSE HALOPERIDOL equivalents (mg/day)			
<u>Main measures</u>	13.2 (8.4)	4.3 (2.4)	10.3 (6.6)
<u>Long term Follow-up</u>	17.6 (5.4)	8.3 (7.3)	13.2 (7.5)

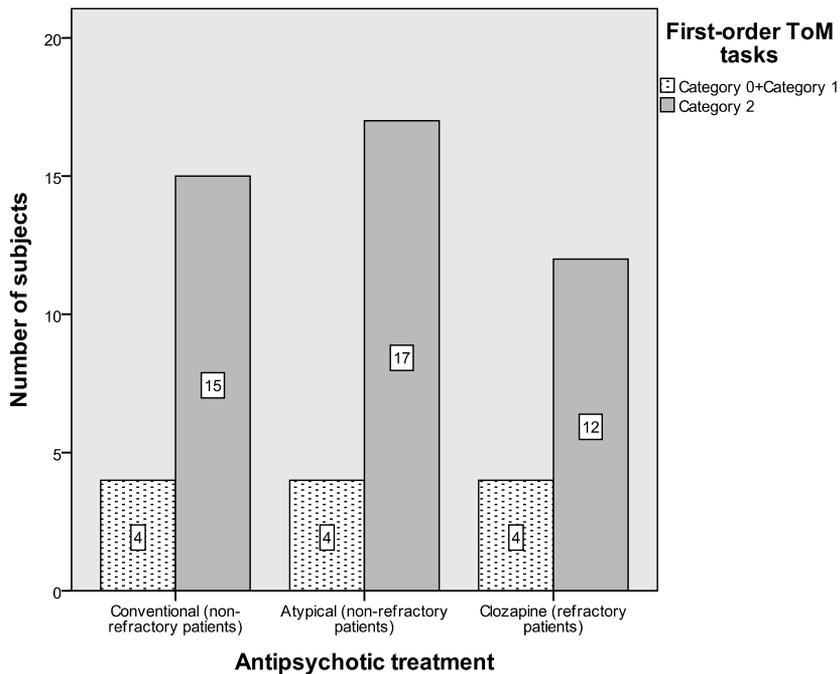
Results presented as mean (standard deviation). For Main measures N=58: Conventional N=19; Atypical N=21; Clozapine N=16; A Follow-up N= 24: Conventional N=5; Atypical N=7; Clozapine N=12

Table 3. PANSS changes over time in relation to antipsychotic medication and dose of haloperidol equivalents (mg/day) in schizophrenics patients

ToM Tasks	Discharge N=58	Follow-up N=24
First-Order ToM Tasks		
Category 0 + Category 1	(N=12) 11.9 (8.0)	(N=4) 14.3 (8.3)
Category 2	(N=46) 7.3 (6.7)	(N=20) 13.2 (8.1)
p value	U=190.500 p=0.009*	
Second-order ToM Tasks		
Category 0+ Category 1	(N=20) 10.4 (7.1)	(N=5) 17.8 (5.1)
Category 2	(N=38) 7.5 (7.4)	(N=19) 13.3 (8.4)
p value	U=276.000 p=0.052	

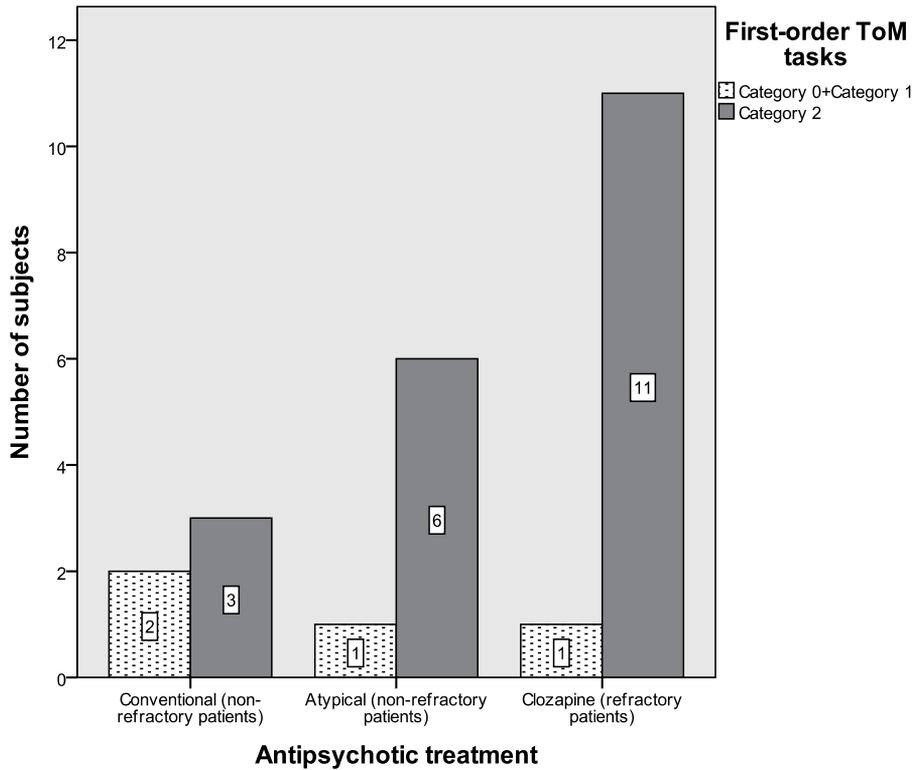
Results are presented as mean (standard deviation) of mean dosage of haloperidol equivalents. Analysis of distribution between ToM tasks categories with mean dosage of haloperidol at discharge were carried out with the Mann-Whitney test; *p<0.05 level of significance

Table 4. Relations between first- and second-order ToM tasks performance and mean dosage of haloperidol equivalents at discharge and follow-up of the schizophrenia group



*Conventional (non-refractory patients): mixed antipsychotic group is included within this group. Percentage of good performance at ToM tasks were: conventional 26.8%, atypical 30.4% and clozapine 21.4%; ($X^2=0.194$; $p=0.908$).

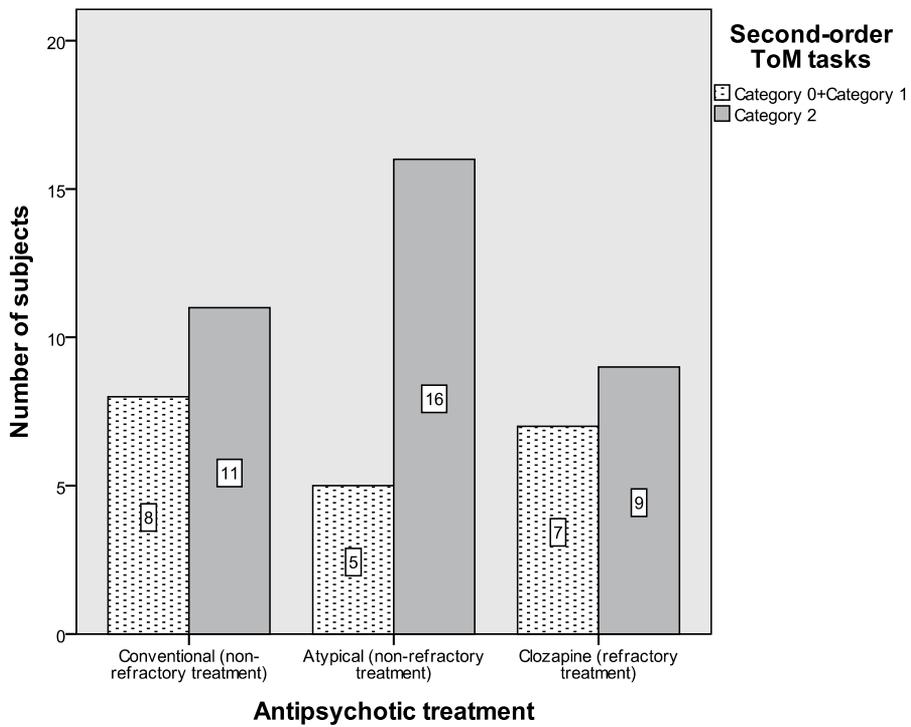
(a)



*Conventional (non-refractory patients): mixed antipsychotic group is included within this group. Percentage of good performance at ToM tasks were: conventional 12.5%, atypical 25.0% and clozapine 45.8%.

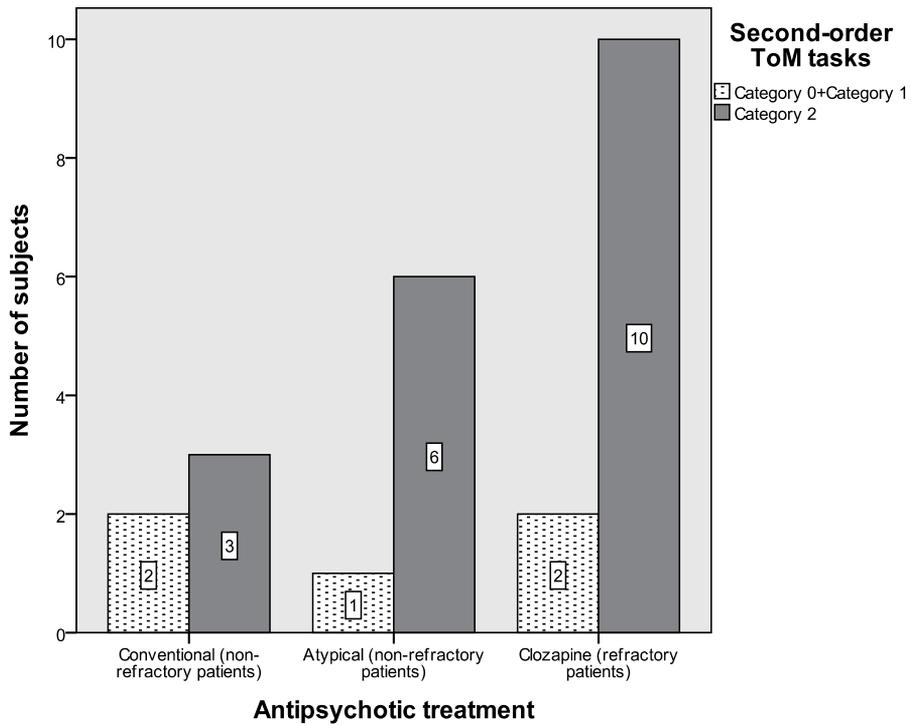
(b)

Fig. 1. (a) Antipsychotic treatment type and first-order ToM tasks at discharge study
(b) Antipsychotic treatment type and first-order ToM tasks at the long term follow-up in a subsample of the schizophrenia patients



*Conventional (non-refractory patients): mixed antipsychotic group is included within this group. Percentage of good performance ToM tasks were: conventional 19.1%, atypical 28.6% and clozapine 16.1% ; ($\chi^2=2.084$; $p=0.353$)

(a)



*Conventional (non-refractory patients): mixed antipsychotic group is included within this group. Percentage of good performance ToM tasks were: conventional 12.5%, atypical 25.0% and clozapine 41.7%.

(b)

Fig. 2. (a) Antipsychotic treatment type and second-order ToM tasks at discharge study
(b) Antipsychotic treatment type and second-order ToM tasks at the long term follow-up in a subsample of the schizophrenia patients

	Regression coefficient	95% Confidence interval	p-value
Threshold [ToM1 = 0]	-3.225	(-4.700; -1.750)	<0.001
Threshold [ToM1 = 0]	-2.667	(-4.057; -1.278)	<0.001
PAS: Social isolation	-1.990	(-3.754; -0.227)	0.027
Trail B	-0.009	(-0.016; -0.001)	0.026
Males	-0.385	(-1.357; 0.586)	0.586

The link function applied was the probit link. Pseudos R-square values amounted to: 0.224 (Cox and Snell); 0.300 (Nagelkerke); and 0.184 (McFadden).

Table 5a. Regression coefficients of an ordinal model to explore the relative weight of first order ToM tasks at predicting treatment resistance factors including premorbid adjustment (social isolation), trail B and gender as explanatory variables

	Regression coefficient	95% Confidence interval	p-value
Threshold [ToM2 = 0]	-5.975	(-12.251; 0.300)	0.062
Threshold [ToM2 = 0]	-0.317	(-4.673; 4.040)	0.887
PAS: Social isolation	-14.003	(-26.340; -1.666)	0.026
Blocks design	0.291	(0.033; 0.549)	0.027
Clozapine	-3.379	(-6.734; -0.025)	0.048
Males	-5.580	(-10.775; -0.385)	0.035

The link function applied was the Cauchy link. Pseudos R-square values amounted to: 0.551 (Cox and Snell); 0.657 (Nagelkerke); and 0.440 (McFadden).

Table 5b. Regression coefficients of an ordinal model to explore the relative weight of second-order ToM tasks at predicting treatment resistance factors including premorbid adjustment (social isolation), blocks design, clozapine and gender as explanatory variables

4. Discussion

This study identified distinctive responses on ToM performance with different antipsychotic medications in stable schizophrenics: initially patients responded relatively better with atypical antipsychotics in contrast to clozapine and conventional agents. Nevertheless, over time clozapine provided some hints of better restoration of mentalizing abilities than other antipsychotics agents. Also, the findings confirmed predictors of unfavourable response to antipsychotic treatment in patients with poor mentalizing deficits. These predictors include male gender, social isolation (poor premorbid adjustment), low performance in block design and receiving clozapine treatment at start higher severity. That constellation of factors characterized a well-studied subgroup of patients having a poor prognosis. Cohering with previous findings, the present sample of stabilized schizophrenia outpatients showed difficulties across diverse interpersonal functions in contrast to healthy controls: they were mainly less independent, with no children, and either unemployed or disabled. Decreased premorbid adjustment across age epochs in which full-blown schizophrenia symptoms appear has also been found in other studies (Strous et al., 2004; Vourdas et al., 2003). Schizophrenic patients performed worse than control group on both first and second order

ToM tasks, without differences in intelligence quotient measures. Regarding the links between ToM performance and antipsychotic medication, the results showed drug's positive effects on mentalizing abilities with a tendency to increase over the years in the restricted subsample re-examined at follow-up meaning perhaps that the deficits in social cognitive abilities were relatively restored over the long-term. After discharge the patients who had been prescribed atypical antipsychotic drugs displayed a modest superiority on mentalizing skills in contrast with those receiving conventional antipsychotic or clozapine. Almost a decade later, in the follow-up, clozapine showed a modest trend of better efficacy, despite that at least a fraction of those patients were highly resistant to treatment and showed deep second-order mentalizing handicaps when first studied at the start of the study. This trend may cohered with Savina and Berninger (2007) findings, showing that clozapine (and olanzapine) improves ToM abilities due to the enhancement of mPFC function, although they measured that over the short-term. Dosage of antipsychotic was lower in patients with good performance on mentalizing skills, indicating less illness severity.

The accumulating evidence suggests that improvement in cognitive function might be expected to follow reduction of psychotic symptoms, with differences between antipsychotics at improving cognitive performance, being rather modest and never normalizing cognitive function (Barnes, 2011; Lieberman et al., 2005). Also, the literature suggests a parallel path for both atypical antipsychotics in non-resistant patients and clozapine in resistant ones at improving psychosis and cognition deficits (O'Carroll, 2000; Keefe and Fenton, 2007). It is worth noting that clozapine treatment remains as one of the most effective for schizophrenia and consensus treatment guidelines from a wide range of prominent expert panels specify that (APA, 2004; Goodwin et al., 2009; NICE, 2010), recommending its use after the failure of 2 adequate trials with other antipsychotics, including an atypical one, to get adequate response or in patients with persistent suicidal gestures or ideation. So it would be desirable to introduce clozapine in appropriate time and dosages (Joobar and Boksa, 2010), to improve social cognitive abilities as well as to enhance pro-social function (Toua et al., 2010; Möller et al., 2011).

Concerning disease state at baseline, before treatment commencement, it is important to highlight that second-order ToM tasks deficits disclosed well-characterized factors related with poor prognosis: male gender, (Caspi et al., 2007), poor premorbid functioning (Duñó et al., 2008; Strous et al., 2004) and executive functioning deficits, specifically planning and coordination dysfunction (Bécharde-Evans et al., 2010; Koelkebeck et al., 2010; Rabinowitz et al., 2000), together with particular drug regimes (clozapine) required to achieve a quick clinical stabilization (Barnes, 2011). Severe deficits in social cognition have been repeatedly shown along these factors (Duñó et al., 2008; Montreuil et al., 2010; Schenkel et al., 2005; Uhlhaas and Silverstein 2005). It is interesting to note that mentalizing deficits had not been previously described as a predictor factor of poor response to treatment. Therefore it is important to note that refractory responses to drug treatment ought to be expected in patients with poor mentalizing skills especially if they are accompanied with these factors of poor outcome.

This study had obvious limitations. The ToM tasks employed, although widely used in the literature, have not been fully validated. The study characterized a substantial homogeneous sample, but at the long term follow-up study half of the sample did not accept to collaborate

again thus restricting the weight of those results. In conclusion, our findings reflect beneficial effects of antipsychotic agents at restoring ToM ability, especially clozapine, in a sample of stabilized schizophrenics. Also we found second-order ToM tasks deficits as a predictor factor of poor response to antipsychotic treatment together with others well described in the literature: male gender, poor premorbid adjustment, executive dysfunctions (coordination-planning) and clozapine at baseline (higher clinical severity).

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Childhood Maltreatment and County-Level Deprivation Jointly Modify the Effect of Serotonin Transporter Promoter Genotype on Depressive Symptoms in Adolescent Girls

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1. Introduction

Depression is a commonly occurring mood disorder defined by the presence of persistent sad feelings, low energy, loss of interest in activities that were once pleasurable, feelings of guilt or low self-worth, disturbed sleep or appetite, and poor concentration, among other symptoms (American Psychiatric Association, 1994). Among adults 18 and older in the United States, the prevalence of major depressive disorder (MDD) is higher than that of any other commonly occurring DSM-IV mental disorder in the U.S., with a lifetime prevalence of 16.6%, and 12-month prevalence estimated at 6.7% (Kessler & Wang, 2008). The World Health Organization estimates that depression will rank second among the leading contributors of disease burden by the year 2020 (WHO, 2009). MDD is associated with enormous costs to both the individual and society, with the economic burden of depression estimated to be \$83 billion per year as of 2000 (Greenberg et al., 2003), and the impairment in proper role functioning due to MDD known to be significantly worse when compared to a number of commonly occurring chronic medical disorders (Druss et al., 2009). The large public health burden of MDD is due, at least in part, to its onset relatively early in life: at least 25% of lifetime MDD cases start before age 19 (Kessler et al., 2005).

Despite substantial research, our understanding of the factors that contribute to the etiology of depression remain incomplete. Genetic factors account for an estimated 35-45 percent of the variance in risk for depressive symptoms (Shih et al., 2004). In addition, meta-analysis supports an association between polymorphisms in six different candidate genes and MDD (Lopez-Leon et al., 2008). Nevertheless, there is growing recognition that genetic influences on depression may only be evident under certain environmental conditions—i.e. that there may be gene X environment (G X E) interactions, such that individuals of the same genotype may express different phenotypes depending on their environmental contexts (Moffitt et al., 2005). In particular, a growing body of work indicates that genetic variation, in combination with adverse experiences early in life, shape risk for mental illness.

Seminal work by Caspi et al (Caspi et al., 2003) was the first to demonstrate that genetic variation at the promoter (*5-HTTLPR*) region of the serotonin transporter (*SCL6A4*) locus interacted with the experience of childhood maltreatment, including physical and sexual abuse, such that childhood maltreatment predicted adult depression only among individuals carrying an *s* allele but not among 1/1 homozygotes (Caspi et al., 2003). These findings were replicated by subsequent studies (Scheid et al., 2007), and detected not only in adults but also adolescents and children (Eley et al., 2004; Kaufman et al., 2004; Sjöberg et al., 2006). Nevertheless, some studies have either failed to detect any significant findings with respect to *5-HTTLPR* × maltreatment interactions in depression (Chipman et al., 2007; Surtees et al., 2006) or have detected significant interactions, but for other *5-HTTLPR* genotypes/alleles (Laucht et al., 2009). In addition, two recent meta-analyses have called into question the weight of evidence of G × E associations reported for the *5-HTTLPR* locus (Munafo et al., 2009; Risch et al., 2009). These meta-analyses, however, have been criticized on a variety of levels, including (but not limited to) the heterogeneity in measurement of both environment and outcome (Lotrich & Lenze, 2009), the use of a dichotomized outcome for studies that were originally assessed with dimensional outcomes (Schwahn & Grabe, 2009), and a failure to consider the biological plausibility of G × E interactions at the *5-HTTLPR* locus in light of animal and clinical data (Koenen & Galea, 2009; Rutter et al., 2009). Furthermore, an additional, more recent meta-analysis, including a greater number of studies, confirmed previous findings of an association between increased risk of depression under stressful conditions among carriers of the *s* allele (Karg et al., 2011); notably, this association was particularly pronounced when analyses were restricted to studies that assessed childhood maltreatment as the stressor of interest (Karg et al., 2011).

Importantly for the present study, we have also suggested that an additional consideration is the failure of the current literature to consider measurement of relevant social environmental variables that may interact with underlying genetic variability and vulnerability to produce increased risk for, or resilience to, mental illness. (Koenen & Galea, 2009; Koenen et al., 2010) Recent work suggests that macrosocial contextual influences, in conjunction with genetic variation at the *5-HTTLPR* locus, contribute to risk of mental illness (Koenen et al., 2009; Uddin et al., 2010); and as outlined above, there is clear evidence that genetic variation moderates the effect of childhood maltreatment on risk of depression. Nevertheless, there has, to date, been little consideration of the joint and/or interacting effects of how these risk factors, operating at multiple levels, shape risk for mental illness. To address this gap in the literature, here we assess whether *5-HTTLPR* genetic variation, childhood maltreatment, and macrosocial context interact to shape risk for depressive symptoms in a U.S. adolescent population. Consistent with recent recommendations regarding G × E studies involving the *5-HTTLPR* locus (Uher & McGuffin, 2008), and depression more generally (Lupien et al., 2009), we conducted this investigation separately for males and females, and report results separately for each genotype.

2. Methods

2.1 Sample

The data source for our analysis is drawn from the National Longitudinal Study of Adolescent Health (AddHealth), a nationally representative, school-based sample of over 90,000 adolescents in grades 7 – 12, initially sampled in 1994 – 1995 in the United States and followed for three subsequent waves. A subsample (N=20,745) of participants from the in-

school portion of the study was selected to participate in an additional, 90-minute in-home interview during Wave I, which provided the primary data source for the analyses reported here. In 2002, during Wave III, DNA samples were collected from a subsample of siblings ($n=2,574$) who had participated in the in-home interview portion of the study. The in-home and genetic data are part of the restricted use/contractual AddHealth dataset (Harris, 2008) and IRB approval to work with this dataset was secured prior to undertaking any of the below-described analyses. More detail regarding the design and data availability for the genetic component of AddHealth is available elsewhere (Harris et al., 2006).

The sample for our primary analysis is comprised of 1,097 individuals from the sibling subsample who provided DNA, belonged to a same sex sibling cluster, and for whom there was a complete set of data available for each sibling in the cluster for each of the measures included in our models. The analytic sample did not differ from the excluded sample with respect to genotype, childhood maltreatment, county-level deprivation or depressive symptoms, i.e. the main variables in the study.

2.2 Measures

2.2.1 Individual- and family-level health indicators

Depressive symptom scores were obtained using a shortened, 17-item version of the Center for Epidemiological Studies Depression Scale (CES-D) (Radloff, 1977), based on the CES-D questions that were posed in the AddHealth *Feelings Scale* during the in-home interviews conducted during Wave I (Apr. – Dec. 1995) and II (Apr. – Aug. 1996). Responses to the 17 questions were ordinal, ranging from 0 (never or rarely) to 3 (most or all of the time) and were summed for use as the outcome variable in all analyses, with higher scores indicative of more depressive symptoms. Respondents were required to answer all 17 questions in Waves I and II in order to be included in our analyzed sample. The final current depression index was standardized to the mean in order to facilitate model interpretation. Shortened versions of the CES-D have previously been found to have very high sensitivity and specificity for detecting depressive symptoms (Kohout et al., 1993).

Siblings were classified as monozygotic twins (MZ), dizygotic twins (DZ), full siblings (FS), half siblings (HS), or cousins (CO), as indicated in the AddHealth data files.

Genotype: The 5-HTTLPR locus is characterized by a variable number of tandem repeat (VNTR) polymorphism with two predominant alleles: the long (*l*) allele with 16 repeats and the short (*s*) allele with 14 repeats, the latter of which corresponds to a ~44bp deletion in reference to the long allele (Heils et al., 1996). Respondents were assigned one of three possible 5-HTTLPR genotypes: homozygote long (*ll*; referent category), homozygote short (*ss*), and heterozygote (*sl*).

Age and race/ethnicity: Age was calculated using date of birth and date of interview and left as a continuous variable in the model. Race/ethnicity was self-reported using the following categories: White (reference), African-American, Hispanic, Asian, and other race.

Family structure assessed the number of household resident parent(s) and categorized respondents as belonging to a two-biological parent family (referent category), a one-biological parent family (i.e. single biological parent or one biological parent and a stepparent) or “other family structure.”

Family-level socioeconomic position (SEP) was assessed via whether at least one resident parent was receiving public assistance (PA).

Social support was measured by averaging the responses to eight questions that represent respondents’ perceived value and support from family members, friends and teachers;

responses ranged from 1 (not at all) to 5 (very much). If respondents missed one or more of the 8 questions, the average was determined from the remaining, answered questions.

Childhood maltreatment was assessed retrospectively in Wave III of the AddHealth study, conducted in August 2001 to April 2002, when participants were between 18 and 26 years old. Participants were asked “By the time you started sixth grade, how often had your parents or other adult care-givers slapped, hit, or kicked you?” and “how often had one of your parents or other adult care-givers touched you in a sexual way, forced you to touch him or her in a sexual way, or forced you to have sexual relations?” These questions thus assessed participants’ exposure to maltreatment by an age that captured the youngest age of AddHealth participants at Wave I. Although additional measures assessing the occurrence of supervision neglect and physical neglect were also available in the AddHealth dataset, we focused on exposure to physical and/or sexual maltreatment due to its more robust association with depression (Brown et al., 1999). Exposure to maltreatment was coded 1 if a participant had been exposed one or more times to physical and/or sexual abuse, and 0 otherwise. If a participant was missing data for either physical or sexual maltreatment (or both), they were excluded from analyses.

2.2.2 County-level health indicator

Consistent with previous work (Robert, 1998), county-level public assistance (PA) was selected as a measure of exposure to poor social environments, i.e. a proxy for county-level deprivation. The proportion of households receiving PA income in each county for each respondent was assessed using U.S. Census data from 1990, geocoded to respondents’ interview data via the AddHealth contextual database. We calculated the median proportion of PA based on the counties represented by respondents in our dataset and a dummy variable was then created indicating 1 if the value was greater than the median and 0 otherwise. Individuals who relocated to a different county between Waves I and II were removed from the dataset.

2.3 Statistical analysis

2.3.1 Hardy Weinberg Equilibrium

Genotype frequencies were assessed for Hardy-Weinberg Equilibrium (HWE) using Rodriguez et al.’s (Rodriguez et al., 2009) online HWE Chi Square calculator by randomly sampling one sibling per family cluster. Calculations were performed separately for each gender.

2.3.2 Analytic models

A repeated multi-level modeling approach using mixed models was employed in our study. Mixed models have proven to be useful when dealing with nested and clustered data (Searle et al., 1992). In our analysis, level 1 refers to the repeated measurements of individuals’ depressive symptom scores, level 2 refers to the individual respondent, and level 3 refers to the family cluster to which the respondent belongs. Equation one (Eqn1) below describes the basic mixed model used in our analysis:

$$\text{CESD}_{ij(s)} = \beta_0'X_{ij} + \beta_1'5\text{-HTTLPR}_{ij} + \beta_2'\text{family structure}_{ij} + \beta_3'\text{SEP}_{ij} + \beta_4\text{support}_{ij} + \beta_5\text{maltreatment}_{ij} + \beta_6\text{county level predictor}_{ij} + u_{j(s)} + v_{ij} + e_{ij(s)} \quad (1)$$

where i , j and s indicate individual and sibling cluster, respectively. Each beta represents a single coefficient or a vector of coefficients for each predictor component in the model; X

represents age and race, *5-HTTLPR* represents the serotonin transporter promoter genotype, family structure represents the variants in resident parents, SEP refers to parent receipt of PA, support refers to social support, maltreatment refers to childhood maltreatment, and county-level predictor represents PA. The random effect of the family cluster is represented by $u_{j(s)}$, v_{ij} is the random effect of the repeated observations on the same individual, and $e_{ij(s)}$ is the error term. This model allows the random effect of family cluster and the error term to vary by sibling type (Guo & Wang, 2002), denoted by s ($s = mz, dz, fs, hs, co$). All predictors were set at Wave I values and the outcome variable (depressive symptom score) was assessed across Waves I and II. Interactions among *5-HTTLPR* genotype, childhood maltreatment, and county-level deprivation were explored in models with interaction terms included in which the *ll* genotype, low PA, and no maltreatment were the referent categories and all other covariates were maintained. All models were stratified by gender, and all analyses were conducted using SAS v. 9.2

3. Results

Table 1 presents the descriptive statistics of the sociodemographic variables included in our final model. The average age in both our male ($n=512$) and female ($n=585$) samples was

	Males (n=512)		Females (n=585)		Test p
	n/mean	%/std	n/mean	%/std	
Genotype					
SS	112	21.88	109	18.63	0.18
SL	239	46.68	277	47.35	0.82
LL	161	31.45	199	34.02	0.37
Demographics					
Age	16.08	1.66	16.0	1.69	0.43
White	288	56.25	368	62.91	0.02
Black	70	13.67	76	12.99	0.74
Hispanic	80	15.63	69	11.79	0.06
Asian	38	7.42	30	5.13	0.12
Other	36	7.03	42	7.18	0.92
Family structure					
Two biological parents	340	66.41	373	63.76	0.36
One biological parents	144	28.13	167	28.55	0.88
Other family structure	28	5.47	45	7.69	0.14
Support and maltreatment					
Social support	4.0	0.54	4.03	0.59	0.88
Exposure to physical or sexual abuse	163	31.84	166	28.38	0.21
Family-level SEP					
Parent receives public assistance	39	7.62	54	9.23	0.34
County-level SEP					
High deprivation	268	52.34	278	47.52	0.11
17-CESD					
Depressive symptom score	9.3	6.04	11.0	7.27	<0.0001

Table 1. Sociodemographic characteristics of AddHealth participants included in the present study, stratified by gender.

approximately 16 years (range in males: 12-19; range in females: 12-20). Genotype frequencies for the 5-HTTLPR locus were in Hardy-Weinberg Equilibrium for both males ($\chi^2 = 0.16$, $df=1$ $p=0.69$) and females ($\chi^2 = 0.59$, $df=1$ $p=0.44$). Approximately one-third of adolescents of both genders had been exposed to one or more incidents of physical and/or sexual abuse by an adult caregiver, and approximately half of the male and female samples resided in high deprivation counties. The main predictors of interest (childhood maltreatment, 5-HTTLPR genotype, and county-level deprivation) did not differ significantly between males and females; however, the average depressive symptom score was significantly higher in female (11.0) vs. male (9.3) adolescents ($p<0.001$).

A number of predictor variables also showed gender differences in the unadjusted models (Table 2). Notable to this study, however, was the detection in females of a significant

	Male				Female			
	<i>b</i>	<i>p</i>	95% CI		<i>b</i>	<i>p</i>	95% CI	
Genotype								
SS	0.08	0.43	-0.12	0.28	0.25	0.04	0.02	0.49
SL	-0.13	0.11	-0.29	0.03	-0.19	0.03	-0.37	-0.02
LL	0.09	0.30	-0.08	0.27	0.06	0.56	-0.13	0.25
Demographics								
Age in years	0.04	0.15	-0.01	0.08	0.05	0.06	0.00	0.10
White	-0.31	<0.001	-0.48	-0.14	-0.27	0.01	-0.48	-0.07
Black/African-American	0.26	0.04	0.01	0.51	-0.06	0.70	-0.35	0.23
Hispanic/Latino	0.02	0.84	-0.22	0.27	0.13	0.40	-0.18	0.43
Asian	0.43	0.01	0.10	0.75	0.67	<0.01	0.22	1.13
Other race	0.21	0.23	-0.13	0.55	0.44	0.02	0.06	0.81
Family Structure								
Two biological parents	-0.25	0.01	-0.43	-0.06	-0.37	<0.001	-0.57	-0.18
One-biological parent	0.24	0.01	0.05	0.44	0.32	<0.01	0.11	0.54
Other family structure	0.10	0.63	-0.29	0.49	0.29	0.13	-0.08	0.66
Support and maltreatment								
Social Support	-0.67	<0.0001	-0.80	-0.54	-0.82	<0.0001	-0.95	-0.69
Exposure to physical or sexual abuse	0.04	0.64	-0.13	0.20	0.30	<0.01	0.11	0.49
Family-level SEP								
Parent receives public assistance	0.50	<0.01	0.18	0.82	0.30	0.08	-0.04	0.64
County-level SEP								
High Deprivation	0.16	0.08	-0.02	0.33	0.01	0.93	-0.19	0.21

Table 2. Unadjusted associations predicting standardized depressive symptom score, stratified by gender.

protective effect of the *sl* genotype ($b=-0.19$, 95% CI: -0.37, -0.02; $p=0.03$), and a corresponding risk-enhancing effect of the *ss* genotype ($b=0.25$ 95% CI: 0.02, 0.49; $p=0.04$), with respect to depressive symptom scores. Exposure to maltreatment was also significantly and positively associated with depressive symptom scores in females ($b=0.30$, 95% CI: 0.11, 0.49; $p<0.01$); however, for the remaining main predictor of interest, county-level deprivation, no significant association was observed in females ($b=0.01$, 95% CI: -0.19, 0.21; $p=0.93$). In contrast, male AddHealth participants showed no significant associations between genotype and depressive symptom scores, or maltreatment and depressive symptom scores (Table 2); however, the association between residing in a high deprivation county and depressive symptom score was marginally significant ($b=0.16$, 95% CI: -0.02, 0.33; $p=0.08$).

Table 3 presents the results of our multivariable, multi-level main effects model. Females with the *sl* genotype continued to show significantly decreased depressive symptom scores in this fully adjusted main effects model ($b=-0.21$, 95% CI: -0.39, -0.03; $p=0.02$); however, the previously observed positive association between the *ss* genotype and depressive symptom scores in females was attenuated to non-significance ($b=-0.03$, 95% CI: -0.26, 0.21; $p=0.82$). The previously observed positive association between maltreatment and depressive

	Male				Female			
	<i>b</i>	<i>p</i>	95% CI		<i>b</i>	<i>p</i>	95% CI	
Genotype								
SS	-0.01	0.95	-0.21	0.20	-0.03	0.82	-0.26	0.21
SL	-0.05	0.53	-0.22	0.12	-0.21	0.02	-0.39	-0.03
Demographics								
Age in years	0.01	0.63	-0.03	0.05	0.01	0.75	-0.04	0.05
Black/ African-American	0.34	0.01	0.08	0.59	-0.02	0.89	-0.29	0.25
Hispanic/Latino	0.11	0.31	-0.11	0.34	0.13	0.33	-0.13	0.40
Asian	0.51	<0.001	0.21	0.82	0.72	<0.001	0.33	1.12
Other race	0.17	0.27	-0.13	0.48	0.20	0.23	-0.12	0.52
Family structure								
One-biological parent	0.09	0.33	-0.09	0.27	0.31	<0.01	0.12	0.50
Other family structure	0.00	0.99	-0.35	0.35	0.27	0.11	-0.06	0.61
Support and maltreatment								
Social Support	-0.67	<0.0001	-0.80	-0.54	-0.78	<0.0001	-0.91	-0.65
Exposure to physical or sexual abuse	-0.06	0.40	-0.21	0.08	0.16	0.07	-0.01	0.33
Family-level SEP								
Parent receives public assistance	0.45	<0.01	0.17	0.74	0.04	0.81	-0.27	0.35
County-level SEP								
High deprivation	0.03	0.77	-0.14	0.19	-0.08	0.38	-0.25	0.10

Table 3. Adjusted main effects model predicted standardized depressive symptom score, stratified by gender.

symptom scores in females was also attenuated in these adjusted main effects models; however, results for this variable remained marginally significant ($b=0.16$, 95% CI: -0.01, 0.33; $p=0.07$). As in the unadjusted models, the fully adjusted model revealed no significant associations between genotype and depressive symptom scores, or maltreatment and depressive symptom scores in males (Table 3); and, the previously observed, marginally significant positive association between county-level deprivation and depressive symptom score was markedly attenuated ($b=0.03$, 95% CI: -0.14, 0.19; $p=0.77$).

Table 4 presents results from the multi-level, multivariable models with the three-way interaction terms included. Among females, the three-way interaction terms for *5-HTTLPR*

	Male				Female			
	<i>b</i>	<i>p</i>	95% CI		<i>b</i>	<i>p</i>	95% CI	
Genotype								
SS	0.10	0.58	-0.27	0.48	0.07	0.72	-0.34	0.49
SL	0.10	0.49	-0.19	0.39	-0.07	0.61	-0.35	0.20
Demographics								
Age in years	0.01	0.72	-0.04	0.05	0.00	0.93	-0.04	0.05
Black/African-American	0.32	0.02	0.06	0.57	-0.05	0.75	-0.32	0.23
Hispanic/Latino	0.11	0.32	-0.11	0.33	0.13	0.36	-0.14	0.40
Asian	0.52	<0.01	0.21	0.83	0.74	<0.001	0.34	1.15
Other race	0.17	0.29	-0.14	0.47	0.17	0.31	-0.16	0.50
Family structure								
One-biological parent	0.08	0.38	-0.10	0.26	0.32	<0.01	0.13	0.52
Other family structure	-0.02	0.93	-0.37	0.34	0.30	0.08	-0.04	0.64
Support and maltreatment								
Social Support	-0.68	<0.0001	-0.81	-0.54	-0.79	<0.0001	-0.92	-0.65
Exposure to physical or sexual abuse	-0.01	0.95	-0.44	0.41	0.47	0.03	0.04	0.89
Family-level SEP								
Parent receives public assistance	0.45	<0.01	0.16	0.74	-0.01	0.96	-0.32	0.30
County-level SEP								
High deprivation	0.24	0.16	-0.09	0.58	0.17	0.30	-0.16	0.50
Maltreatment*								
Genotype*County-level SEP								
Maltreatment* S S	0.10	0.82	-0.75	0.94	0.97	0.04	0.05	1.89
* High Deprivation								
Maltreatment*S L*	0.10	0.79	-0.60	0.79	0.86	0.03	0.09	1.63
High Deprivation								

Table 4. Adjusted interaction model predicted standardized depressive symptom score.

genotype, maltreatment, and county-level deprivation were significant: in the context of both exposure to maltreatment and high deprivation at the county-level, females with the *sl* genotype showed significantly higher depressive symptom scores ($b=0.86$, 95% CI: 0.09, 1.63; $p=0.03$), as did females with the *ss* genotype ($b=0.97$, 95% CI: 0.05, 1.89; $p=0.04$). In contrast, no significant three-way interaction terms were observed among males.

4. Discussion

The goal of this study was to investigate the joint and interacting effects of genetic variation at the *5-HTTLPR* locus, childhood maltreatment, and macrosocial context in shaping risk for, or resilience to, depressive symptoms in a U.S. adolescent population, controlling for a number of factors previously associated with depression in this population. Results showed that, among females, the *sl* genotype conferred a protective main effect against higher depressive symptom scores; however, interaction models revealed that, among females who were both exposed to childhood maltreatment and resided in high deprivation counties, the *sl* genotype conferred increased risk of higher depressive symptom scores. An additional, risk-enhancing three-way interaction was observed among females carrying the *ss* genotype. In contrast, among males, no significant associations were observed between our predictors of interest and depressive symptom scores in either main effects or interaction models. These findings demonstrate that factors operating at multiple levels—biologic, social, and macrosocial—combine to shape risk for mental illness, and confirm that these factors can differ by gender, particularly in adolescent populations.

Our results confirm and extend previous findings regarding the link between childhood maltreatment and depression. A large body of work has established that exposure to maltreatment during childhood is a potent risk factor for depression (eg (Maniglio, 2010; Powers et al., 2009) and other mental illnesses (Afifi et al., 2008; Molnar et al., 2001; Molnar et al., 2001a; Schilling et al., 2007), with many of these studies identifying gender differences in the effect size associating maltreatment and psychopathology. Nevertheless, the vast majority of these studies has focused on childhood maltreatment as a risk factor for later depression during adulthood. In contrast, there is a paucity of studies examining the relation between childhood maltreatment and adolescent depression. Findings from these studies are mixed, with some studies finding a main effect maltreatment-depression association (e.g. (Åslund et al., 2009; Sesar et al., 2011)) while others fail to find such an association (Brown et al., 1999; Cicchetti, et al., 2007). However, when interaction between genetic variation at the *5-HTTLR* locus and childhood maltreatment is assessed, specific genotypes are implicated in increased risk of depression, particularly among adolescent females (Åslund et al., 2009; Cicchetti et al., 2007), in the subset of individuals who have experience maltreatment. This heterogeneity of effect by genotype suggests that the impact of child maltreatment on adolescent depression is particularly acute among carriers of the *ss* genotype.

Although three-way interactions incorporating genetic, social (i.e. maltreatment) and macrosocial variables have not, to our knowledge, previously been reported, some parallels can be drawn to earlier findings from our own group based on the same cohort. Specifically, earlier work using the AddHealth cohort found that adolescent boys are more susceptible to macro- (i.e. county) level contextual effects on depressive symptoms than their female counterparts, who showed stronger genetic effects on their risk for depression (Uddin et al., 2010). Results of the present study confirm the findings of a main genetic effect on risk of

depressive symptoms for adolescent females, and two-way interaction models also showed a marginally significant ($p=0.09$) interaction whereby adolescent male carriers of the *sl* genotype, showed lower depressive symptom scores when residing in counties with high deprivation (data not shown) consistent with our earlier work (Uddin et al., 2010). More importantly, the present study augments the earlier work by including an important factor known to contribute to subsequent depression, namely childhood maltreatment. Remarkably, the inclusion of this variable in the models presented here effectively negated the protective main effect of the *sl* genotype observed in females in this study and our earlier work. We have previously noted the high levels of genetic variation surrounding the 5-*HTTLPR* locus in different human populations, and have suggested that different alleles and/or genotypes in this region may confer selective advantages in different environments (Uddin et al., 2010), in much the same way as the well-known sickle-cell anemia example. Results of the current study lend support to this hypothesis by demonstrating how the same genotype can, on average, reduce risk of depressive symptoms in females while at the same time increase risk among the subset of females exposed to both childhood maltreatment and adverse county-level social environments.

Findings from this work should be interpreted in light of a number of limitations. The primary limitation of this study is the possibility of information bias. Reports of childhood maltreatment were collected retrospectively and may thus be under reported due to recall difficulties. However, the AddHealth study was specifically designed to collect this potentially sensitive information during adulthood, at a time when most participants would no longer be subject to the care of the potential perpetrator of the maltreatment; this limitation was thus unavoidable. In addition, longitudinal research suggests that adult recall of physical and sexual abuse during childhood may actually underestimate the prevalence of childhood maltreatment (Widom & Kuhns, 1996; Widom et al., 1999). Furthermore, and again because of our reliance on secondary data analysis, we were unable to assess the role of an additional common genetic variation at the 5-*HTTLPR* locus in which a single nucleotide polymorphism renders the *l* allele more functionally similar to the *s* allele (Uddin et al., 2010). Our reliance on the two 5-*HTTLPR* alleles genotyped by AddHealth, however, would likely have biased our results toward the null.

Strengths of our study include the use of a dataset that allowed an assessment of “E” at multiple levels (i.e. adverse experiences and county-level social environment) and that also provided genetic data, allowing us to test three-way interactions defined at multiple levels. An additional strength was the longitudinal design of our investigation, which assessed depressive symptoms across a one-year time frame and excluded individuals who relocated to different counties during this time frame. This approach enhances our ability to make causal inferences regarding the influence of genetic variation, maltreatment, and county level social environment on depressive symptoms in this study population. Furthermore, our study controlled for the family-level analog (parental receipt of public assistance) of our macrosocial predictor of interest, county-level public assistance/deprivation. Our findings are thus less likely to be attributable to confounding by factors more proximal to the individual. Finally, by conducting our analyses stratified by gender, our study was able to detect important differences in the factors influencing depressive symptoms in adolescent females vs. males that may have been otherwise missed. These sex-specific effects render plausible that different triggers, or stressors, may be salient to depression in adolescent males and females and have implications for interventions designed to reduce risk of depressive symptoms following adverse exposures early in life.

5. Conclusion

In conclusion, we have shown that exposure to childhood maltreatment and adverse county-level social environments jointly moderate the effect of genetic variation at the *5-HTTLPR* locus on depressive symptoms in female adolescents. Female adolescents exposed to both childhood maltreatment and county-level deprivation are at significantly increased risk of higher depressive symptom scores if they possess the *sl* or *ss* genotypes at the *5-HTTLPR* locus. Future work should aim to replicate these findings in additional adolescent cohorts, and to understand how factors operating at multiple levels—biologic, social, and macrosocial—interact to shape risk for mental illness in ways that may differ between genders.

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An Update on Psychotic Depression

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1. Introduction

There has been a debate since the 1980's whether delusional depression or psychotic depression is a distinct psychiatric disorder. (Glassman & Roose, 1981) Currently, DSM-IV-TR classifies psychotic symptoms in patients with major depressive disorder as a severity specifier. However, researchers in the area of major depressive disorder, with psychotic features (PMD) believe that PMD is a distinct disorder based on not only the phenomenological presentation, but family studies, course of illness, biological findings, and treatment as well. This lack of recognition of PMD as being a distinct disorder has contributed to the limited amount of research funding for this disorder in spite of a prevalence in the general population of 0.4-0.6%. (Johnson et al., 1991; Ohayon and Schatzberg, 2002) This chapter will provide an update on studies that support PMD as being a distinct psychiatric disorder.

2. Phenomenology of PMD

The DSM-IV-TR definition of PMD is major depressive disorder plus delusions or hallucinations. Early studies report that delusions occur in one half to two-thirds of adults and hallucinations occur alone in 3-25%. However, in our more recent studies, delusions co-occur with hallucinations in as many as 67% of patients with PMD. (Matthews 2002, 2008) The most common delusions include: persecution, suspiciousness, paranoia, sin, guilt, ideas of reference, and somatic. (Frangos et al, 1983) Fifty percent or more experience more than one kind of delusion. (Dubovsky, 1992) Keller (2006) reported that patients with PMD score higher on unusual thought content, psychomotor retardation, and guilt than NPMD. Interestingly, a formal thought disorder occurs in only 20% of patients with PMD, thus, psychotically depressed patients who present with a formal thought disorder are more likely to have a diagnosis of either bipolar disorder or schizophrenia. The most common hallucinations are auditory and visual and they occur with equal frequency. (Schatzberg and Rothschild, 1992) Tactile and olfactory hallucinations may occur but usually with other types of hallucinations. In one study, olfactory hallucinations occurred in 40% of PMD patients. (Matthews et al., 2002) Dissociative symptoms in the absence of abuse may occur with greater frequency in PMD than NPMD. The psychotic symptoms of PMD may present as mood congruent or mood incongruent. In a study of 40 PMD inpatients, 26 (65%) had mood congruent (MC) and 14 (35%) had mood incongruent (MI) psychotic symptoms; 71% of patients with MC experienced at least 1 MI symptom and 50% of patients with MI experienced at least 1 MC

psychotic symptom. (Burch et al., 1994) In a 10-year study by Maj et al. (2007), 10% of 452 PMD patients had both MC and MI psychotic symptoms. Having MC or MI or both does not predict response to treatment or prognosis. (Rothschild, 2009)

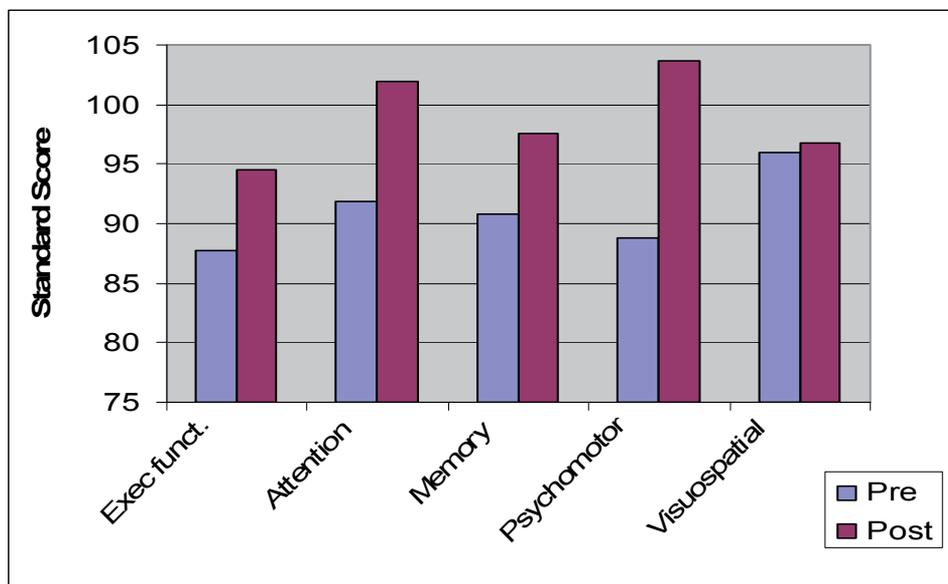


Fig. 1. (Matthews et al., 2010)

As with schizophrenia and bipolar disorder, patients with major depressive disorder exhibit cognitive deficits as a part of their clinical presentation. However, patients with PMD show greater performance deficits on specific neuropsychological tasks than patients with major depressive disorder, without psychotic features (NPMD). (Gomez et al., 2006) In addition, patients with PMD demonstrate more difficulty processing, manipulating and encoding new information than patients with NPMD (Gomez et al., 2006) In a meta-analysis of five studies, Fleming et al. (2004) showed that patients with PMD scored significantly lower on neuropsychological measures of executive function, verbal memory, and psychomotor speed than patients with NPMD.

We also found that found that patients with PMD scored significantly lower on executive function, verbal memory, and psychomotor speed than patients with NPMD. (Figure 1) (Matthews, et al., 2010) The mean scores on these three measures for PMD were greater than one standard deviation below the mean for the general population. The total score on the BPRS predicted the lower scores on executive function, verbal memory, and psychomotor speed, whereas, the HAM-D-17 did not. We also found that these cognitive deficits significantly improved with remission of PMD; thus, the cognitive deficits were state dependent (Table 1).

In order to control for the possible impact of medications on cognitive function, Hill et al., (2004) studied first episode PMD, Schizoaffective, Schizophrenia versus NPMD and healthy controls. There were significant differences between PMD and NPMD on several neuropsychological tasks; however, PMD was more similar to, but less severe, than performances by first break schizophrenics. (Figure 2) Hill hypothesized that the cognitive deficits found in PMD and schizophrenia may involve similar brains systems.

- Executive function
 - Pre -Treatment 87.76 (\pm 18.89)
 - Post -Treatment 94.52 (\pm 15.58) *
- Memory
 - Pre-Treatment 90.85 (\pm 10.87)
 - Post-Treatment 97.57 (\pm 14.36)
- Psychomotor
 - Pre-Treatment 88.82 (\pm 30.51)*
 - Post-Treatment 103.77 (\pm 25.39) *

* $p < .01$

Table 1. (Matthews, et al., 2010)

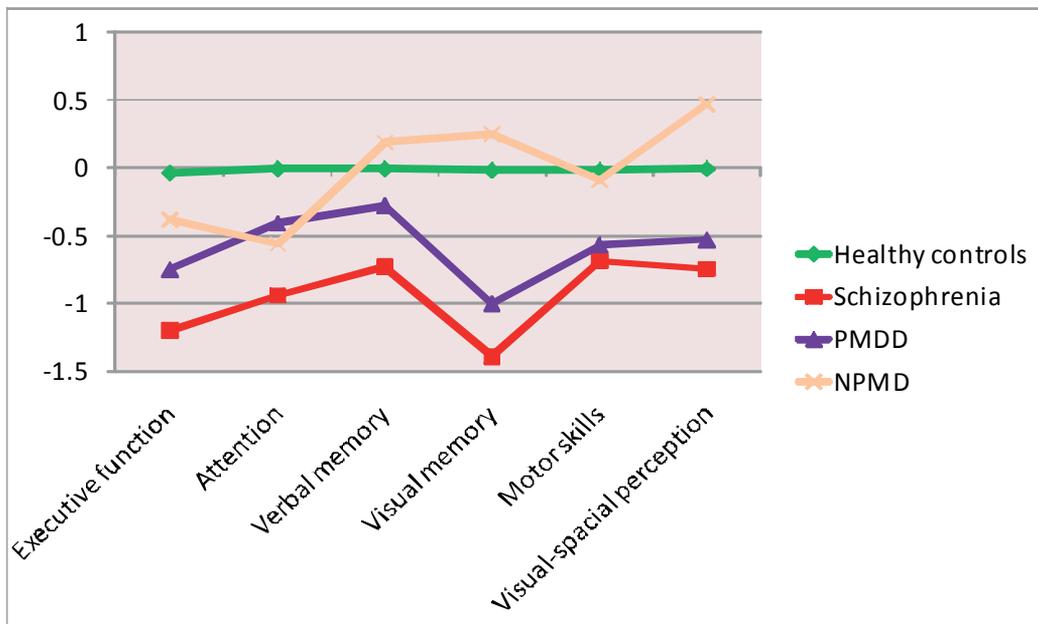


Fig. 2. (Hill et al., 2004; adapted)

3. Differential diagnoses

The diagnosis of PMD is often missed. Rothschild et al., (2008) found that in the NIMH Study of Pharmacotherapy of Psychotic Depression (STOP-PD), which was located at 4 academic medical centers, only 65% (85/130) of clinicians made an accurate diagnosis. Missed diagnoses on inpatient units were significantly less than in the emergency room; 18% (13/74) versus 39% (22/56) ($\chi^2=7.64$, $p<.01$) respectively. Distinctions between PMD and schizoaffective disorder or bipolar disorder are most problematic. In schizoaffective disorder, psychotic symptoms are not confined to mood disturbance, whereas, in PMD, psychotic symptoms co-occur with symptoms of depression. However, Maj et al., (2007) found that 10% of PMD with mood incongruent psychosis met criteria for schizoaffective

disorder, depressed type. Studies have shown that a subset of patients with PMD eventually experience a manic or hypomanic episode. This is particularly true for early onset PMD. Between 40-75% of adolescents with PMD convert to bipolar disorder (Askiskal et al., 1983; Strober and Carlson, 1982). Maj et al., (2007) found a switch rate of 10.1% for PMD versus a switch rate of 5% for NPMD in an adult population (n=452) over a 10-year period.

4. Family studies/genetics

There is limited data to support PMD as being a genetic disorder. In the case of NPMD, twin studies have demonstrated that there is a genetic factor that is passed on from one generation to the next. In a review of twin studies in NPMD, Sullivan and Kendler (2001) estimated heritability to be 37%, with a significant component of individual environmental risk. Brown et al., (1994) found that only 20% of patients with PMD could identify a significant stressor in the 6 month period prior to a new episode onset compared to 72% in patients with NPMD. These results might reflect differences in the procurement of homogeneous populations or the genetic loading or both. Rothschild (2009) summarized the family studies of first degree relatives comparing PMD and NPMD and found that the first degree relatives of PMD had higher rates of PMD, higher rates of bipolar disorder by a factor of 6 (Weissman et al., 1984), higher rates of cyclothymia in children by a factor of 3 (Weissman et al., 1988), and higher rates of NPMD if PMD probands had a post-dexamethasone serum cortisol of >15 ug/dl (Bond et al., 1986). A number of candidate genes have been proposed including genes for: dopamine- β -hydroxylase (DBH); dopamine D4 receptor gene; glycogen synthase kinase-3 gene; and serotonin transporter gene (5-HT1A; 5-HT2C; 5-HT 2A receptor gene). The gene for the DBH activity has been most promising based on the findings that five of six studies have shown decreased DBH activity in PMD. (Rothschild, 2009) Schatzberg et al., (1985) have hypothesized that a decrease in DBH enzyme activity may be important as to why depressed patients may become psychotic; reduced DBH activity results in a decrease in conversion of dopamine to norepinephrine thus increasing the availability of dopamine. The gene encoding DBH is located on chromosome 9q34; the adenosine allele predicts psychosis. (Craig et al., 1998; Wood et al., 2002)

5. Comorbidity

There is very little literature on the co-morbid psychiatric disorders in PMD. In a clinical trial of the combination of olanzapine plus fluoxetine, Matthews et al., (Figure3) found that anxiety disorders were among the most common; especially panic disorder.

6. Biology of PMD

Although there have been a few EEG and imaging studies using CT and MRI scans in depression, the most consistent findings have been with the dysregulation of the hypothalamic-pituitary-adrenal axis (HPA-axis). Table 2 summarizes the findings.

Researchers have known since the 1970's that cortisol is elevated in patients with NPMD (Carroll et al. 1981; Brown et al., 1985); however, the dysregulation of the HPA-axis is even more pronounced in PMD. Twenty-four hour urinary free cortisol is significantly higher in PMD than in NPMD and patients with PMD also have higher rates of dexamethasone

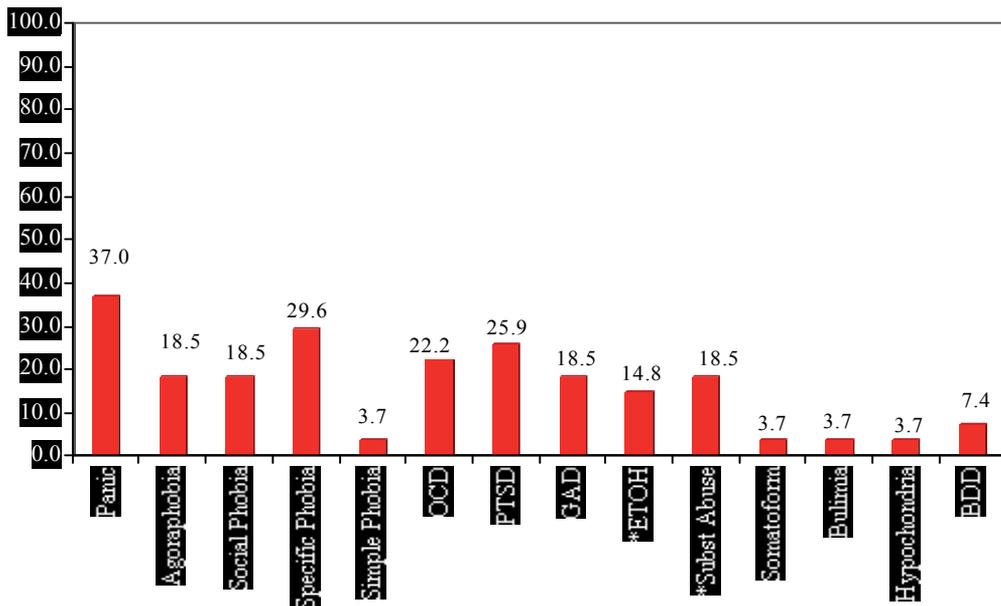


Fig. 3. (Matthews et al., 2002)

- ↑ cortisol in urine, blood, and CSF
- ↑ cortisol response to ACTH
- ↑ size of both pituitary and adrenal glands
- ↑ secretion of CRH
- ↑ CRH in CSF
- ↑ CRH messenger RNA in PVN
- ↑ ACTH response to CRH challenge

Table 2. Evidence for HPA-axis Hyperactivity

stimulation test (DST) non-suppression than patients with NPMD. (Nelson and Davis, 1997; Schatzberg et al., 1992) The presence of psychotic symptoms accounts for most of the variance and severity of depression does not account for the differences. (Schatzberg et al., 1992) In a meta-analysis of 14 studies (12/14 inpatient), the DST non-suppression rates were 64% for PMD (n=276) and 41% for NPMD (n=708) (p<0.001) with a sensitivity of 64% and specificity of 59% using a post-dexamethasone cortisol serum level cut off of ≥5 ug/dL. (Nelson & Davis, 1997) These differences between PMD and NPMD DST non-suppression appear to be due to the presence of psychosis since Nelson and Davis, in another meta-analysis of 19 studies of NPMD, showed that there were no significant differences in DST non-suppression rates of inpatients with or without melancholic features; the rates were 38% versus 33% respectively (p=0.74) The DST non-suppression rate for non-melancholic outpatients (n=138) was 12%. Using a cut off for DST non-suppression of ≥15 ug/dL, Schatzberg et al., (1983) improved on the specificity (93%) but, not on the sensitivity (50%) of DST. Rothschild et al., (1982) demonstrated that the DST distinguished PMD from schizophrenia; the DST non-suppression rate for PMD was 57% and 0% for psychotic

schizophrenics. The dysregulation of the HPA-axis is a state rather than a trait phenomenon. There is normalization of the HPA-axis with treatment (Carroll et al., 1981). Using the combined DST and corticotrophic releasing hormone (CRH) infusion test, Kunugi et al. (2006) reported significant decreases in ACTH ($p=.007$) and cortisol ($p=.002$) levels with response to treatment in patients with PMD.

The mechanism for the hyperactivity of the HPA-axis is based on studies that suggest glucocorticoid-mediated feedback impairment at the level of the pituitary and hypothalamus. (de Kloet et al.,1998; Young et al., 1991) Specifically, glucocorticoid receptors are located in the cytoplasm of cells and consist of two types, GR I and GR II. The GR I receptors are the high affinity receptors for endogenous glucocorticoids and are responsible for the diurnal regulation of cortisol; whereas, the GR II receptors are the low affinity glucocorticoid receptors and are important when cortisol levels are high, such as in stress or depression. It is hypothesized that, in depression, there is an impairment in the translocation of the glucocorticoid receptor from the cytoplasm into the nucleus; once activated by cortisol, the glucocorticoid receptor translocates in to the nucleus to complete the feedback by binding to DNA. (Figure 4; adapted) (Parionte and Miller, 2001; adapted) Interestingly,

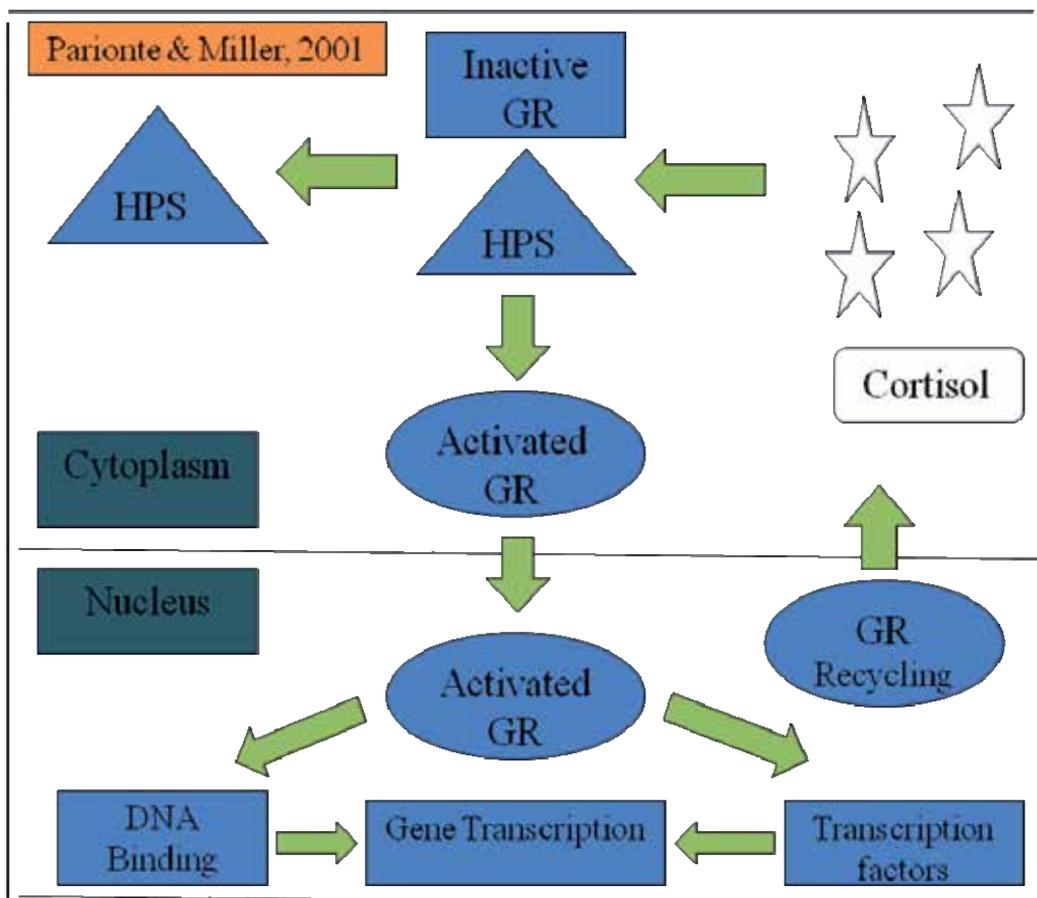


Fig. 4. (Parionte & Miller, 2001; adapted)

preclinical studies have shown that serotonin re-uptake blockers (SSRIs) and tricyclic antidepressants (TCAs) facilitate the translocation of the activated glucocorticoid receptors from the cytoplasm to the nucleus. Parionte and Miller (2001) suggest that this mechanism may provide one possible explanation for how treatment with antidepressants results in normalization of the HPA-axis hyperactivity in patients with depression.

While there was research focusing on HPA-axis dysregulation, there was another line of research evaluating dopamine (DA) activity in PMD versus NPMD. Previous studies have shown that CSF levels of a metabolite of DA, homovanillic acid (HVA), are low in patients with NPMD. (Sher et al., 2006; Reddy et al., 1992) However, Rothschild et al., (1987) showed that DA plasma levels are elevated in PMD, but not in NPMD. Others have shown that HVA is elevated in blood and CSF in PMD, but not in NPMD. (Sweeney et al., 1978; Aberg-Wistedt et al., 1985) The relationship between the findings of HPA-axis dysregulation and elevated DA in PMD was realized by Langlais et al., (1984; 1985) and others (Wolkowicz et al., 1986; Rothschild et al., 1984, 1987; Banki et al., 1983) who showed that glucocorticoids can increase DA in rat brain and human plasma and increase HVA in rat brain and human CSF. Based on these findings, Schatzberg and Rothschild hypothesized that psychotic symptoms in depression were secondary to the effects of hypercortisolemia on DA systems. (Schatzberg & Rothschild, 1992; Schatzberg et al., 1985) Maguire et al., (1987) showed a positive correlation between plasma free HVA and post dexamethasone log plasma cortisol levels ($r=0.59$; $p=0.02$).

7. Treatment strategies for PMD

The observations that DA activity is elevated in PMD have provided the rationale for the findings that antipsychotic medications significantly improve response rates when combined with antidepressant medications. Spiker et al., (1985) carried out one of the first randomized, double-blind prospective studies. Patients were randomized to amitriptyline monotherapy, perphenazine monotherapy, or combined amitriptyline plus perphenazine over a 5 week period; the response rates were 41% (7/17), 19% (3/16), and 78% (14/18) respectively. These results established the standard of practice of using combined antidepressant and antipsychotic medications for the treatment of PMD from that point forward. With the introduction of SSRIs, SNRIs, atypical antidepressants and atypical antipsychotic medications, there have been new treatment strategies using SSRI or SNRI monotherapy, atypical antipsychotic monotherapy, or atypical antipsychotic medications combined with an SSRI, or SNRI. In a series of 6-week treatment studies of PMD using SSRI or SNRI monotherapy, Gatti et al., (1996) and Zanardi et al., (1996;2000) showed high remission rates with fluvoxamine (84%), sertraline (72%), and venlafaxine (50%). In addition, Zanardi et al., (1997), in a 30 month, maintenance, open study of fluvoxamine remitters, found a relapse rate of only 20%. However, these studies lacked a control group and a validated instrument for the identification of psychosis. (Rothschild & Phillips, 1999) In addition, there has been no replication of these results. In an 8-week open study comparing the efficacy of sertraline monotherapy in PMD ($n=25$) versus NPMD ($n=25$), Simpson et al., (2003) found remission rates of 16% and 64% in patients with PMD and NPMD respectively ($p=.001$).

The atypical antipsychotics block both 5-HT₂ and DA receptors, which, theoretically, make them potential candidates for treating both depression and psychosis. There was a series of case reports and small open studies in the 1990's suggesting that atypical antipsychotic monotherapy was effective in treatment resistant PMD. (Ranyan and Meltzer, 1996; Dassa et

al., 1993; Lane and Chang 1998; Hillert et al., 199) To test the efficacy of atypical antipsychotic monotherapy, Muller-Siecheneder et al., (1998) compared the efficacy of risperidone monotherapy (n=16) versus the combination of haloperidol and amitriptyline (n=18) in the treatment of PMD. Both arms of the study showed improvement in depression and psychosis, but combined treatment was significantly better than monotherapy on scores for depression, BRMES, (p=.002) and psychosis, BPRS, (p=.016) More recent studies also support the value of combined atypical antipsychotic and antidepressant medications over atypical antipsychotic monotherapy. Rothschild et al., (2004) reported on two identical parallel trials where PMD patients were randomized to combined olanzapine/fluoxetine (OFC), olanzapine monotherapy (OLAN), or placebo (PLB); the HAM-D-24 response rates were 63.6%, 34.9%, and 28% respectively in Trial 1. Olanzapine/fluoxetine response rates were significantly higher than OLAN monotherapy (p=.027) and PLB (=0.004). There were no significant differences among the three arms in Trial 2. (Figure 5)

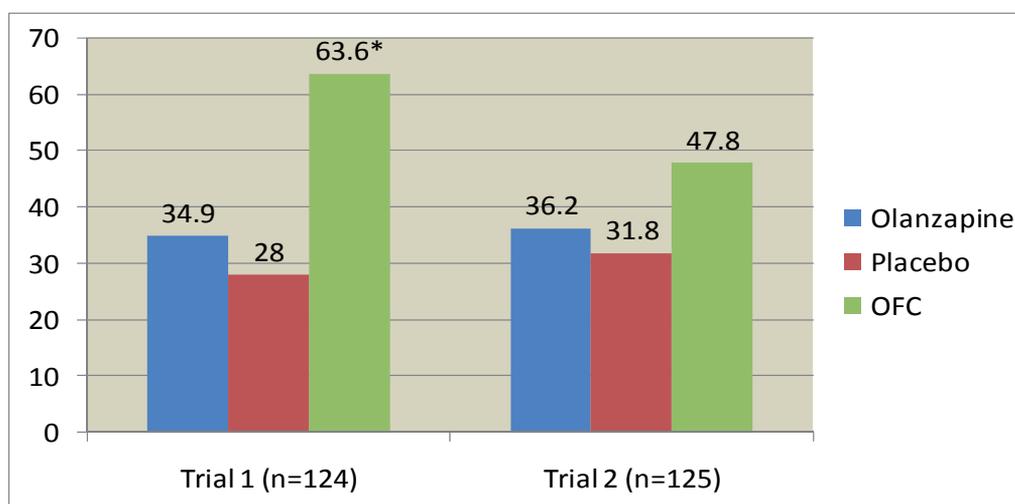


Fig. 5. (Rothschild et al., 2004; adapted) 8-Week Randomized Trial Olanzapine vs. OFC vs. Pl (HAM-D-24 Response Rates - Trial: 1 OFC vs. Olan *p=.027; OFC vs. Pl p=.004)

The only other randomized clinical trial comparing combined atypical antipsychotic/antidepressant with atypical antipsychotic monotherapy was the STOP-PD study, A National Institutes of Mental Health funded, multi-center study, reported by Meyers et al., (2009). (Figure 6)

In the STOP-PD study, patients were randomized to olanzapine plus sertraline (OLAN/SERT) (n=129) or olanzapine plus placebo (OLAN/PLB) (n=130) and treatment was continued for 12 weeks. The OLAN/SERT group remission rate separated from the remission rate for the OLAN/PLB group at week-8; the remission rate for OLAN/SERT continued to be significantly better than the remission rate for the OLAN/PLB group through week-12 (Hochberg α level of .05 from χ^2 analysis). Remission rates at last assessments were 41.9% and 23.9% for the OLAN/SERT and OLAN/PLB groups respectively. There is only one randomized controlled study comparing combined atypical antipsychotic and antidepressant medications with antidepressant monotherapy. Wijkstra et al., (2010a), in a 7-week trial, randomized patients to combined quetiapine plus venlafaxine

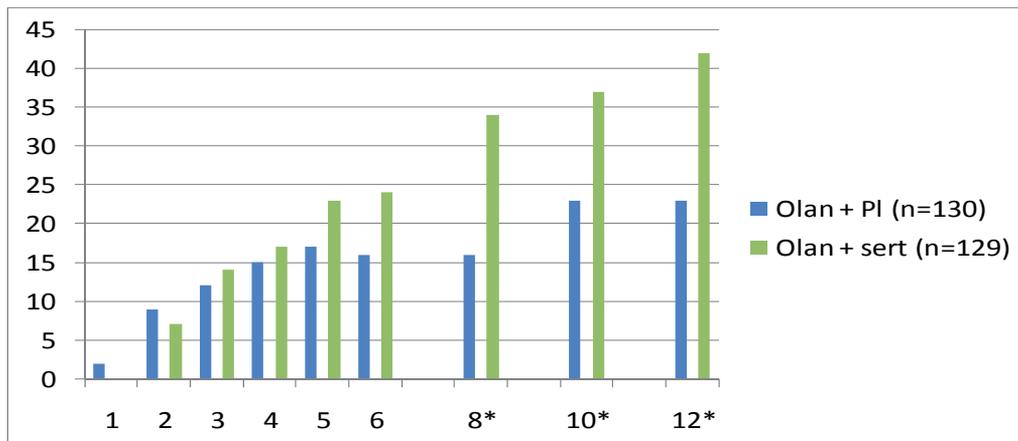


Fig. 6. (Meyer et al., 2009; adapted) STOP-PD: Remission for Olan + Sertraline vs. Olan + Placebo (* Hochberg α level of .05 from χ^2 analysis)

(QUET/VEN) (n=42), venlafaxine monotherapy (VEN) (n=39), or imipramine monotherapy (IMI) (n=41). There were no significant differences among the three groups with regards to remission rates. However, there was a significant difference with regards to HAM-D-17 response rates (response rate=50% reduction in HAM-D-17 from baseline and HAM-D-17 score at endpoint of ≤ 14) between QUET/VEN versus VEN (RD=32.5{95%CI:11.8; 53.2) at week-7. Based on these four randomized controlled studies, combined treatment with an atypical antipsychotic medication with an antidepressant is recommended. There have been no randomized controlled studies with the partial dopamine agonist, aripiprazole. In an open study, Matthews et al., (2009) published the first study combining aripiprazole with the SSRI, escitalopram. (Figure 7) Patients on this combination treatment showed remission rates of 42% by week-4 and 50% by week-7. Matthews et al., (2009) suggested that this rapid response may be due to the possibility that the SSRI, escitalopram, augmented the antipsychotic effect of aripiprazole through the established relationship of raphe nucleus serotonin inhibitory activity on ventral tegmental area dopamine cells and the possible augmentation of escitalopram by aripiprazole through 5HT2A blocking.

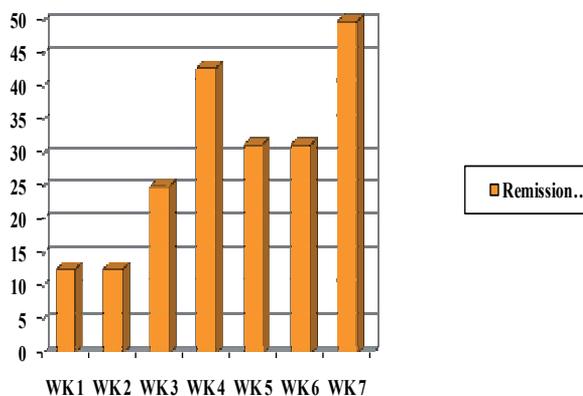


Fig. 7. (Matthews et al., 2009; adapted) PMD Remission Times: Aripiprazole/Escitalopram

Studies by Rothschild et al., (1999) and Kaiya et al., (1990) suggest that atypical antipsychotics are superior to typical antipsychotic medications for the treatment of PMD based on efficacy and time to response. Based on current findings, the ideal treatment for PMD might be the combination of an atypical antipsychotic with either an SSRI or SNRI; however, there needs to be a head-to-head trial comparing an SSRI or SNRI with a norepinephrine uptake blocker in combination with an atypical antipsychotic medication in order to validate this hypothesis. (Matthews, et al., 2009)

Recent research has used a novel approach for the treatment of PMD by targeting the HPA-axis hyperactivity associated with PMD. (Thakore & Dinan, 1995) There have been two strategies, inhibition of cortisol synthesis and blockade of the GR II receptors with antagonists. In a 4-week randomized, double blind, placebo controlled study of 20 medication -free NPMD patients, eight of whom had elevated cortisol levels, Wolkowitz et al., (1999) randomized patients to ketoconazole (400-800 mg/d) or placebo for 4 weeks. Ketoconazole was associated with improvements in depression ratings only in those patients with elevated cortisols. Forty-eight percent of ketoconazole treated hypercortisolemic patients showed a significant drop in HAM-D-21 compared to 6.6% of the placebo group ($p < .03$). In preclinical studies, mifepristone has been shown to be an antagonist at the GR II receptor. (de Kloet et al., 1998) This finding has led to a series of studies assessing the efficacy and safety of mifepristone (RU486) in the treatment of PMD. Early studies by Belanoff et al., (2001, 2002) and Simpson et al., (2003) (Figure 8) demonstrated improvement in both depression and psychosis in a dose dependent manner.

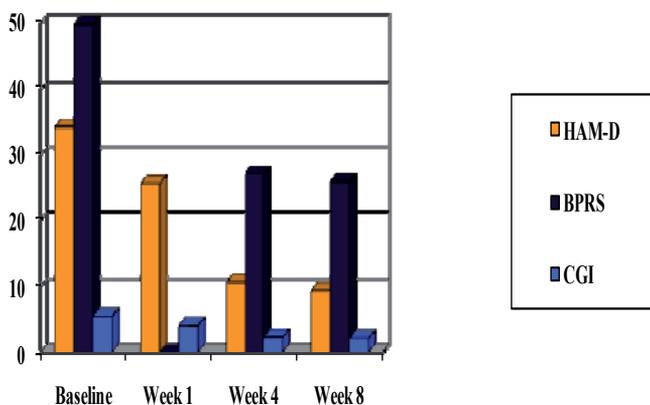


Fig. 8. (Simpson et al., 2005 adapted) Mifepristone: N=20; 6-week course; open-label; LOCF

However, more recent studies point to psychosis as the primary target of response. (DeBattista et al., 2006) Blasey et al., (2009), in a multi-site study (n=29), 56 day, placebo controlled study, demonstrated a rapid reduction in the Brief Psychiatric Rating Scale-Positive Symptoms Subscale (BPRS-PSS) in only 7 days with mifepristone compared to placebo; response rates were defined as a 50% reduction in BPRS-PSS from baseline at both days 7 and 56. BPRS-PSS response rate was determined by mifepristone plasma level. (Figure 9)

Patients with mifepristone plasma levels ≥ 1800 ng/ml were more likely to respond than patients on placebo; however, there were differences in responses between the original 20 research sites versus the 9 added research sites (Intent-to-treat: OR=2.4, $p = .03$; Initial sites: OR=4.1, $p = .002$).

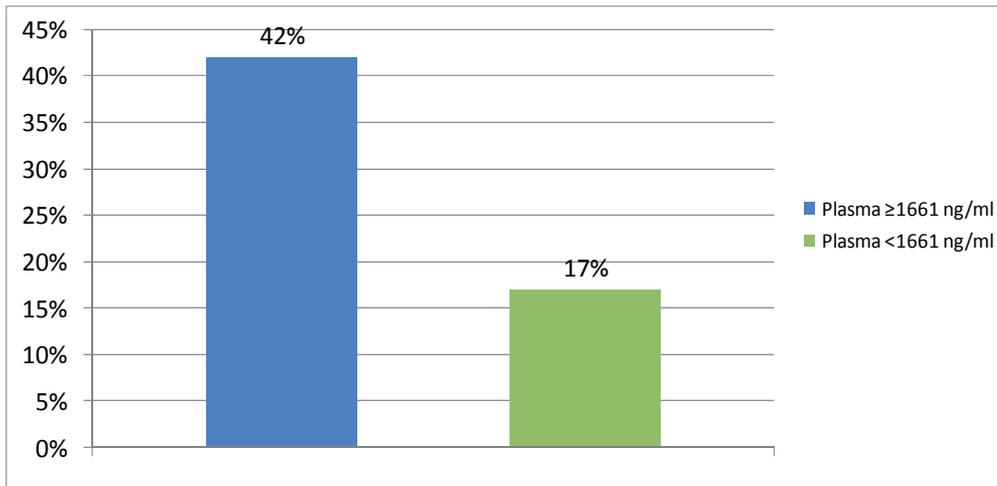


Fig. 9. (Blasey et al., 2009; adapted) Mifepristone: BPRS-PSS Response Rate at Days 7 and 56 (50% ↓ from Baseline; $p=.018$) (n=207)

Electroconvulsive therapy has been shown to be very effective in treating both neurovegetative symptoms of depression and psychosis. In an early review by Solan et al., (1988) they concluded that ECT response rates in PMD were not significantly different than the response rates in NPMD. However, two more recent studies have shown that the presence of psychosis is a predictor of ECT response in major depressive disorder. Petrides et al., (2001) found that completer remission rates for PMD (n=77) versus NPMD (n=176) were 95% and 83% respectively. Figure 10)

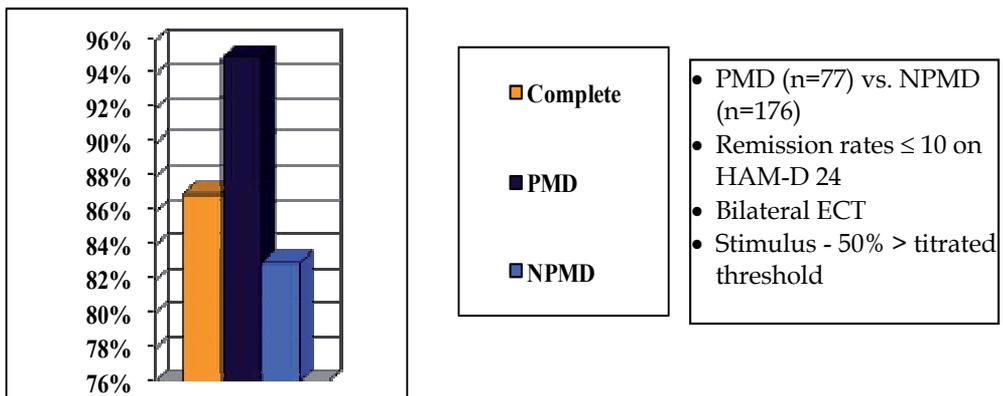


Fig. 10. (Petrides et al., 2001,adapted) ECT Remission Rates in Psychotic vs. Nonpsychotic MDD

In an European study, Birkenhager et al., (2003) found response rates of 92% and 55% in delusional depression versus non delusional depression respectively; remission rates were 57% and 24% respectively. (Figure 11)

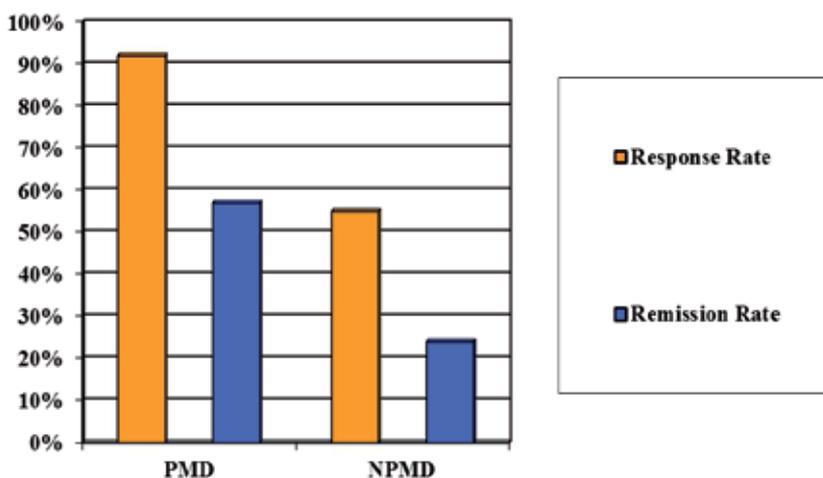


Fig. 11. (Birkenhager et al., 2003; adapted) ECT Response in Delusional vs. Non-delusional Depressed Inpatients

There is no evidence that psychotherapy alone is effective in the treatment of PMD as is the case for mild to moderate NPMD outpatients. (Rush et al., 1977) Gaudiano and Herbert (2006) combined Acceptance and Commitment Therapy (ACT) to enhanced treatment as usual (ETAU) (n=19) versus ETAU (n=21) in an inpatient populations of PMD. Acceptance and Commitment Therapy focuses on acceptance of one's distress rather than ruminating about contributing factors from the past and/or worries about future negative predictions, both of which are out of one's absolute control. Acceptance allows one to observe one's distress as an opportunity to learn and thus improve problem solving. Acceptance also enables one to proceed with achieving value-based goals; thus, with acceptance, value-based goals can be achieved in spite of one's distress. Gaudiano and Herbert taught patients to accept their psychotic symptoms without judgment and to proceed with achieving their value-based goals. For their primary outcome measure, they found that 44% of ACT+ETAU versus 0% of ETAU had a ≥ 2 standard deviation improvement at discharge from baseline on total BPRS ($\chi^2=5.14$, $p<.05$). In addition, there were no significant differences in change scores from baseline to discharge between the two groups on the BPRS-PSS subscale, but the percent change scores on the BPRS mood subscale from baseline to discharge for ACT+ETAU versus ETAU were 70% and 30% respectively ($\chi^2=3.60$, $p=.058$).

8. Longitudinal course of PMD

Patients with PMD have a more severe course to their illness compared to patients with NPMD. At one year follow-up, patients with PMD were more likely to be in an episode, had significantly higher numbers of episodes, and psychiatric hospitalizations. (Robinson and Spiker, 1985) Data from the Epidemiology Catchment Area (ECA) study found that patients with PMD, compared with NPMD, have significantly greater impairment in functioning as measured by percent on public assistance (17.5% of PMD; 7.2% of NPMD) and on disability (15.9% of PMD; 6.7% of NPMD). (Johnson et al., 1991) As with schizophrenia and bipolar

disorder, PMD is associated with higher rates of morbidity and mortality from medical conditions. Vythilingam et al., (2003) found that the mortality rate was two-fold higher for PMD versus NPMD and that 88% of the deaths were due to medical disorders.

In a 10-year prospective study, Coryell, et al., (1996) found that patients with PMD spent more weeks in full major depressive disorder than patients with NPMD. (Figure 12)

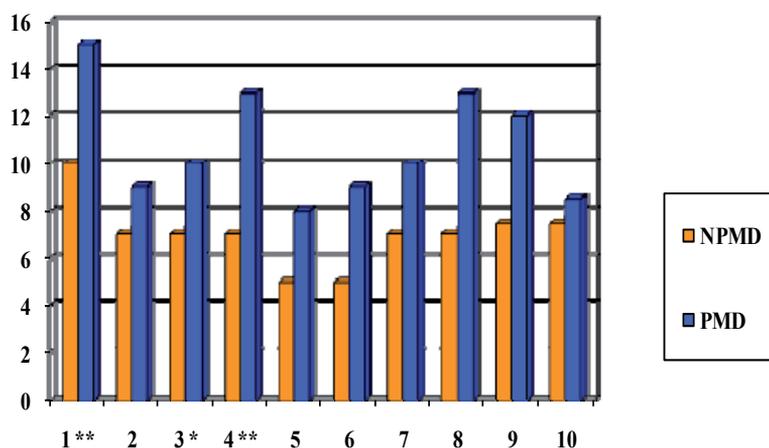


Fig. 12. (Coryell et al., 1996; adapted) Number of Weeks in Full Major Depression (10 YEARS) (* $p < .05$; ** $p < .01$)

They also found that the recovery period was significantly prolonged with PMD versus NPMD. The percents of patients who had not recovered from their index episodes of PMD versus NPMD were 36.4% versus 28.2% at year-1 ($p < .05$), 19.7% versus 7.8% at year- 5 ($p < .001$), and 14.3% versus 4.6% at year-10 ($p < .001$) respectively. However, when compared to schizophrenia, Tsaung and Coryell, (1992) showed that recovery rates from index psychotic episodes were significantly better for PMD versus schizophrenia: 54% versus 4% at year-1, 75% versus 18% at year- 5; and 75% versus 21% at year-8 respectively (Wilcoxon $\chi^2=15.4$, $df=1$, $p < 0.0001$). Wijkstra et al., (2010b) showed that remission rates continue to improve by 27.5% over a 4-month continuation of the same medications that resulted in meeting criteria for response at week-7. Thus, for patients who have responded partially, but have not achieved remission, continuation of treatment for another few months may provide added benefit.

As noted above, PMD is a highly relapsing disorder. Aaronson et al., (1988) reported on a 3-year retrospective study of 52 PMD inpatients who had achieved remission by discharge. Forty-five of the 52 patients (86%) relapsed over the 3-year period following discharge. There were 98 episodes of relapse among the 45 patients who relapsed. Eight-two (82.5%) of the 98 episodes occurred within the first year after discharge from inpatient treatment. Seventy-one (86%) of the first year relapses occurred with patients on no antipsychotic medications or tapering doses of antipsychotic medications. Twenty-nine (41%) of the 71 relapses associated with antipsychotic medications changes occurred despite stable doses of antidepressants. The relapse rate for patients on stable doses of antidepressant and antipsychotic medications during year-1 was 13.4%. In addition, 42% of the first year relapses occurred in the first 3-month period of discontinuation or decrease in dose of antipsychotic medications. Aronson et al., (1988) concluded that combined treatment with

antipsychotic and antidepressant medications beyond the first year of recovery is recommended. Coryell, et al., (1996) reported on the percent of PMD patients on antidepressant and antipsychotic medications at the time of first relapse after achieving remission. They found 48 % were on antidepressant but only 20% were on antipsychotic medications.

There have been few accessible guidelines available for clinicians to use in deciding maintenance treatment of PMD. In a survey of 304 practicing clinicians, who were attending a psychopharmacology course sponsored by the Department of Psychiatry at Massachusetts General Hospital in 2001, Matthews, (2001) queried clinicians as to whether they continued their PMD patients on antidepressant and antipsychotic medications beyond 12 months after they achieved remission. Fifty-six percent of the clinicians indicated that they continued antidepressant medications beyond 12 months, whereas, only 16% reported that they continued antipsychotic medications beyond 12 months. Rothschild and Duval, (2003) provided potential guidelines for clinical decision making regarding maintenance treatment for PMD. They reported on 40 patients diagnosed with PMD who had achieved remission after 5 weeks of acute treatment with the combination of perphenazine plus fluoxetine. These patients were continued on the combination treatment for an additional 4 months; at the end of the 4-month continuation phase, they were tapered off perphenazine and continued on fluoxetine monotherapy for an additional 8 months of maintenance treatment. There were no relapses during the 4-month continuation phase; however, 8 (27%) of the 30 patients who continued into the maintenance phase relapsed. Rothschild and Duval reported that the predictors of relapse included a longer index episode, a history of more frequent episodes, an earlier age of onset of PMD, and less than 30 years of age at index episode. In the recent STOP-PD study, Andreescu et al., (2007) reported on the adequacy of pharmacological treatment on the first 100 patients at study entry. The rates of adequate or high doses of antidepressants, antipsychotics, and combined antidepressant/antipsychotic medications were 48%, 6%, and 5% respectively.

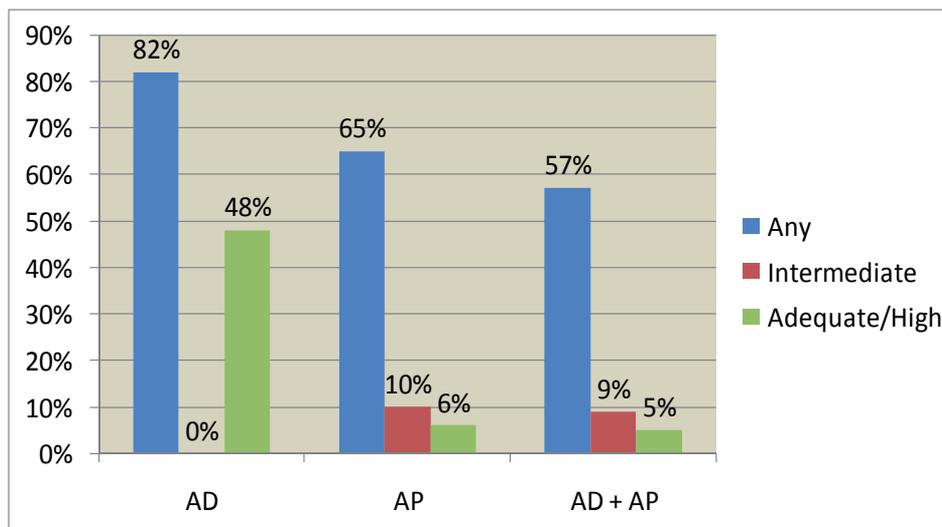


Fig. 13. (Andreescu et al., 2007; adapted) STOP-PD: Adequate Pharmacological Treatment on Study Entry (n=100)

(Figure 13) Interestingly, these findings are comparable with results reported by Mulsant et al. (1997), who found that only 4% (2/53) of PMD patients referred for ECT received an adequate medication trial, whereas 52% (70/134) of NPMD patients received an adequate medication trial. In addition, 47% (25/53) of PMD received either no antipsychotic medication or the duration of treatment with an antipsychotic medication was for less than three weeks. Only 15% received antipsychotic doses greater than 200 mg daily of chlorpromazine equivalents. Thus, it appears that prescribing practices for PMD had not changed significantly for the 10-year period from 1997 to 2007. (Figure 14) Unfortunately, there have been very few acute and long-term clinical trials for the treatment of PMD compared with NPMD, bipolar disorder, or schizophrenia; thus, there is minimal data available to serve as a guideline for practicing clinicians.

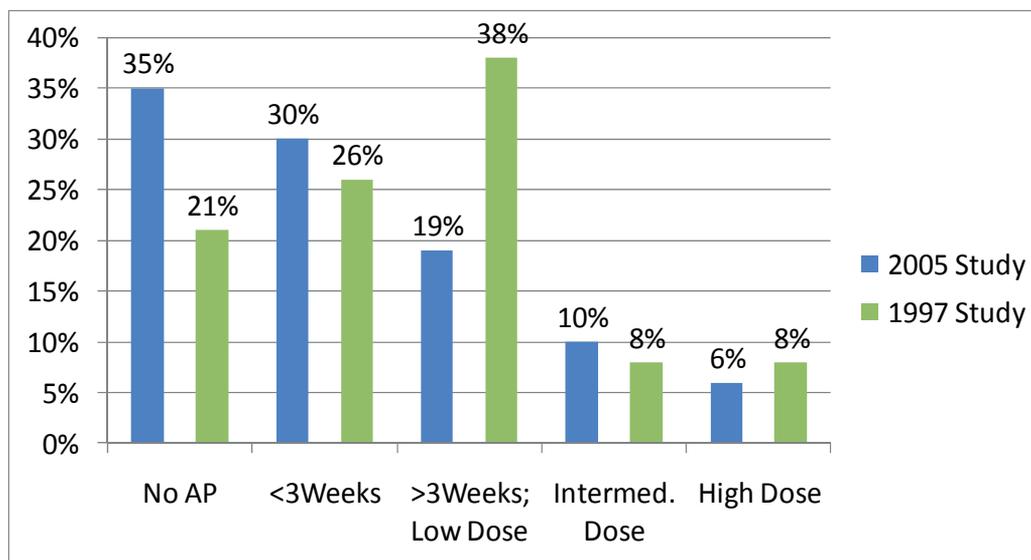


Fig. 14. (Andreescu et al., 2007; adapted) STOP-PD: % Receiving Adequate Antipsychotics at Study Entry in 2005 vs. 1997

9. Conclusions

Combined antidepressant and antipsychotic treatment continues to be the standard for acute and maintenance treatment of PMD. Selective Serotonin Reuptake Inhibitor monotherapy may be effective in treating PMD during the acute, continuation, and maintenance phases; however, there advantage may be in helping to augment atypical antipsychotic medications in treating psychotic symptoms, but further studies are required. Atypical antipsychotics in combination with SSRIs may increase the response rate and decrease the time to response. SSRIs may augment atypical antipsychotics by inhibiting DA cells and atypical antipsychotics may augment SSRIs by blocking 5HT 2A receptors; however, studies are needed to support these hypotheses. Preliminary data suggests mifepristone, a glucocorticoid receptor antagonist, treats psychotic symptoms in PMD rapidly and the response has durability beyond discontinuation of the drug after only 7 days of treatment. Psychotic features in major depressive disorder predict response to ECT.

Psychotic major depression is a highly relapsing illness with a long recovery period, therefore, long-term prophylactic treatment with combined antidepressant and an antipsychotic medications is recommended.

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Part 3

Prediction

Craving and Indicators of Depression and Anxiety Levels in Different Time Points of Intensive Alcohol Dependence Treatment

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1. Introduction

Addiction/dependence is a chronically relapsing disorder that is characterized by a compulsion to take drugs and loss of control in limiting intake; brain stress systems can contribute to the compulsivity of drug-taking and therefore participate in the development and persistence of dependence (Koob, 2008). The concept of craving for alcohol can be recognized as a central component of the alcohol dependence syndrome together with the loss of control over and relapse to alcohol use (Anton, 1999). Gradual adaptation of brain function (neuroadaptation) to the presence of alcohol seems to be a central feature in the development of alcohol dependence (Koob & Le Moal, 2008). The neuroadaptation is not a conscious process and many alcohol dependent persons are likely to deny any craving for alcohol. Craving seems to emerge fully only when a person is prevented from access to alcohol or consciously attempts to quit alcohol use (Tiffany, 1990). Certain similarities exist between obsessive-compulsive disorder (OCD) and some aspects of craving (Anton et al., 1996) in form of recurrent and irresistible thoughts about alcohol during early recovery and during later recovery when experiencing stimulus clues or stressful states. Several scales have been developed to assess certain specific aspects of the craving phenomenon as a multidimensional and temporary phenomenon; the Obsessive Compulsive Drinking Scale (OCDS) (Anton et al., 1996) is suitable for determining the amount of craving experienced over a longer time interval (e.g. one week) and not only as a momentary urge to drink.

Concurrent depression and anxiety symptoms are among the most common problems in alcohol dependent patients: heavy drinkers with co-occurring depressive and anxiety symptoms evidence heavier alcohol use and increased risk of relapse (Hasin et al., 2007). In detoxified alcoholics, in early abstinence, overall dopaminergic neurotransmission in the ventral striatum of alcohol dependent patient is reduced. Brain studies with positron emission tomography revealed a reduction of availability and sensitivity of central dopamine D2-receptors in alcohol dependent patients, which may reflect a compensatory down-regulation after chronic alcohol intake and was associated with the subsequent relapse risk (Heinz et al., 2009). Dysfunction of dopaminergic, glutamatergic, and opioidergic neurotransmission in the brain reward system can be associated with alcohol craving. In early abstinence state of higher levels of glutamate and noradrenergic activity

with lower GABA, dopaminergic and serotonergic activity is achieved (Koob & Le Moal, 2008).

Alcohol use to relieve different affective states leads to encoded memory through the amygdale's connections with the dorsolateral prefrontal cortex and the basal ganglia; this reinforcement could support the addiction cycle. Affective stimuli, contrary to depression and anxiety, commonly associated with drinking situations can induce craving in the absence of alcohol cues, thus underlining the importance of addressing the association of (perceived) depression and anxiety with relapse (Mason et al., 2008). Craving has also been defined as the memory of the pleasant rewarding effects of drugs of abuse superimposed on a negative emotional state (Koob, 2000).

Laboratory studies of cue-elicited craving are used to evaluate the relationship between alcohol cues, behavioural responses (e.g., subjective craving ratings) and physiological responses. Regarding the association with alcohol cue reactivity most studies have found a strong relationship between craving, depressive symptoms, and anxiety symptoms among heavy drinkers (Fox et al., 2007). The study of Feldstein Ewing et al. (2010) found that cooccurring depressive and anxiety symptoms are associated with significant differential activation in key neurobiological regions in response to alcohol versus appetitive control cues with heavy drinking adults. It indicates that depressive or anxiety symptoms may increase the salience of alcohol cues, increase the perception of the positive aspect of alcohol consumption and reduce attention to the negative consequences of alcohol use (Monti et al., 2000).

Alcohol-induced depression and anxiety may be improved significantly with a sustained period of abstinence (four weeks is suggested), however they can have nature of relatively independent mental disorders' symptoms and persist beyond remission of dependent behaviour (Liappas et al., 2002). To reduce craving and improve outcome (i.e., decrease risk of relapse), treatment of depressed or anxious alcohol dependent patients therefore should address both the anxiety-depressive symptoms and the craving for alcohol, because both phenomena appear to be intertwined.

Different instruments are available to identify and/or measure the degree of alcohol dependence, among them AUDIT (Alcohol Use Disorders Identification Test) (Reinert & Allen, 2002) with summative score as a result. Instrument AUDIT detected a high prevalence of potential alcohol use disorders (Mendoza-Sassi & Beria, 2003), especially in primary care, but it lacks assessment of personality, relational and behavioural aspects. One of the very opportune measures of psychosocial implications of addictive behaviour could be subscores of SASSI instrument (The Substance Abuse Subtle Screening Inventory), declared to be the instrument, which breaks through denial (Miller et al., 1994). The SASSI outcome is conceptualised in ten subscores, allowing different dimensions of addictive behaviour to be identified. The following sub scores are obtained: FVA = face valid alcohol (acknowledged use of alcohol); FVOD = face valid other drugs (acknowledged use of other drugs); SYM = symptoms (true/false items that relate directly to substance misuse); OAT = obvious attributes (characteristics commonly associated with substance misuse); SAT = subtle attributes (basic personal style similar to substance dependent people); DEF = defensiveness (DEF tries to determine, if the client denies the existence of a substance abuse problem. DEF may or may not be related to substance abuse and that may reflect either an enduring character trait or a temporary reaction to a current situation. Low DEF score is also indicative of emotional pain.); SAM = supplemental addiction measure; FAM = family vs. controls (adult scale is based on the responses of the enabling spouses of the chemically

dependent people; the FAM measures the extent to which the client may be codependent); COR = correctional (similarity to people with extensive legal difficulties); RAP = random answering pattern (assesses whether or not responses are meaningful).

The treatment program at Centre for Alcohol Dependence Treatment of the University Psychiatric Hospital Ljubljana is abstinence-based, applying a biopsychosocial paradigm and providing integrated care for concurrent mental disorders. Treatment orientation has been based on attempt of synthesis of different therapeutic approaches, including principles of group, motivational enhancement therapy and (behavioural) marital and family therapy. The intensive treatment programme has two consecutive parts: the first is inpatient treatment, lasting about four to five weeks and the second part is provided in an every-day outpatient setting (about six to eight weeks, depending on patients' goals and needs). The patients' change of intensity of craving and negative affect during intensive dependence treatment is one of the important focuses of therapists' interest. However, in reality of every day clinical practice, patients have difficulties to identify their affect. If therapists want to offer the personally-tailored programme of treatment, the vulnerable patients (relapse-prone) could be better identified through understanding of interaction of craving and negative affect (in psychiatric terms as higher levels of depression and anxiety).

1.1 The purpose of the study

In the actual research, different indicators were chosen as criterion of therapeutic effect, among them intensity of »craving« as the most central dependent variable. The main purpose of the actual contribution is to analyze effect of therapy from the aspect of craving as central criterion-dependent variable, comparing three phases (time points) of therapy in Centre for Alcohol Dependence Treatment of the University Psychiatric Hospital Ljubljana (in the beginning; in the middle and at the end). Chosen variables, which are otherwise treated as partial personality indicators of multiple criterion therapeutic success, are taken into account as covariates: readiness for change in the beginning of therapy, so as perceived levels of depression and anxiety from each of three time points of therapeutic procedure. The intention was also to identify the structure of all just mentioned variables together.

1.2 Hypotheses

The following hypotheses were formulated:

H1: Significant differences in craving regarding different time points (therapeutic phases, when testing occurred) exist so in the case H1a. without covariates included, as H1b. in the case when age and degree of education, together with perceived levels of depression and anxiety from each time point are included as covariates; H1c. no significant covariate effects are expected.

H2: SASSI subscores, obtained at the end of therapy, H2a. mostly significantly correlate with craving, levels of depression and anxiety from the end, but they H2b. mostly do not correlate with levels of depression, anxiety and craving from the beginning of therapy, and, yet H2c. SASSI subscores at the end of therapy significantly correlate with readiness for change from the beginning of therapy.

H3: There are significant differences in chosen variables (in readiness for change, in perceived levels of depression and anxiety, and in craving) between the groups of tested and non tested participants, so in time point 2 (middle of the therapy), as in the time point 3

(end of therapy). Or: chosen variables from the beginning of therapy significantly discriminate between four level criterion, formed by groups of (non)tested participants in time point 2 and time point 3, on the level of at least one significant discriminate function (from three possible significant ones).

H4: Patients, who participated and who did not participate in testing in time point 3 do not differ in readiness for change and in any chosen variable from time point 1 and time point 2.

H5: Patients in different therapeutical time points significantly differ in perceived degree of own depression.

H6: Patients in different therapeutical time points significantly differ in perceived degree of their own anxiety.

Two general expectations, which could not be defined in terminology of univariate and bivariate relations, were additionally formulated:

- Age, degree of education, so as craving, perceived depression and anxiety from each of three time points form multifactorial structure; manifest variables are exclusively correlated with one of orthogonal factor.
- Craving, perceived depression and anxiety from each of three time points form multifactorial structure; manifest variables are exclusively correlated with one of orthogonal factor.

2. Method

2.1 Participants

The sample of the study included 133 patients who were consecutively recruited upon entering inpatient treatment at the Centre for Alcohol Dependence Treatment of the University Psychiatric Hospital Ljubljana (second part of the year 2009 and first part of 2010 admissions). All patients were eligible for the study. Patients were informed about study procedures and 110 patients provided written informed consent. 23 patients declined to participate. The 1st time point assessment was conducted 1 week after admission to inpatient treatment ($n = 110$), the 2nd time point 5 weeks after admission to inpatient treatment (= beginning of day hospital) ($n = 88$), and the 3rd time point at the end of 10 weeks outpatient treatment (day hospital; = end of whole intensive treatment programme) ($n = 73$). The average age was 47.87 years ($SD = 9.21$). There were 27.1 % female and 72.9 % male participants. The average number of days of inpatient treatment was 35.1 ($SD = 12.9$) and of outpatient treatment 32.9 ($SD = 20.1$).

2.2 Applied instruments

2.2.1 The 1st time point

(1 week after beginning of treatment); expression "score" everywhere means summative score

- Information about demographic characteristics, medical, psychiatric, and family histories
- Questionnaires upon dependence intensity:
 - Alcohol Use Disorder Identification Test AUDIT - score (Cronbach alpha = 0.88; ten items with answering scale from 0 to 4) (Reinert & Allen, 2002).
 - The Substance Abuse Subtle Screening Inventory SASSI - 10 sub scores (Miller et al., 1994).

- Obsessive Compulsive Drinking Scale – score (Cronbach alpha =0.90; scale with 14 questions with mostly five points answering scale from 0 to 4, only one item from 1 to 5) (Anton et al., 1995).
- The Stages of Change Readiness and Treatment Eagerness Scale SOCRATES score (19 items of Likert type five points answering scale, Cronbach alpha = 0.95; Cronbach alphas of subscores Recognition = 0.87, Ambivalence = 0.78, Taking Steps = 0.92; correlations total score and subscores, all $p < 0.001$: Recognition 0.93, Ambivalence 0.89, Taking Steps 0.93) (Miller & Tonigan, 1996).
- State Anxiety Inventory – score (Cronbach alpha =0.93); twenty items with four points answering scale (Spielberger et al., 1983).
- Zung Self-Rating Depression Scale – score (Cronbach alpha =0.86; all together 20 items with four points answering scale (Zung, 1965).
- Family climate questionnaire – score (Cronbach alpha = 0.90;); originally constructed by Rus-Makovec M. et collaborators as summative scale/semantic differential, 15 bipolar continuums of semantic differential, with 7 – point bipolar answering scale, constructed according to the demands for summative ratings.

2.2.2 The 2nd time point

(5 weeks after beginning of treatment)

- More complex autoanamnestic information
- Questionnaire upon dependence intensity:
 - Obsessive Compulsive Drinking Scale – score (Cronbach alpha =0.94)
- State Anxiety Inventory – score (Cronbach alpha =0.96)
- Trait Anxiety Inventory – score (Cronbach alpha = 0.94)
- Zung Self-Rating Depression Scale – score (Cronbach alpha =0.91)
- Life events in last 12 months
- The Mini-International Neuropsychiatric Interview (M.I.N.I.)(Sheehan et al., 1998).

2.2.3 The 3rd time point

(at the end of whole intensive treatment – about 10 weeks after beginning of treatment)

- Evaluation of different components of the programme, different self evaluations
- Questionnaires upon dependence intensity:
 - The Substance Abuse Subtle Screening Inventory SASSI
 - Obsessive Compulsive Drinking Scale– score (Cronbach alpha =0.89)
- State Anxiety Inventory – score (Cronbach alpha = 0.94)
- Zung Self-Rating Depression Scale – score (Cronbach alpha = 0.89)
- Family climate questionnaire – score (Cronbach alpha = 0.91).

The whole research is designed as one–group quasi–experimental approach, with no simultaneously control such as group neither in therapeutic nor in after care period. Anyway, comparison with certain quasi-control groups, comparing particular chosen variables is possible, but not included into present report. Univariate, bivariate and multivariate statistical analyses were executed, when parametric approaches permitted. There was a problem connecting decisions for within–subjects (repeated measures) and between–subjects approach (independent groups). Only a small segment of the whole project results is shown here.

Ethical approval was provided by the Ethical commission of Health Ministry of Slovenia.

3. Results

3.1 Results of verification of hypothesis H1 - H1a

“Cravings” (Obsessive Compulsive Drinking Scale – score) in each of three time points were compared and tests of within – subject’s effects without any covariate were applied. Zero risk level of differences between the periods of therapy showed highly significant differences between the cravings ($F(2, 114) = 44.29, p = 0.00, \text{part. } \eta^2 = 0.44$). Repeated measure approach embraced all together $n = 58$ patients, because several dozens of the declined to be tested in each of three periods/time points. The results show, approaching to the end of therapy, progressively lower and lower level of craving (Table 1).

	M	SD	N
Craving 1	24.77	10.29	58
Craving 2	15.93	12.14	58
Craving 3	10.31	8.88	58

Note:

Craving i ($i = 1, 2, 3$) = Obsessive Compulsive Drinking Scale – score (three time points, the first one = 1, the second one = 2, the third one = 3).

Table 1. Descriptive statistics for cravings in three time points – repeated measures approach without covariates.

3.2 Results of verification of hypothesis H1b and H1c

In the next step, nine covariates were included into the already existing repeated measures (within – subjects) design. Almost all covariate effects were found as non – significant, except two of them: years of education ($F_{\text{educ}}(2, 68) = 3.01, p = 0.056$) and depression 1 (in the beginning/ the first time point ($F_{\text{depr1}}(2, 68) = 5.8, p = 0.005$). When covariates included, the differences between the “cravings” were not found significant ($F_{\text{factor1}}(2, 68) = 1.22, p = 0.30$). The function of mentioned depression is the complex one. It does not belong to the same factor (factor analysis) as “craving 3”, but it significantly contributes to the understanding of the within – subjects differences between the time points. Other results were as follows: $F_{\text{SOCRATES}}(2, 68) = 0.26, p = 0.77$; $F_{\text{anks1}}(2, 68) = 1.16, p = 0.32$; $F_{\text{depr2}}(2, 68) = 0.45, p = 0.64$; $F_{\text{anks2}}(2, 68) = 0.54, p = 0.59$; $F_{\text{depr3}}(2, 68) = 1.34, p = 0.27$; $F_{\text{anks3}}(2, 68) = 0.62, p = 0.54$; $F_{\text{age}}(2, 68) = 2.00, p = 0.14$.

	M	SD	N
Craving 1	23.93	10.60	44
Craving 2	14.02	11.35	44
Craving 3	10.27	9.15	44

Note:

Craving i ($i = 1, 2, 3$) = Obsessive Compulsive Drinking Scale – score (three time points, the first one = 1, the second one = 2, the third one = 3).

Covariates: depression and anxiety in each of three time points, readiness for change, age and years of education.

Table 2. Descriptive statistics for cravings in three time points – repeated measures approach with nine covariates.

I also wanted to know, what happens, when “only” seven covariates, without “age” and “years of education” are included (covariates: depression and anxiety in each of three time

points and readiness for change - seven covariates). Again, only the depression, as perceived in the beginning of therapy ($F_{depr1} (2, 92) = 7.06, p = 0.00$), had a significant covariate effect on »craving«, and »within - subjects« effect was highly non - significant ($F_{factor1} (2, 92) = 0.23, p = 0.79$). Covariate effects of »depressions« and »anxieties«, as perceived in other time points, were found as follows: $F_{depr1} (2, 92) = 7.06, p = 0.00$; $F_{anxi1} (2, 92) = 0.43, p = 0.65$; $F_{depr2} (2, 19) = 0.19, p = 0.89$; $F_{anxi2} (2, 92) = 0.90, p = 0.41$; $F_{depr3} (2, 92) = 0.82, p = 0.44$; $F_{anxi3} (2, 92) = 0.34, p = 0.71$. Highly non - significant was also the covariate effect of the readiness for the change (SOCRATES): $F_{SOCRATES} (2, 92) = 0.22, p = 0.80$.

	M	SD	n
Craving 1	24.62	10.23	54
Craving 2	15.98	12.07	54
Craving 3	10.25	8.78	54

Note:

Craving i ($i = 1, 2, 3$) = Obsessive Compulsive Drinking Scale - score (three time points, the first one = 1, the second one = 2, the third one = 3).

Covariates: depression and anxiety in each of three time points and readiness for change.

Table 3. Descriptive statistics for cravings in three time points - repeated measures approach with seven covariates.

3.3 Results of verification of hypothesis H2a and H2c

SASSI subscores at the end of treatment	Craving 1	SOCRATES	Depression 1	Anxiety 1
FVA	0.231	0.016	0.165	0.170
FVOD	0.009	0.004	0.218	0.204
SYM	0.236	-0.129	0.239	0.162
OAT	0.128	-0.092	0.185	0.196
SAT	0.236	0.000	0.094	0.230
DEF	-0.294*	-0.086	-0.327*	-0.265*
SAM	-0.186	-0.081	-0.099	0.061
FAM	-0.100	0.167	-0.152	-0.182
COR	0.304*	-0.044	0.315*	0.244

Note:

number of participants $65 = > n > = 64$

SASSI subscores: FVA = face valid alcohol; FVOD = face valid other drugs; SYM = symptoms; OAT = obvious attributes; SAT = subtle attributes; DEF = defensiveness; SAM = supplemental addiction measure; FAM = family vs. controls; COR = correctional

Craving 1 = Obsessive Compulsive Drinking Scale - score, the first time point

Depression 1 = Zung Self-Rating Depression Scale - score, the first time point

Anxiety 1 = State Anxiety Inventory - score, the first time point

SOCRATES = readiness for change in the beginning of therapy.

Table 4. Spearman coefficients of rank correlations between subscores of SASSI at the end of therapy and chosen variables from the beginning of therapy.

*, $p < 0.05$; **, $p < 0.01$

3.4 Results of verification of hypothesis H2b and H2c

SASSI subscores at the end of treatment	Craving 3	SOCRATES	Depression 3	Anxiety 3
FVA	0.408**	0.016	0.204	0.211
FVOD	-0.166	0.004	0.108	0.244*
SYM	0.219	-0.129	0.248*	0.175
OAT	0.268*	-0.092	0.405**	0.279*
SAT	-0.014	0.000	-0.039	0.214
DEF	-0.366**	-0.086	-0.550**	-0.560**
SAM	0.276*	-0.081	0.128	-0.005
FAM	-0.084	0.167	-0.261*	-0.404**
COR	0.264*	-0.044	0.410**	0.240

Note:

number of participants 65 = > n > = 64

SASSI subscores: FVA = face valid alcohol; FVOD = face valid other drugs; SYM = symptoms; OAT = obvious attributes; SAT = subtle attributes; DEF = defensiveness; SAM = supplemental addiction measure; FAM = family vs. controls; COR = correctional

Craving 3 = Obsessive Compulsive Drinking Scale – score, the third time point

Depression 3 = Zung Self-Rating Depression Scale – score, the third time point

Anxiety 3 = State Anxiety Inventory – score, the third time point

SOCRATES = readiness for change in the beginning of therapy.

Table 5. Spearman coefficients of rank correlations between subscores of SASSI at the end of therapy and chosen variables from the end of therapy, *, $p < 0.05$; **, $p < 0.01$

I was also interested into the question, how do SASSI subscores at the end of therapy correlate with the craving, depression, readiness for change and anxiety, so from the beginning, as from the end of therapy. When four chosen variables from the beginning of therapy were taken into account, craving 1 correlated significantly ($p < 0.05$) with DEF and COR and almost significantly with SYM and SAT. Craving 3 correlated significantly with FVA, OAT, DEF, SAM and COR. It seems that correlations with DEF and COR are stable: correlations between craving and FVA, OAT and SAM appear as new significant ones at the end of therapy. Lower defensiveness at the end of the intensive treatment is significantly correlated with higher levels of craving and more intense negative affective states in beginning of treatment (and vice versa); the same trend can be seen with craving and negative affect at the end of treatment.

No significant correlations were found between SASSI subscores on one side and readiness for change on another side. They were found neither in the beginning, nor at the end of therapy.

DEF and COR correlated significantly with the depression, as perceived so in the beginning, as at the end of therapy. At the end, significant correlations were found also for SYM, OAT and FAM.

Anxiety, as perceived in the beginning, correlated significantly ($p < 0.05$) with the DEF and almost significantly with the COR. At the end of therapy, significant correlations with FAM and OAT appeared.

3.5 Results of verification of hypothesis H3

There was a variation in testing participation in each time point; that’s why I decided to compare those, who participated and who did not participate testing in the second and in the third time point (= end of therapy). In such a case, the only possible comparison is comparison in variables from previous time points, in which they had participated. Mentioned comparisons are important also for the evaluation of the repeated measures design. If there are not significant differences in particular relevant previous variable between the participants and non – participants in particular time point of testing, also the validity of within – subjects (repeated measures) design is greater, although reduced number of people is taken into account.

The following proportions of (non) participants in the second and in the third time point could be identified:

M2 = proportions of participants, who: 1 = participated in the second time point, 2 = did not participate in the second time point.

M3 = proportions of participants, who: 1 = participated in the third time point, 2 = did not participate in the third time point.

Four groups with regard to participation	variable	M	SD
1 n = 51	SOCRATES	81.19	12.26
	Craving 1	24.97	10.04
	Depression 1	40.59	9.84
	Anxiety 1	38.40	12.99
2 n = 28	SOCRATES	80.81	8.53
	Craving 1	25.25	8.80
	Depression 1	40.23	8.54
	Anxiety 1	40.07	13.06
3 n = 18	SOCRATES	79.77	18.20
	Craving 1	19.77	8.86
	Depression 1	38.28	7.34
	Anxiety 1	36.88	10.94
4 n = 6	SOCRATES	88.16	6.24
	Craving 1	26.83	7.54
	Depression 1	39.33	9.89
	Anxiety 1	35.33	12.09
Total n= 103	SOCRATES	81.25	12.42
	Craving 1	24.21	9.48
	Depression 1	39.99	8.98

Note:

Craving 1 = Obsessive Compulsive Drinking Scale – score, the first time point

Depression 1 = Zung Self-Rating Depression Scale – score, the first time point

Anxiety 1 = State Anxiety Inventory – score, the first time point

SOCRATES = readiness for change in the beginning of therapy.

Table 6. Descriptive statistics for chosen variables from the beginning of therapy for four groups: groups of (non)participants in the second and in the third time point with chose

Four groups could be formed as criterion for discriminant analysis, if M2 and M3 are crossed (1 = participated in the second and in the third (n = 51); 2 = participated in the second, not in the third (n = 28); 3 = did not participate in the second, but participated in the third time point (n = 18); 4 = participated neither in the second, nor in the third time point (n = 6)). Chosen variables from the beginning of therapy were treated as predictors.

Test of Function(s)		Wilks' Lambda	Chi-square	df	Sig.
Dimension	1 through 3	0.922	7.557	12	0.819
	2 through 3	0.974	2.409	6	0.879
	3	0.995	0.462	2	0.794

Table 7. Wilks' Lambda for three discriminant functions

Box's M, F approx = 1.45, p = 0.054

Otherwise, the demand for homogeneity of covariance's was just satisfied (Box's M, F approx = 1.45, p = 0.054). Wilks' test of equality of group means, otherwise included as option of multivariate discriminant test, showed no significant differences in any of chosen variables from the beginning of therapy, when four groups were compared (look Table 11, please). Also no one of three discriminant function was found as significant: no Wilks Lambda was significant (look, please Table 12) and further analysis in the sense of discriminant analysis was not any more relevant (for example, the interpretation of structure matrix, where the degree of correlation between the (significant) discriminant function and particular predictor (chosen variables from the beginning of therapy) explain relative importance of particular predictor for the discrimination between the levels of variation of criterion (in "our" case four groups of (non)participants) and four possible centroids for each of eventually three possible significant discriminant functions.

3.6 Results of verification of hypothesis H4

Variables	M3	n	M	SD	t	df	p
Craving 2	1	53	15.60	11.97	-0.207	80	0.836
	2	29	16.17	11.69			
SOCRATES	1	66	80.69	13.93	0.079	98	0.937
	2	34	80.47	12.94			
Depression 1	1	69	40.33	9.15	0.310	103	0.757
	2	36	39.76	8.71			
Anxiety 1	1	68	38.41	12.31	-0.173	102	0.863
	2	36	38.86	13.03			
Craving 1	1	69	23.18	10.56	-1.251	101	0.214
	2	34	25.79	8.49			
Depression 2	1	53	36.79	8.36	0.224	80	0.823
	2	29	36.37	7.18			
Anxiety 2	1	55	36.58	12.29	-0.482	82	0.631
	2	29	38.00	13.76			

Note:

M3 = 1 = those, who participate testing in the third time point; M3 = 2 = those, who did not participate testing at the end of therapy:

Craving 1 = Obsessive Compulsive Drinking Scale – score in the first time point
Depression 1 = Zung Self-Rating Depression Scale – score in the first time point
Anxiety 1 = State Anxiety Inventory – score in the first time point
Craving 2 = Obsessive Compulsive Drinking Scale – score in the second time point
Depression 2 = Zung Self-Rating Depression Scale – score in the second time point
Anxiety 2 = State Anxiety Inventory – score in the second time point
SOCRATES = readiness for change in the beginning of therapy.

Table 8. T – tests of difference in chosen variables regarding two groups of participants: those, who participated vs. those, who did not participate testing at the end of therapy

When those, who did not participate the testing at the end of therapy, were compared with those, who had passed the testing, no significant difference for any of treated variable (readiness, craving, depression, anxiety – so from the first, as from the second time point) was found. The results contribute to belief that “missing persons” at the end of therapy do not change the mainstream therapeutic effects.

3.7 Results of verification of hypothesis H5

	M	SD	n
Depression 1	40.39	9.58	56
Depression 2	35.55	7.75	56
Depression 3	35.53	8.44	56

Note:

Depression i (i = 1, 2, 3) = Zung Self-Rating Depression Scale – score (three time points, the first one = 1, the second one = 2, the third one = 3).

Table 9. Descriptive statistics for perceived depression in three time points – repeated measures approach

Within subjects approach showed significant differences in perceived depression in the beginning compared to perceived depression in the middle and at the end of therapy ($F(2, 110) = 15.93, p = 0.00$). No significant difference appears between time point 2 and time point 3 (between middle and the end of therapy).

3.8 Results of verification of hypothesis H6

	M	SD	n
Anxiety 1	39.41	13.56	56
Anxiety 2	35.58	12.95	56
Anxiety 3	35.44	12.00	56

Note:

Anxiety i (i = 1, 2, 3) = State Anxiety Inventory – score (three time points, the first one = 1, the second one = 2, the third one = 3).

Table 10. Descriptive statistics for own perceived anxiety in three time points – repeated measures approach

Within subjects approach showed significant differences in perceived anxiety in the beginning compared to perceived anxiety in the middle and at the end of therapy ($F(2, 110)$

= 5.02, $p = 0.01$). No significant difference appears between time point 2 and time point 3 (between middle and the end of therapy).

3.9 Factor solutions for different set of variables

3.9.1 Factor analysis for 9 variables

Component		Initial Eigenvalues			Extraction Sums of Squared Loadings		
		Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
dimension	1	4.412	49.018	49.018	4.412	49.018	49.018
	2	1.651	18.347	67.365	1.651	18.347	67.365
	3	0.952	10.577	77.942	0.952	10.577	77.942
	4	0.531	5.895	83.838			

Note:

Table is reduced to number of factors which sufficiently show, how many factors have the eigenvalue $> = 1$ (Kaiser's criterion), $df = 36$.

Table 11. Factor analysis for 9 variables: eigenvalues and correspondent percents of explained variance

Taking formalistically into account Kaiser's criterion, two factorial model would be taken into account, with about 67 % of explained variance. Anyway, also three factorial, explaining almost 78 % of the whole variance, could be taken into account (the eigenvalue of the third factor is 0.95 and the first three factors, according to their Kaiser values, distinctively enough separate from other factors).

Variables	Component	
	1	2
Craving 1	-0.050	0.859
Craving 2	0.123	0.836
Craving 3	0.129	0.450
Depression 1	0.576	0.513
Depression 2	0.896	0.132
Depression 3	0.873	0.187
Anxiety 1	0.774	0.036
Anxiety 2	0.872	0.214
Anxiety 3	0.876	0.012

Note:

Craving i ($i = 1, 2, 3$) = Obsessive Compulsive Drinking Scale – score
(three time points, the first one = 1, the second one = 2, the third one = 3)
Depression i ($i = 1, 2, 3$) = Zung Self-Rating Depression Scale – score
(three time points, the first one = 1, the second one = 2, the third one = 3)
Anxiety i ($i = 1, 2, 3$) = State Anxiety Inventory – score
(three time points, the first one = 1, the second one = 2, the third one = 3).

Table 12. Rotated varimax matrix for nine studied variables - two factorial solution

Variables	Component		
	1	2	3
Craving 1	-0.036	0.863	0.117
Craving 2	0.136	0.823	0.162
Craving 3	0.125	0.181	0.943
Depression 1	0.589	0.603	-0.247
Depression 2	0.898	0.098	0.088
Depression 3	0.875	0.158	0.081
Anxiety 1	0.776	0.052	-0.085
Anxiety 2	0.874	0.164	0.153
Anxiety 3	0.874	-0.032	0.103

Note:

Craving *i* (*i* = 1, 2, 3) = Obsessive Compulsive Drinking Scale – score

(three time points, the first one = 1, the second one = 2, the third one = 3)

Depression *i* (*i* = 1, 2, 3) = Zung Self-Rating Depression Scale – score

(three time points, the first one = 1, the second one = 2, the third one = 3)

Anxiety *i* (*i* = 1, 2, 3) = State Anxiety Inventory – score

(three time points, the first one = 1, the second one = 2, the third one = 3).

Table 13. Rotated component matrix for nine studied variables – three factorial solution

Factor saturation shows the same trends so for two-, as for three-factorial models. “Craving 3” is either correlated with no factor (two-factorial), or it exclusively relatively highly correlates with the third factor (three factorial solutions).

3.9.2 Factor analysis for 12 variables

Component		Initial Eigenvalues			Extraction Sums of Squared Loadings		
		Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
dimension	1	4.783	39.86	39.86	4.78	39.86	39.86
	2	1.812	15.10	54.96	1.81	15.10	54.96
	3	1.514	12.61	67.57	1.51	12.61	67.57
	4	0.876	7.30	74.87			

Note:

Table is reduced to number of factors which sufficiently show how many factors have the eigenvalue ≥ 1 (Kaiser’s criterion).

Table 14. Factor analysis for 12 variables: eigenvalues and correspondent percents of explained variance

Factor analysis for 12 variables resulted in three factorial solution, all three factors together explaining almost 68 % of total variance. Relatively the greatest percent of explained variance corresponds, of course, with the first factor (almost 40 %).

Varimax orthogonal rotation was applied, resulting in rotated matrix with three recognizable and relatively exclusive factors. According to the correlations between particular factor and each of 12 manifest variables, the factors could be interpreted as follows: the first factor, highly correlating with depression and anxiety, regardless the time

Variables	Component		
	1	2	3
Age	-0.063	-0.057	0.669
Years of education	-0.025	0.211	0.829
Craving 1	0.121	0.822	0.050
SOCRATES	-0.136	0.688	0.216
Craving 2	0.198	0.663	-0.470
Craving 3	0.233	0.432	-0.407
Depression 1	0.800	0.264	0.104
Anxiety 1	0.733	-0.083	-0.169
Depression 2	0.875	0.145	-0.185
Anxiety 2	0.901	0.151	-0.148
Depression 3	0.895	0.044	-0.074
Anxiety 3	0.894	-0.085	0.000

Note:

Craving i ($i = 1, 2, 3$) = Obsessive Compulsive Drinking Scale – score

(three time points, the first one = 1, the second one = 2, the third one = 3)

Depression i ($i = 1, 2, 3$) = Zung Self-Rating Depression Scale – score

(three time points, the first one = 1, the second one = 2, the third one = 3)

Anxiety i ($i = 1, 2, 3$) = State Anxiety Inventory – score

(three time points, the first one = 1, the second one = 2, the third one = 3)

SOCRATES = readiness for change in the beginning of therapy

Table 15. Rotated matrix – varimax rotation for 12 manifest variables

point of their appearance, could be labelled as »affect« factor. – The second factor exclusively highly correlates with “craving” in the beginning and in the middle (the second time point), but also with the readiness for change in the beginning of therapy; this combination could be called as before final craving & initial readiness for improvement. Finally, the third factor is a demographic one, containing age and years of education.

Final »craving« quite moderately correlates so with the second (positively), as with the third Factor (negatively) but craving 3 correlate expressively with no one of three orthogonal factors.

4. Discussion

Results show, that significant differences in craving regarding different time points (therapeutic phases, when testing occurred) exist in the case H1a. without covariates included; this hypothesis is completely confirmed, but hypothesis H1b. is refused. When age and degree of education, together with perceived anxiety and depression from each time point are included as covariates, the within subjects differences between the cravings are not any more significant. Refused is also hypothesis H 1c. (no significant covariate effects are expected), because quite significant covariate effect of perceived depression was found and almost significant effect of “years of education”.

We can say, although it sounds a little bit strange, that H2a and H2b are mostly accepted (H2: SASSI subscores, obtained at the end of therapy, H2a. mostly significantly correlate with craving, depression and anxiety from the end, but they H2b. mostly do not correlate with anxiety, depression and craving from the beginning of therapy), but hypothesis H2 c is surprisingly refused, because no one significant correlation between SASSI subscores at the end of therapy and beginning readiness for change was found.

Results show that H3 (chosen variables from the beginning of therapy significantly discriminate between four level criterion, formed by groups of (non)tested participants in time point 2 and time point 3, on the level of at least one significant discriminate function (from three possible significant ones) is refused.

Also the H4 was refused (H4: Patients, who participated and who did not participate in testing in time point 3 differ in readiness for change and in any chosen variable from time point 1 and time point 2).

As expected, the alternative hypotheses H5 & H6 were confirmed. Anyway, it's worth repeating again, that significant difference ($p < 0.05$) was found only between time point 1 on one side and time point 2 on other side. It means that perceived depression and anxiety were significantly diminished already in the time point 2 (in the middle of therapy) and that they did not significantly change up to the end of therapy.

We can say that age, degree of education, so as craving, perceived depression and anxiety from each of three time points form multifactorial structure, "where" manifest variables are exclusively correlated with one of orthogonal factor. Factor analysis resulted in three factorial orthogonal structure with factors representing anxiety and depression (factor1), craving1, craving 2 and beginning readiness for change (factor 2) and age and years of education as factor 3. Craving 3 correlated expressively with no one of three orthogonal factors, but more strongly with factor 2 and factor 3 than with factor 1.

Factor solutions showed some interesting differences when different sets of variables were factorized. Results of factorization of 12 variables were already previously mentioned. When nine variables (perceived depression and anxiety) were factorized, so two-factorial, as three factorial model shows very similar trends; factually, the only difference between them is connected with "craving 3" (phenomenon of craving at the end of therapy). In two factorial models, craving factually "belongs" to no factor, but in three factorial models it's expressively the independent one, representing the third factor. Otherwise, so two-, as three - factorial model confirm the fact, that perceived depression in the beginning of therapy ("depression 1") "belongs" so to factor 1, as to factor 2; it means that it independently belongs so to the first (expressing anxieties and depressions in three therapeutic periods) as to the second factor (correlating with craving1 and craving 2, but not also with the craving 3).

It seems, also after a vast survey of relevant literature that analyses of relations between craving and perceived depression/anxiety are relatively very rare, especially in the framework of longitudinal, time points approach. Yet some of the studies addressed perceived depression/anxiety as a significant predictor of alcohol relapse, as well as the relation between perceived depression/anxiety and drinking, which is strongly mediated by alcohol craving (Conner et al., 2009). The craving module of the combined behavioural intervention (Witkiewitz et al., 2011) and Mindfulness-based relapse prevention were found to weaken the relation between perceived depression/anxiety and heavy drinking by fostering greater decreases in craving during treatment (Witkiewitz & Bowen, 2010). In a study of examination the course of affective symptoms and cravings for alcohol use during the initial 25 days of residential treatment addicted to alcohol, 17 subjects reported elevated cravings during the entire treatment stay, 37 subjects reported initially elevated but a slight improvement in craving, and 41 subjects reported relatively low craving from the time of admission to the end of residential treatment. Alcohol craving class was associated with perceived depression/anxiety but not with affects, being contrary to depression and anxiety; results suggested that non-cue induced alcohol craving may define a subtype of alcohol dependence that is less responsive to treatment and may explain heterogeneity in treatment outcomes (Oslin et al., 2009).

The present study's outcomes reflect neurobiological interrelation between craving and perceived depression/anxiety (described in the introductory part). The findings showed positive outcome of researched indicators of therapy success, which can be generalised to whole sample; it seems that "missing persons" at the end of therapy do not change the mainstream therapeutic effects. However, the main advantage of the study is in providing important evidence-based support to dynamics of patients' multilevel mental vulnerability/health change in treatment process. Craving intensity diminished significantly from the beginning to very end of whole intensive treatment. Comparing to the beginning of therapy, craving in any further time point was found as significantly lower. The second time point is at the beginning of outpatient part of treatment, with exposition to environmental alcoholic and non-alcoholic cues of »real life«. Patients, involved in intensive mixture of spectrum of psychotherapy interventions and pharmacotherapy, together with abstinence, are reliably prepared for better beginner coping with higher levels of depression, anxiety and craving. On the other hand, just mentioned levels of depression and anxiety are significantly diminished (together with craving) in the first part of intensive treatment (inpatient/residential part). In times of economic crisis, inpatient treatments of dependence maybe won't be encouraged, but in-patient treatment of alcohol dependence at the beginning of the treatment process obviously can provide context for efficient sustaining at least several weeks of abstinence, allowing craving and affect issues to be addressed efficiently.

One of the expected goals for the patients in treatment of dependence from the side of the therapists is that patients diminish their denial. Correlations between SASSI subscores, craving, levels of depression and anxiety showed particular similar trend so in the beginning, as at the end of therapy. Significant correlations (higher at the end than in the beginning) between craving, levels of depression and anxiety on one side with SASSI subscore DEF on the other side appeared. Participants, who experienced more intense craving and higher levels of depression/anxiety, showed less defensiveness so in the beginning, as at the end of therapy, when the mentioned trend is much more expressed. It can be interpreted, that more vulnerable patients show less defensiveness significantly, but less expressively in the beginning and significantly, but more expressively at the end of treatment. Or patients, who do not tend to be alexithimic, show less denial with regard to their affect and craving. It is concordant with psychodynamic explanation that only patients, who are progressing in treatment and have developed good working alliance, can experience, identify and tolerate higher levels of depression and anxiety - and develop more self-defensive behaviour (Weegmann, 2002).

Weakness of the research is in the fact of missing values, which specially appear in the second and in the third (the end of therapy) time point. This deficiency has somehow tried to be controlled with comparison, in chosen target variables, between participants and non-participants in particular time point. No significant difference was found in any variable (readiness for change, perceived depression, anxiety, and craving) from the beginning of therapy. It means that those, who in some later phase did not participate testing had been not, in the beginning of therapy, differently oriented connecting some basic relevant variables of the research. Not the systematic, but random factors seem to be more relevant reason of their absence in some periods (time points) of testing.

The next weakness of the design is the absence of the adequate control group; that's why the whole design is the one - group quasi experimental one; however, there is a possibility to establish some other groups as quasi control ones. In the same time, this opportunity is, in the same time, the potential (future) advantage of the research: the same set of instruments could be applied on approximately equalized group, what would make some comparisons possible

and relevant. Finally, an additional instrument, measuring some personality structure characteristics, is also supposed to be added in the future, including also some other feelings and emotions of patients in treatment (not only levels of depression and anxiety).

5. Conclusion

Quite important characteristic of the research is the institutional framework of its realization and application. This framework is the Centre for Alcohol Dependence Treatment of the University Psychiatric Hospital Ljubljana, where it is possible to take results of the study into account in applied work and longitudinally follow up. This situation also gives the opportunities for additional specification of evidence based treatment at the centre.

Projects for the future: the same group of ex- patients will be followed also in the future and the new time points will be added.

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Risk Factors for Delirium in the Acute Stroke

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1. Introduction

1.1 Stroke

According to the World Health Organization (WHO), stroke is defined as the sudden development of focal or global symptoms and signs of disturbance of cerebral function lasting more than 24 hours or leading to death, as a result of the pathological processes of vascular origin (Thorvaldsen et al., 1995).

The basic classification of stroke, according to the type of pathological process, is into ischemic stroke, which comprises 70-85%, and hemorrhagic. An ischemic stroke develops due to the inability of supply to brain tissue oxygen and glucose due to occlusion vessel. If the "outbursts" of blood within the brain mass, there is intracerebral hemorrhage, which makes 15-20% of strokes, while the penetration of the blood in the subarachnoid space, usually as a result of aneurysm rupture, leading to a subarachnoid hemorrhage, which makes 5-10% of all strokes.

Stroke leads to focal or multifocal neuropsychological disorders. Given that in clinical stroke in the forefront of motor deficits, disturbance of consciousness and disturbance of speech functions, a very common disorder and the function of other organ systems, most of the neuropsychological symptoms are observed after the acute phase when the general and neurological status stabilized, or when we are able to perform certain neuropsychological tests (Dostović, 2007).

Stroke leads to the different degree of physical, cognitive and psychosocial dysfunctioning. The recovery of patients depends on the severity of disability, the rehabilitation program, but also the subsequent maintenance of achieved function, as well as care and support of family and environment.

1.2 Delirium

According to the International Classification of Diseases and Related Health Problems-Tenth Revision of 1994 delirium, not caused by alcohol or other psychoactive substances, is etiologically nonspecific organic cerebral syndrome, characterized by the simultaneous disturbance of consciousness and attention, perception, thinking, psychomotor behavior,

sense of rhythm of sleep and wakefulness. Running time is different, and the degree ranges from mild to very severe (Anonymous, 1994).

Includes:

- Acute or subacute syndrome of the brain
- Acute or subacute confusing
- Acute or subacute infectious psychosis
- Acute or subacute organic reaction
- Acute or subacute organic psihosindrom

Excludes:

- delirium tremens, caused by alcohol withdrawal state with delirium.

The most important feature of delirium is a disturbance of consciousness accompanied by a change in cognition that can not be better explained by an existing cognitive dysfunction. The disorder develops in a short period of time, usually within hours or days, and tends to fluctuations during the course (Anonymous, 1994).

Delirium is also defined as a transient, essentially reversible dysfunction of brain metabolism, acute or subacute at the beginning of the clinical manifestations, with a wide range of neuropsychological disorders (Wise & Brandt, 1994).

2. Neuropathophysiology of post-stroke delirium

Delirium is one of the most common complications that older patients develop when they are admitted to hospital, affecting up to 30% of all older medical patients (Young & Inouye, 2007). Delirium is a severe, multi-factorial neuropsychiatric disorder with well-defined predisposing and precipitating factors. It is characterised by a disturbance of consciousness and a change in cognition that develop over a short period of time. The mental state characteristically fluctuates during the course of the day, and there is usually evidence from the history, examination or investigations that the delirium is a direct consequence of a medical condition, drug withdrawal or intoxication (Anonymous, 1994). Patients who develop delirium have a high mortality, longer in-patient stay, and higher complication rate, increased risk of institutionalisation and increased risk of dementia (Young & Inouye, 2007; Inouye et al., 1999). Delirium is frequently not recognised by physicians and poorly managed.

Up to one-third of cases of delirium may be preventable. Stroke is a known risk factor for the development of delirium (Ferro et al., 2002). The majority of studies of delirium have reviewed mixed medical, surgical, orthopaedic or ICU patients. There have been only a small number of studies that have assessed delirium post-stroke. These studies have yielded conflicting results and have screened for delirium using different measures at different time intervals.

Although delirium has numerous potential precipitating factors, the clinical presentation is generally similar, suggesting a common pathway in the pathogenesis of delirium. The main cause of delirium is probably disturbance in the neurotransmitter acetylcholine system, particularly in the reticular formation. Reticular formation in the brain stem is the control of attention, sleep and wakefulness.

Knowledge of the pathophysiology of delirium is quite fragmented (White et al., 2002). Delirium is associated with reduction of oxidative metabolism, primarily in the prefrontal areas.

Known anticholinergic drugs or other medications with anticholinergic effects or that bind to muscarinic receptors may also precipitate delirium (Trzepacz et al., 2000). The possibility

of delirium was higher in patients taking five or more medications with moderate anticholinergic activity (Lindsesay et al., 2002). Exposure anticholinergic medication was independently and specifically associated with an increase in delirium in elderly patients diagnosed with delirium (Han et al., 2001).

Anticholinesterase activity is increasing in the plasma of patients with delirium. Over the years the loss of cholinergic reserve and focal loss of acetylcholine in the nucleus basalis Meynerti may be the reason that delirium is common in the elderly and patients with dementia. Abnormal termination of the hypothalamic-pituitary-adrenal lines may play a role in the pathophysiology of delirium after acute stroke (Olsson, 1999).

Type II receptors for glucocorticoids, which are present during the high-level (stress) hormones, are heavily expressed in the hippocampus, and intact hippocampal formations, seem to be necessary for adequate negative feedback. Stroke and complications (pain and infection) are stress conditions, the leading to an increase glucocortikoid production, which is not adequately suppressed.

Gustafson et al. (1993) have registered higher corticoid levels and abnormal response to dexamethasone suppression test in patients with acute stroke. Immediately after the stroke, delirium is associated with increased sensitivity to corticoadrenal adrenocorticotrophic hormonal stimulation and the decrease in glucocorticoid negative feedback. Corticoids are known to disrupt attention and memory.

Several neurotransmitter systems have been implicated, in particular acetylcholine and dopamine, but also serotonin, noradrenalin and gamma amino butyric acid (GABA). Functional acetylcholine (ACh) deficiency has received most support (Trzepacz, 2000). ACh is involved in several functions that are affected in delirium: arousal, attention, delusions, visual hallucinations, motor activity and memory (Lindsesay et al., 2002). The evidence for ACh involvement in delirium is strong. Anticholinergic drugs can cause delirium in susceptible patients (White, 2002; Lindsesay et al., 2002).

With respect to other neurotransmitter systems, dopamine may also be implicated (Trzepacz, 2000). Dopamine and ACh neurotransmitter systems interact closely and often reciprocally and an imbalance between the two could underlie delirium syndromes. There is evidence that dopamine excess can cause delirium and that dopamine antagonists, particularly neuroleptics, modify the symptoms of delirium (Itil & Fink, 1966). Glucocorticoids are also potentially implicated in delirium; and delirium has been reported in Cushing's syndrome.

Despite being a frequent complication of stroke, the pathophysiology of delirium in the acute stroke is poorly understood. There is no data on how an acute stroke affects neurotransmitter levels in the brain. Drugs with ACh activity are, however, associated with an increased risk of delirium in the acute stroke setting (Caeiro et al., 2004).

Recently, hypoperfusion in the frontal, parietal, and pontine regions have been demonstrated using single photon emission computed tomography (SPECT) scanning in patients with delirium (Fong et al., 2006). It is possible that hypoperfusion, in addition to the acute brain injury, may play an important role in the onset of delirium post-stroke. In addition, one study has found an association between delirium and hypercortisolism in the acute stroke setting (Gustafson, 1993). The pathogenesis of delirium in general remains unknown (White S, 2002).

There are several possible mechanisms for the development of delirium (Table 1).

Mechanism	Example
Altered neurotransmitters	Acetylcholine
	Dopamine
	Serotonin
	Noradrenaline, GABA, glutamate
Altered hypothalamic-pituitary-adrenal axis	Hypercortisolism
Other mechanisms	Cytokine production, e.g. interleukin-1
	Alterations to the blood-brain barrier
	Oxidative stress

Table 1. Possible mechanisms in the development of delirium, (McManus et al., 2007)

It is known that delirium is associated with generalised slowing on electroencephalogram (EEG) that is consistent with widespread cortical dysfunction, which presumably accounts for the wide range of symptoms that delirious patients present with.

3. Risk factors for development of post-stroke delirium

Delirium is a common behavioural disorder in patients with acute stroke (AS). We prospectively analyzed 59 patients with acute stroke in a six-month period in order to determine risk factors for delirium in these patients (Dostović et al., 2009 a,b). For all patients stroke was confirmed by computed tomography within 24 hours after hospitalization. The presence of delirium was assessed according the Delirium Rating Scale R-98 (Trzepac, 1999) and the Diagnostic and Statistical Manual of Mental Disorders - Fourth Edition criteria for delirium (Anonymous, 1994). According to the type of stroke, patients were divided into two groups: with ischemic and hemorrhagic stroke. Laboratory tests were done within the first four days of the stroke onset.

Delirious patients were significantly older (Table 2).

	Delirium		Without delirium		Total		p-value
	n	%	n	%	n	%	
Age and sex							
Male	25	23.1	83	76.9	108	100.0	0.5
Female	34	27.2	91	72.8	125	100.0	
Average age in years	70.0	+11.3	64.7	+10.4	66.0	+10.9	0.001

Table 2. Delirium frequency according to the age and sex

Delirium was more frequent in patients with hemorrhagic stroke (Table 3).

Type of stroke	Delirium		Without delirium		Total		p-value
	n	%	n	%	n	%	
Ischemic	44	22.3	153	77.7	197	100.0	0.02
Hemorrhagic	15	41.6	21	58.4	36	100.0	
Total	59	25.3	174	74.7	233	100.0	

Table 3. Delirium frequency according to the type of stroke

In patients with hypertension, delirium was significantly less prevalent (19.3%: 38.3%, $p = 0.001$), and diabetes had no statistically significant effect on the occurrence of delirium. Patients with delirium had significantly more pronounced leukocytosis, neutrophils, elevated aspartataminotransferasis, sedimentation rate and high temperature (>37.5 C) compared to those without delirium (Table 4).

Biochemical parameters	Delirium n = 59	Without delirium n = 174	p-value
Leucocytes	8.2 (2.9 - 25.5)	6.6 (3.3 - 20)	0.01
Neutrophils	5.7 (1.7 - 13.1)	4.3 (0.5 - 18.9)	0.0001
Triglycerides	1.3 (0.5 - 4.4)	1.6 (0.5 - 7.4)	0.03
AST	28 (7.8 -1008)	24 (11 - 126)	0.002
Potassium	4.0 (2.9 -5.3)	4.1 (3.2 -6.0)	0.04
Increased sedimentation	56 (94.9 %)	146 (83.9%)	0.05
High temperature	34 (57.6 %)	47 (27.0 %)	0.0001

AST - aspartataminotransferaza

Table 4. Biochemical parameters in acute stroke patients

Although stroke is a known predisposing factor for delirium, there have only been a few prospective studies of delirium in the acute stroke setting and these have given conflicting results with prevalence estimates ranging from 13 to 48%. In addition, different independent risk factors for post-stroke delirium have been identified including left-sided strokes, intracerebral haemorrhages, cardioembolic stroke, total anterior circulation infarction, age, neglect, pre-existing cognitive impairment and metabolic disorders post-stroke (Henon, 1999; Sheng, 2006; Dostović, 2007; Dostović et al., 2009 a).

In the one recent study delirium was found in 28% of acute stroke patients. No significant difference was found in the prevalence of delirium between male and female stroke patients. Patients who developed delirium were older than patients who did not. Two models were developed which identified independent determinants of developing delirium including: dysphagia on admission, an Barthel score <10 , a raised C-reactive protein on admission and poor vision pre-stroke. Pre-stroke cognitive impairment approached statistical significance as an independent predictor of delirium (McManus et al., 2009). These studies used different screening tools and different methodologies. The results of our study are similar to the results of mentioned studies. Precipitating factors for delirium are numerous and generally well recognised (Anonymous, 2006).

There is a predictive model that can identify those patients who will develop delirium after stroke. Apart from the usual predisposing factors, the beginning of delirium after stroke probably depends on several factors unique to this clinical manifestation: the area of the brain affected by stroke, stroke size, type of stroke, the degree of cerebral hypoperfusion and cerebral edema, and medical complications after stroke.

Gustafson et al. (1991) found that a left-sided stroke is independent risk factors for delirium development. Caeiro et al. (2004) found that delirium was more frequent with hemispherical strokes and after intracerebral haemorrhages. Sheng et al. (2006) found that patients who had a cardioembolic stroke or total anterior circulation infarction (TACI) were more likely to develop delirium. In addition, case reports have suggested that delirium may be associated with specific lesions, for example, in the thalamus and caudate nucleus (Trzepacz, 2000).

Old age
Male gender
Dementia
Severe illness
Visual impairment
Psychiatric illness, in particular depression
Alcohol excess
Physical frailty
Polypharmacy
Malnutrition
Renal impairment
Dehydration

Table 5. Main predisposing factors for development of delirium, (McManus et al., 2007)

Certain types of stroke are more associated with the onset of delirium and complications after a stroke can accelerate the development of delirium. In essence, it is highly likely that the greater stroke cause delirium, but in such patients is increasing and likely to develop medical complications, which in itself can cause delirium. Primary trigger for the start of delirium may be different from case to case.

In patients with stroke, predisposing and precipitating factors for delirium, according to results of other studies are: 0 age, extensive motor impairment, paralysis of the left half of the body, pre-existing cognitive decline, metabolic and infectious complications, the right hemisphere cortical lesions, the low score of daily activities, sleep apnea, body mass index less than 27, impaired vision (Gustafson et al., 1991; Henon et al., 1999; Sandberg et al., 2001).

High body temperature, elevated sedimentation rate, hypokalemia, elevated aspartatamniotransferaza, lower triglycerides, neutrophilia, leukocytosis, severe mobility problems, existing chronic diseases, metabolic and infectious complications, older age, a right-hemispheric lesions are possible precipitating factors for the delirium in the acute phase of stroke (Dostović, 2007; Dostović et al., 2009 a,b).

4. Diagnosis, incidence, management and outcome of post-stroke delirium

Delirium is diagnosed and classified according to the cause into: delirium caused by psychoactive substances (during exposure to a substance or during withdrawal), delirium due to general medical condition and vague delirium. The main feature of delirium is a disturbance of consciousness and cognitive functions that occur within a few hours or days, showing a distinct tendency of fluctuation during the day.

At night, the awareness is distinctly worse. A patient with impaired consciousness responds slowly, and its concentration is very difficult. Disturbance of consciousness in terms of disorientation in time and space, and to your self is extremely rare. Memory impairment is usually only for newer content. Speech is often slow and ambiguous and incoherent form of thought.

Behavior may be violent, aggressive and irritable, or passive, slow, docile. Sleep is often disturbed with altered sleep-wake cycle. Delusions may be present, which manifests itself in the form of persecution which are usually transient and not systematized. Disorders of perceptionis most often manifested in the form of illusions, misinterpretations or visual

hallucinations. The patient is very terrified. After his recovery he did not remember most events during the episode of delirium.

Delirium is frequently divided into hyperactive, hypoactive, and mixed types. Hyperactive delirium is characterised by increased motor activity with agitated behaviour. Hypoactive delirium is characterised by reduced motor behaviour and lethargy. Although hyperactive delirium has the best prognosis, hypoactive delirium is the most common form of delirium in elderly patients (Anonymous, 2006).

Camus and colleagues (2000) suggested that there are six symptoms suggestive of hypoactive subtype of delirium: lack of facial expression, motor slowing, slowing of speech, and the decrease in reactivity, confusion and mental slowing. Logoreia, motor hyperactivity, aggressiveness, stereotype, hyper responsiveness and delusions are symptoms that indicate the hyperactive subtype of delirium.

As stroke is both a recognised predisposing and precipitating factor for delirium, all stroke patients should ideally be screened for delirium on admission and then at regular intervals. The ideal screening tool for the detection of delirium post-stroke would be quick, reliable, evidence-based, accurate, and easy to use by various health professionals, applicable to all stroke patients, able to distinguish between stroke patients with delirium and stroke patients with dementia, depression or psychosis and give an estimate of delirium severity. It should also rely less on level of consciousness, verbal ability and motor disturbance, since these may be independently affected by the cerebral damage secondary to the stroke. Unfortunately, no such tool exists.

Several screening tests for delirium have been developed for use in general hospital settings. No instrument has been specifically designed for the acute stroke setting and there is no consensus on which of the available measures is the best in the acute stroke setting.

The Mini Mental State Examination (MMSE) is a commonly used test to screen for cognitive impairment in routine clinical care. However, the MMSE was not designed to distinguish between delirium and dementia, and patients who were positive for cognitive impairment with the MMSE require further evaluation. The MMSE score is influenced by factors such as language, mood and sensory/motor function which render it unsuitable in the acute stroke setting.

The two most commonly used screening tools for delirium are the Confusion Assessment Method (CAM) (Inouye et al., 1990) and the Delirium Rating Scale (DRS) (Trzepacz, 1988). The CAM was developed in 1990, to be a simple test that general health professionals could use to identify delirium rapidly and accurately. The algorithm was devised from the DSM-III-R criteria for the diagnosis of delirium. Using this algorithm, the diagnosis of delirium is based on four features: acute onset and fluctuating course, and inattention with either disorganised thinking or altered level of consciousness. The CAM has high sensitivity and specificity (0.9) (Inouye et al., 1990). A recent study has highlighted, however, the need for appropriate training if the test is to be performed by nursing staff. The CAM has potential limitations in the acute stroke setting.

Stroke is accompanied with frequent changes in mental state as a result of acute brain lesions, which may contribute to erroneous assessment of the existence of delirium. Also, fluctuations in mental state after a stroke, for example, due to the brain edema can lead us into error in assessing the existence of delirium. Disruption of attention can be difficult to determine in patients with neglect or speech disorders, and assessment of memory disorder after stroke. Disturbance of consciousness is common after stroke and is a consequence of acute brain injury. Thus, while CAM is used frequently in general clinical practice, there is a need for its further validation for the assessment of delirium after acute stroke.

The DRS is a 10-item rating scale, intended for use by medical staff with specific training (Trzepacz et al. 1988). Individual item scores are totalled to generate a 32-point scale. A cut-off of 10 is usually used to diagnose delirium. The DRS allows for estimation of delirium severity. Among the five studies to date on delirium post-stroke, two have used the DRS. One used the DRS alone (Caeiro et al, 2004), the other used the DRS in addition to clinical (DSM-IV) criteria . The DRS and the CAM have been found to have good overall agreement in general medical in-patients (Adamis et al., 2005) but have never been compared in the acute stroke setting. Like the CAM, the DRS has limitations for assessing delirium post-stroke. Pre-stroke cognitive impairment is in itself a risk factor for the development of post-stroke delirium (Fong et al., 2006).

Delirium is a common behavioral disorder after acute stroke. Most studies of postoperative delirium was analyzed and mixed medical geriatric population, and few systematic studies of delirium is specific patients presented with stroke (Gustafson et al., 1991, Gustafson et al. 1993, Henon et al. 1991; Sandberg et al., 2001). Naughton et al. (1997) reported the results of 297 computerized tomographic scan findings in patients with acute delirium; 42 (15%) had one of the acute conditions (stroke, subdural hematoma, tumor). Of the patients with positive computerized tomography, all except two had a disorder of consciousness or new focal neurological deficit. Among the healthy elderly, infection and stroke are the most important etiological factors in delirium. Langhorne et al. (2000) found that the incidence of acute confused state among 311 patients with acute stroke is 36% with weekly prevalence of 24%.

For the purpose of this review, we used the search Pubmed to find all prospective studies of delirium in the acute stroke. The literature is limited; five studies have prospectively studied delirium post-stroke. The total number of patients evaluated in all the studies combined is 804 patients (Gustafson et al., 1991, 1992; Caeiro et al., 2004, Henon et al., 1999, Sheng et al., 2006). In these five studies, the incidence of delirium in the acute phase of stroke varied from 13% to 48% (Table 6).

Due to the specific problems and the complexity of diagnosis and therapy, there are specialized units for care of these patients (Wahlund, Gonzalez, 1999). Among patients with

Study	Gustafson <i>et al.</i>	Gustafson <i>et al.</i>	Henon <i>et al.</i>	Caeiro <i>et al.</i>	Sheng <i>et al.</i>
Year	1991	1993	1999	2004	2006
Country	Sweden	Sweden	France	Portugal	Australia
Population	Consecutive stroke patients	Consecutive ischaemic stroke patients	Consecutive stroke patients	Consecutive stroke patients	Consecutive stroke patients
Number of patients	145	83	202	218	156
Mean Age (range)	73 (40-101)	75 (44-89)	75 (42-101)	57.3 (24-86)	80 (65-95)
Diagnostic criteria	DSM-III-R	DSM-III-R	DSM-IV and DRS	DRS	DSM-IV
Frequency of assessments	Two assessments within first week	Before and after dexamethasone suppression test	Not specified	On admission	Within 3 days of admission
% Delirium	48	42	24	13	25

Table 6. Summary of prospective studies that have assessed post-stroke delirium, (McManus et al., 2007)

delirium in these classes about 40% had dementia, 30% mild cognitive deficit, and 14% depression. It should be kept in mind that the large number of cases of dementia and delirium requires etiological clarification.

Traditionally, delirium has been regarded as having a good prognosis with complete recovery if the underlying cause can be reversed. In addition, delirium was felt to be a short-lived syndrome. Both these assumptions are being increasingly challenged. In studies of patients following hip replacement surgery, delirium is independently associated with poor functional outcome, death and institutionalisation (Marcantonio et al., 2000).

In older patients, delirium is an independent risk factor of sustained poor cognitive and functional status during the year after a medical admission (McCusker et al., 2003). It is also an independent marker for increased mortality at discharge and at 12 months post-discharge, for increased length of stay and institutionalisation (Siddiqi et al., 2006).

There are few data on the outcome of delirium post-stroke, in particular the long-term sequelae. Only one report has 12 months follow-up data (Sheng et al., 2006). The data that are available are summarised in Table 7 and indicate similar prognostic associations to those found in other clinical trials.

Study	Year	Time period	Outcome
Gustafson <i>et al.</i>	1991	Up to discharge	Increased length of stay in patients with delirium (19 versus 13 days, $P < 0.001$)
			Increased institutionalisation in patients with delirium (52% of delirious patients institutionalised compared with 15% of non-delirious group)
			Increased need for rehabilitation for delirious patients ($P < 0.004$)
			Increased mortality in patients with delirium on admission (11 of 13 deaths occurred in delirium group)
Gustafson <i>et al.</i>	1993	Up to discharge	Increased mean length of stay in delirious patients (23.1 versus 15.6 days, $P < 0.005$)
			Delirious patients had higher post dexamethasone suppression test cortisol levels ($P < 0.001$)
Henon <i>et al.</i>	1998	Up to discharge, in addition 6 month mortality and functional status	Delirious patients had increased length of stay ($P < 0.05$), worse functional outcome at discharge ($P < 0.001$) and at 6 months ($P < 0.001$), lower MMSE score at 6 months ($P < 0.002$) but no increase in mortality on discharge ($P = 0.828$) or at 6 months ($P = 0.38$)
Caeiro <i>et al.</i>	2004	Up to discharge	Delirious patients more likely to be dead or dependent ($P = 0.0001$)
Sheng <i>et al.</i>	2006	Up to discharge, 6 and 12 month data on mortality, MMSE, Functional Independence Measure (FIM)	Delirious patients had increased 6 month mortality ($P = 0.02$), increased 12 month mortality ($P = 0.002$) lower MMSEs at 1 month ($P < 0.01$) and 12 months ($P < 0.01$), lower FIMs at 1, 6 and 12 months ($P < 0.01$, $P = 0.003$ and $P = 0.003$ respectively) and increased institutionalisation ($P = 0.002$)

Table 7. Outcome of patients with delirium, (McManus et al., 2007)

Delirium post-stroke is associated with increased length of stay, increased in-patient mortality, increased risk of institutionalisation, increased need for geriatric rehabilitation, increased dependence on discharge and at 6 months, lower MMSE at 6 months and at 12 months, and higher 6 and 12 months mortality rate (Gustafson et al., 1993; Sheng et al., 2006; Henon et al. 1998; Caeiro et al., 2004).

One of the features of delirium is that it is a reversible disorder. In small number of cases is worsening with the development of coma, convulsions and potentially death. Patients may recover completely, to stay with certain consequences, or the recovery of dementia observed that previously existed. In case of patients with various somatic disorders, delirium forecast is largely conditioned by the underlying disease. Elderly patients who develop delirium during hospitalization have a mortality rate of 22% to 76% (Cameron et al., 1987). Increased mortality was documented after discharge from hospital and it was about 25% during the first six months (Trzepacz et al., 1985).

Delirium in patients with stroke is associated with poorer functional but not vital prognosis at discharge and after six months. Patients with stroke and symptoms of delirium have a longer duration of hospital stay and increased incidence of vascular dementia (Gustafson et al., 1991; Henon et al., 1999). Association of delirium with dementia was seen in 8% to 43% depending on the test population (Bucht et al., 1999). In the elderly, mortality due to delirium range from 10% to 75%. In about 20% of patients after cessation of acute confused state, the residues can be identifying up to 6 months later (Hill et al., 1992). These are the most common variety of cognitive deficits. These disorders may be a prelude to the forthcoming dementia. Perhaps that is a critical factor in remaining cognitive reserve. The risk of dementia after delirium in the elderly over 65 years is about 60%, with an annual incidence of 18.1% (Rockvod et al., 1999).

To date, there have been no studies that have evaluated either the prevention or the management of post-stroke delirium. Up to one-third of delirium cases are preventable in medical wards. Inouye et al. (1999) found that a multi-component intervention targeting cognitive impairment, sleep deprivation, immobility, visual and hearing impairment and dehydration reduced the incidence of delirium from 15% in the control group to 9.9% in the intervention group.

With regard to established delirium, the recent guidelines from the Royal College of Physicians give a useful overview of the important aspects of delirium management (Anonymous, 2006). The most important action is the treatment of the underlying cause—this may be the stroke or it may be a complication post-stroke, for example, infection. The patient should be nursed in a good sensory environment and sedation should be used sparingly. Haloperidol is the drug of choice if sedation is needed although the evidence-base for this is weak (Lonergan et al., 2007). Prevention of complications resulting from the onset of delirium—for example, pressure sores and malnutrition—is extremely important. It is entirely conceivable that a multi-component intervention programme that involves training of the stroke unit staff could reduce the incidence of delirium post-stroke and improve the management of established delirium.

5. Conclusion

The main contribution of our research is that we confirm the significance of individual risk factors for delirium after stroke, and previous studies that have been identified and that we have found and new factors not previously been identified. We came to the conclusion that

the high body temperature, neutrophilia, leukocytosis, increased sedimentation and aspartatamniotransferasis, previous chronic diseases and older age were possible precipitating factors for delirium in the acute phase of stroke.

Delirium is a common complication after stroke and is independently associated with increased mortality and morbidity. There is a need for more research to clarify the incidence, the predisposing and precipitating factors, and the prognosis in the stroke setting. It seems clear that delirium is a poor prognostic indicator in patients with acute stroke. What is less clear is whether this is because of the underlying stroke type or whether it is by itself an independent marker of poor outcome after stroke. More research is also needed to evaluate preventative and therapeutic strategies in the stroke setting.

It is unclear what the best screening tool is for delirium in the acute stroke setting or how often patients should be screened for delirium. Most screening tools for delirium require a patient who is able to speak. All stroke units should have protocols for screening for delirium, managing patients with established delirium and for preventing delirium in high-risk patients.

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Employment and Mental Illness

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1. Introduction

It is a surprising in some ways that the interaction between employment and mental health or illness has not been subject to greater scrutiny, considering the amount of time the average person spends at work in his lifetime and the risks to mental health that the working environment provides. Probably the stigma of mental illness from the point of view of the employee, and the financial concerns about liability from the point of view of the employer, link together to hinder the exploration of the topic. Nevertheless, contemporary views of health promotion (WHO, 1986) and the Social Determinants of Health (CSDH, 2011)) recognise the impact of employment on health and mental health and various strategies like Health Promoting Workplaces suggest ways of ameliorating the risks and improving employee health overall. It is however necessary to consider a wide definition of employee health to encompass (a) the health of individuals who perform work for a living, (b) the average forty year period of the life span in which employees are in the work environment, (c) the traditional concerns of work related injury but is not restricted to this, and (d) the health promotion aims of quality of life or state of optimum health and striving to reach one's potential. This chapter explores employment and mental illness with this definition of employee health in mind. The main discussion areas are: employment and its link to the burden of mental illness, risks within contemporary employment, and social relationships in the workplace. The key points that will be made are that employment must be considered in the genesis and treatment strategies of mental illness, and that dialogue about mental illness will need to play a greater part in the employer-employee master narrative.

2. Employee health

Employee health is important for the social and economic benefits that add materially to individual and national well being. Health is bound closely, but in a complex way, to work because there is a clear relationship between income derived from work and incidence and prevalence of specific diseases and injuries (Ziglio 2000:34).

The public health policies concerning employee health are developed from collaboration between governments and business and many disciplines are involved in investigating employee health. From the *Research Fields, Courses, and Disciplines Classifications Codes* of the Australian Research Council (2004), some of the disciplines involved researching employee health and the subjects that flow from them include:

- Public health and health services
 - Health Promotion
 - Environmental and Occupational Health and Safety
- Business and Management
 - Organisational Planning and Management
- Psychology
 - Industrial and Organisational Psychology
- Engineering and Technology
 - Safety and Quality

These disciplines have different but legitimate, perspectives on employee health which influence public health policies concerning employee health and also influence the theories about occupational illness (Bohle & Quinlan 2000:66). Nevertheless, none of these individual disciplines has solved the difficulties that give rise to these policies (Quinlan 1993b:18). Taking a new approach, therefore, this research is interdisciplinary. The *immediate discipline* of this research is Health Promotion in the Workplace. Work and health, according to Schabracq, Winnubst and Cooper (1996:xiv) exist in an interdisciplinary arena, therefore the research problem is related to the parent disciplines of Public Health and Health Services, Business and Management, Psychology and Engineering and Technology. Although interdisciplinary work usually involves argument with established disciplines, this work provides productive tension to supplement and complement existing knowledge.

Over the last hundred years, theories of the causes of occupational illness have relied heavily on the evolving viewpoints of particular disciplines, for example engineering, psychology and sociology (Bohle & Quinlan 2000:66). Hale and Hovden (1998:129-131) describe a progression in the theories of occupational illness causation, extending from the early industrial period before World War I with its engineering and technical focus, through a human factors approach, to the current preoccupation with management systems. Although a comprehensive approach to employee health has developed, the complex system dynamics existing in the real workplace often mean that implementation of that approach is less than ideal (Bohle & Quinlan 2000:115-119). Hopkins (2000), in his book, *Lessons from Longford – The Esso Gas Plant Explosion* illustrates this point well. Hopkins investigates the 1999 disaster which killed two workers and cut the gas supply of the state of Victoria for two weeks. Hopkins (2000:120-124) locates the network of causes of the disaster in five levels: physical; organisational; company; government/regulation; and social, in decreasing order of proximity from the accident. In this chain of causation there was an 'absence of mindfulness' (2000:139-151) about interpreting weak signals of malfunction that existed in each of these levels. The implementation of a comprehensive approach to safety and therefore employee health is shown to be ineffective.

The two major workplace health policy responses in Australia are the Workers' Compensation system and the Occupational Health and Safety system. The Australian compensation model is workplace based and provides part of the 'the wage earner's welfare state' (Castles 1989:21). Other public and organisational policies in Australia also influence employee health, for example, Anti-discrimination and Equity legislation, Enterprise Bargaining Agreements, and Wellness programs.

Some countries have a national scheme that covers all accidents and is integrated into the social security system (Aarts & De Jong 1992; Industry Commission 1994). The performance of these approaches, whether workplace-based or integrated, is influenced more by the

social control operating in institutions, organisations and groups, rather than simply in the structure of these systems (Industry Commission 1994, 1995).

The complexities and conflict that arise between multiple stakeholders with their divergent needs of workplace health policies are succinctly summarised by Johnstone (1997:544) when he wrote about Workers' Compensation policy:

Compensation policy assumes the characteristics of a kind of morality play in a capitalist industrial society such as Australia. Interest lies not simply in the financial costs and benefits of the compensation scheme, but also in the impact of the scheme on a variety of fragile and subtle concerns such as the maintenance of work incentives, the authority of employment relations, the allocation of blame for disablement, the promotion of accident deterrence, the preservation of professional autonomy, and the acknowledgment of worker rights.

Many authors report that these workplace health policy structures fail because the benefits are too few and the costs are too high. Foley, Gale and Gavenlock (1995:171), in reviewing the costs of work-related injury and disease, found that 'there was ample scope for improvement'. Until the Kerr Report in 1996, occupationally-related mortality was seriously underreported because occupational exposures to hazardous substances and subsequent deaths were not previously regarded as work-related (Kerr et al. 1996). Pearce and Refshauge (1987:635) refer to the 'unacceptably high levels of fatalities, occupational injuries and ill health'. Mayhew and Peterson (1999b:1) support their opinion that 'prevention efforts of recent years have failed' by referring to the 2900 work-related deaths each year and the costs to Australia of work-related injury of around 5% of the Gross Domestic Product (GDP) or at least twenty billion dollars. By comparison, in 1998 there were 2030 road fatalities in Australia (WorkCover 2002a). The schemes must meet their financial obligations to supply medical treatment and lost wages to employees and are constantly under review in an attempt to fulfill these requirements. The sheer size of the financial costs involved in managing work-related injury and illness means that Workers' Compensation insurance is the second largest area of private insurance after motor vehicle insurance (Bohle & Quinlan 2000:342).

The Australian workplace has undergone changes in the last twenty years. There are increased demands from globalisation of the economy and the rapid development of communication technology. Under the pressures of economic rationalism, the workforce has been and is affected by the decentralisation of industrial relations and an almost complete reliance on enterprise bargaining for wage increases (Crittall 1995:587-593; Horstman 1999:325-341). Economic rationalism allows the free market and its competitive forces to decide economic and social priorities. Although enterprise bargaining affects critical issues like hours of work, patterns of labour, new technology, multi-skilling and piece-rate payment, Crittall's (1995:587) research found that occupational health and safety issues are largely ignored in the enterprise bargaining process. These changes have moved employee health even further from industrial negotiations (Creighton & Gunningham 1985; Quinlan 1993a:140-169).

These workplace changes have meant the decline in full-time employment and a corresponding expansion of 'precarious' employment (Quinlan & Mayhew 1999:491), that is, an increase in the use of shiftwork/nightwork, telecommuting, home-based work, part-time, multiple job holding, temporary employment and contract employment. Fragmentation of internal labour markets is an international trend according to Rubery (1999:116-137). Quinlan and Mayhew (1999:491-493) state the expansion of 'precarious' employment and

the changing nature of work affect the patterns of workplace injury and disease and threaten to undermine existing regulatory regimes. As a result, workers' inputs into workplace health policy have been further reduced. Workers and their unions do not participate in the numerous inquiries into these schemes to the same degree that government officials, technical experts, lawyers and medical practitioners do (Industry Commission 1994, 1995) and at the workplace the formal requirements for employee participation through risk management 'overstate worker influence' (Per Oystein Saksvik & Quinlan 2003:37).

Although the concept of work environment was previously well-defined by its physicality (Allvin & Aronsson 2003:109), changes in work practices have expanded the concept to take account of the psychosocial environment. Problems in the psychosocial environment, for example, personnel problems, *stress*, *burnout*, difficulties in co-operating and harassment, involve the individual worker's ability to cope with work and his/her fellow workers. The expansion of the concept is associated increased recognition that the workplaces are politicised and there is increased complexity regarding employers' responsibilities (Allvin & Aronsson 2003:99-111).

There are changing views about health in contemporary society (Grbich 1996, George & Davis 1998) and these views do not rely only on the biomedical model of orthodox Western medicine in which health is viewed as the individual's responsibility; is defined as the absence of illness (Holmes, Hughes & Julian 2003:250); and is driven by the interests of corporations (Lax 2002:519). The main challenge to the biomedical view of health is its ineffectiveness in the context of escalating costs of health care (Nettleton 1995:5-8). Changing views of health incorporate the following: the consumers' perspective of health; epidemiological studies of health inequalities that show the rich enjoy better health than the poor (Holmes, Hughes & Julian 2003:278); and sociological studies about health and illness as socially constructed phenomena (Dembe 1996, 1999; Illich 1977; Marmot 1996; Navarro 1978). This has contributed to a broader and more ecological view of health than the biomedical model alone envisions (Murray 2001:220).

A multi-dimensional view of health is now considered to have social, mental, spiritual, emotional and physical elements (Cribbs & Dines 1993). This view of health is reflected in documents like the Ottawa Charter for Health Promotion (WHO 1986). Health promotion according to the Charter is:

the process of enabling people to increase control over, and improve their health. To reach a state of complete physical, mental and social well being, an individual or group must be able to identify and realise aspirations, to satisfy needs and to change or cope with the environment. Health is, therefore, seen as a resource for everyday life, not the objective of living. Health is a positive concept emphasising social and personal resources, as well as physical capacities.

The Charter also recognises that the organisation of work should help create a healthy society. In creating supportive environments at work, workplace health promotion changes from a singular focus on individual behaviour to 'recognition of the broader social, environmental and economic determinants of health' (O'Connor-Fleming & Parker 2001:231).

The multi-dimensional view of health has not yet penetrated far into the regulatory regimes that influence employee health. In Australia, as in the United Kingdom, there is an historical and legislative separation of health services and prevention strategies in the general

community as well as for employees. Wilkinson (2001:152) describes this process in the workplace with health promotion and occupational health and safety operating in isolation from each other and having different intervention targets, personnel and methods.

There has been a clear line of development with the notion of workplace impacting on health since the WHO strategy of *Health for All* in 1980 and the 1986 Ottawa Charter for Health Promotion. Subsequent milestone health promotion documents, for example, Sundsvall Statement 1992, Jakarta Declaration 1997 ratified and refined the idea of 'settings' for health. A setting is a 'place or social context in which people engage in daily activities in which environmental, organizational, and personal factors interact to affect health and wellbeing' (Health Promotion Glossary, 1988). However, the workplace as a setting for health campaigns infringes on the free enterprise philosophy of neoliberalism, marketplace practices, and the business owners' prerogatives. Business and governments control workplace policy with employees being subordinate to other stakeholders. This is a problem and I will discuss why it is a problem now. The 'settings' approach in the Ottawa Charter recognises that the social, psychological and physical contexts in which people live and work shape their opportunities and choices in relation to health. This approach has been applied to employee health in a variety of workplaces settings including universities (Dooris 2001:58).

Current workplace health policies develop out of a certain political economy. Considine (1991:7) defines this political economy as the landscape in which the principal actors move. This landscape is made up of policy environment that deals with economic and organisational relationships and government authority. Throughout the history of Workers Compensation and Occupational Health and Safety legislation there has been resistance to workers' claims and opinions. This echoes the adversarial approach to all other employer/employees affairs. This present research addresses an imbalance that has existed in who determines the shape of those policies. Giddens (1979:5) makes the point that people can influence the social structures in which they live.

3. Employment and ill health is a neglected reality

3.1 Legislation is not entirely adequate

Much of the more recent health promotion literature and public health literature has an awareness of collective rather than just individual responsibility for health, hence the notion in the Ottawa Charter of 'strengthening supportive environments'. Although it can be argued that there is legislation to protect employees, its collective contribution to individual health is not entirely adequate. For example, the pragmatic political process involving governments, business and professions ensures that workplace health policy is subjected to myths of crisis over compensation funding obligations, but in essence, harm to workers may not be reduced (Mayhew & Peterson, 1999a:2). The ability of individual workers to look after their health is compromised by their lack of power in a system that does not optimise the potential synergies between individual and collective action. Workplace governance prioritises organisational production over employee welfare and the workers do not have power and/or knowledge to control risks in the work environment (Ziglio, 1991:69).

3.2 Complex organisational experiences and dimensions of health and ill health

When taking a limited individualist's approach to health it follows that if the workplace is unsatisfactory then the employee should leave. In reality work is not that simple. Some

workers respond to negative organisational experiences by leaving, but according to Australian workforce statistics (ABS, 2000:1) about stability of workers, they are more likely to stay at work and respond with poor service, difficult working relationships, poor quality work, lack of innovation, poor decision making, and low productivity. Williams and Cooper (1999:9) refer to this sub optimal performance as the 'hidden health issue' for organisations, whereas, sickness absence and staff turnover are the 'visible' and more obvious signs of poor health and well being. These two factors, that is, the performance of workers, and the stability of the workforce, mean that the workers' responses to organisational experiences may be complex and attenuated, and impact on the organisation's functioning in diverse ways.

Terkel's view of work (1972:xi) captures the chronic nature of the work situation that is in stark contrast to the simplistic assumptions that suggest that a worker can move to another job if s/he is not happy at work:

Work by its very nature is about violence to the spirit as well as the body. It is about ulcers as well as accidents, about shouting matches as well as fist fights, about nervous breakdowns as well as kicking the dog around. It is above all (or beneath all), about daily humiliations. To survive the day is triumph for the walking wounded among the great many of us.

Terkel's words bring home the chronicity of workplace stress, rather than the novelty and intensity of acute stress that disrupts goal directed behaviour and is of relatively short duration. Sometimes, no single source of chronic stress may seem to be of consequence but the combined or cumulative effects of these stressors can lead to poor performance over time, reduced well being, health problems and decreased ability to respond effectively to acute stress demands (Driskell & Salas, 1996:7).

The complex nature of workers' responses to organisational experiences and the dimensions of health and ill health over the usual forty-year period of the lifespan in employment are very important to employees and employers. The health effects and the productivity effects involved provide strong justification for researching this area.

3.3 The health of workers is a measure of how the benefits of society are shared

The consequences of workplace health policies challenge the moral stance in the market justice/social justice divide. It argues for the utilitarian view, as opposed to the Rawlsian view (Rawls 1978; Weimer & Vining, 1999:135-137). The utilitarian view is one approach to public policy in which the expected outcomes are distributed in democratic and egalitarian ways to all participants. The Rawlsian view on the other hand would distribute the greatest benefits to the least advantaged in the community. The utilitarian view of public policy does not guarantee minimal allocation to individuals and the Rawlsian view does not provide incentives for those who create wealth.

Governments must walk the line between developing and implementing policies that provide incentives to business yet at the same time meet the needs of their least advantaged and least powerful constituents, the workers. This work will document the opinions of workers and therefore assist governments in their decision making about the distributional rationale.

3.4 Sometimes experts' opinions do not acknowledge social reality

Although the state, employers, unions the professions and experts design and implement policy and structures for employees' wellbeing workplace health policies are not a contained

and successful program. Unfortunately, the numbers of deaths that occur in Australian workplaces indicate a different reality (Mayhew & Peterson, 1999:6). In the manner of Wildavsky (1979:3), who suggests speaking out clearly about social problems, this work aims to seek workers' 'truths' and to deliver the findings about those truths in a way that will influence the political economy of policies that bear on employee health.

It is the nature of truth, according to Lupton (1995:160–161), to be 'transitory and political, and the position of subjects to be inevitably fragmentary and contradictory' however, workers' truth is 'one of the varieties of truth' enmeshed in discursive practices of the workplace. Therefore, when this truth is presented it may redress the imbalance that currently exists in the conventional perspectives of employee health.

4. Employment and the burden of illness

Much of the literature on occupational health and safety has a technical edge that addresses the physical aspects of risks and the physical aspects of injury. Nevertheless, the rate of injury is impressive. Statistical data is used extensively by government authorities, like WorkCover (1997–1998), to provide a basis for the 'national scorecard' in managing employee health. Aggregate data do not give an adequate portrayal of any social problem when considered by themselves, because the reader is not drawn into the human story embedded within the quantitative data. Not only is the personal side of the scorecard lost, there are shortcomings in statistic data itself. Mandryk et al. (2001:359) point out that the data often underestimates the problem, and there is a lack of information on causes of injuries and a lack of information on the relationship between injuries and outcomes for the injured worker.

Nevertheless, the following statistics that deal with injuries and illnesses in the Australian workforce have been compiled from a number of authors who comment on the extent of workplace injury and disease. The sources for this data are: Industry Commission 1995:Vol 1, Pxix, Vol 11, P19–33; Driscoll & Mayhew 1999:28–51; Driscoll et al. 2001:45–66; Ellis 2001:xxiv–xxv; Emmett 1999; Foley, Gale & Gavenlock 1995; Foley 1997; Johnstone 1997:13–14; Kerr et al. 1996; Mandryk et al. 2001: 349–361; Mayhew & Peterson 1999b:1–13; Stiller, Sargaison & Mitchell 1998:25.

Mortality:

- there are 2900 deaths each year as a result of work-related injury and illness – a significant number of these deaths are due to occupational cancers from exposure to hazardous material (Mayhew & Peterson 1999:6)
- there are 603 work-related traumatic deaths per year (Driscoll et al. 2001:45).

Injury:

- up to 650,000 workers, that is, one in twelve workers, suffer injury or illness from work
- there is a trend towards an increase of serious injuries causing permanent disability (Stiller, Sargaison & Mitchell 1998:25)

Occupational disease:

- the incidence of occupational disease is likely to rise related to the recognition of several factors:
 - chronicity (which refers to the long length of exposure, e.g. noise-induced hearing loss and musculo-skeletal disorders)
 - latency (which refers to the length of time from exposure to appearance of the disease e.g. asbestosis occurs about twenty years after exposure)
 - the multifactorial nature of illness (Ellis 2001:xxiv–xxv)

- the significant underestimation of the level of occupational injury and disease is addressed (Bohle & Quinlan 2000:35–40)
- work-related health problems affect people after retirement
 - up to 300,000 persons over the age of sixty-five are estimated to be suffering from work-related health problems

Costs:

- direct Workers' Compensation costs constitute 1.5% of GNP or 5% of GDP, at least twenty billion dollars (Industry Commission 1995:99)
- workers compensation costs are 20% of total health care costs
- of the total costs of workplace injury and disease:
 - 30% are borne by the injured worker and their families
 - 40% are borne by the employers in lost productivity
 - 30% are borne by the community in social security payments and health subsidies (Industry Commission 1995:102)

Equity:

- Workers' Compensation figures seriously understate the extent of occupational disease (Foley, Gale & Gavenlock 1995:171)
- some groups, (for example, the self-employed), are not entitled to make Workers' Compensation claims for work-related injury and disease
- some groups are reluctant to make claims, particularly workers from non-English speaking backgrounds, and those in precarious employment (Bohle & Quinlan 2000:35–46).

Dr. Yossi Berger (1999:52), Head of the Occupational Health and Safety unit of the Australian Workers Union, states that what matters at work is the workers 'expressed views about occupational reality'. He describes these expressed views as the 'mumbling environment' to emphasise that workers are living and experiencing this harm at work but no one is listening to them.

In the same vein, Wilkinson expands this view of the social reality of employee health when she speaks about employee sickness not being related just to technical exposures of harmful agents, but more related to how people treat each other in the work environment. She states that: '[Employee injury or ill health] is not simply a biological process triggered by chemicals, or the fabric of the organisation. It is stimulated and perpetuated by its people through group processes, action and behaviour at every level of the organisation' (Wilkinson 2001:24).

Bohle and Quinlan (1991:92) emphasise that harm to employees is usually not sudden and unexpected. On the contrary, there is a definite probability of harm. The reality for workers is that there is a probability of work-related injury and illness because the patterns of injuries between occupational and industry groups are consistent over time. In 2000, Bohle and Quinlan (2000:46) said that 'work-related injuries and illnesses constitute statistical probabilities' and this undermines any attempt to portray them and illnesses as 'unexpected or aberrant events'. The familiarity of workers with injury and work-related disease has contributed to their 'deep-seated cynicism and skepticism' at work about the workplace being safe for them (Berger 1999:58).

4.1 Employment and the burden of mental illness

The Employment Conditions Knowledge Network (EMCONET) delivered its final report to the Commission of Social Determinants of Health in 2007 on the neglected global reality of

employment conditions and health inequalities. The Report takes the view that health inequalities derive from social injustice that has its origins in the distribution of resources in society that, in turn is determined by political decisions. From an historical point of view the Medical professions link to business and free enterprise has been slow to relate specific work conditions to occupational illness and generally policy development is dominated by the interests of business and governments with the contribution of employees being subordinate to these other stakeholders (Per Oystein Saksvik & Quinlan 2003:37).

Employment relations refer to the relationship between the employer and the worker who is hired to sell or produce goods through his labour and he is paid wages. Employment relations in the formal economy of developed nations may be contractual, but in the informal economy of many developing countries employment relations are personal agreements in which the power differential between employer and employee has not protection under law or by employee unionisation.

Employment conditions refer to the types of employment arrangements that exist between employer and employee. Some are, unemployment, precarious employment, informal employment and informal jobs, child labour, and slavery/bonded labour.

Working conditions deal with the tasks performed by workers, the way work is organised, the physical and chemical work environment, ergonomics, the psychosocial work environment, and the technology used.

Table 1. Definitions of three interrelated concepts

This Report takes a broader view beyond individual hazards involved in working conditions to consider the 'political, cultural and economic context to provide a comprehensive account of the current international situation of labour markets and types of employment conditions' (EMCONET, 2007 p. 14).

The three interconnected concepts of employment relations, employment conditions and work conditions are taken together in this report because the first two concepts are key social determinants in shaping health inequalities. The three provide a much better understanding of burden of illness that employment causes due to inequalities.

Fair employment is a concept that incorporates factors of employment relations, employment conditions and working conditions that promote workers' good health and well being. These factors would be:

- Freedom from coercion
- Job security
- Fair income
- Job protection that includes social security
- Respect and dignity at work
- Workplace participation
- Enrichment and lack of alienation

The Report's macro-theoretical framework of employment relations and health inequalities relies heavily on the framework for explaining social and economic disease patterns developed by Dahlgren and Whitehead in 1991 and reproduced by Marmot (1996:66). This framework emphasises the primacy of age, sex and hereditary factors. The clinical approach

to disease focuses on these factors and individual behaviour. Research into prevention has generally been concerned with individual risk factors for disease, for example smoking and drinking. Living and working, social and community influences, and general socio-economic, cultural and environmental conditions have attracted less research. Figure 1 shows the relationships that exist through power differentials in employment relations, through labour market and social welfare policies that are played out in employment conditions and work conditions causing health inequalities.

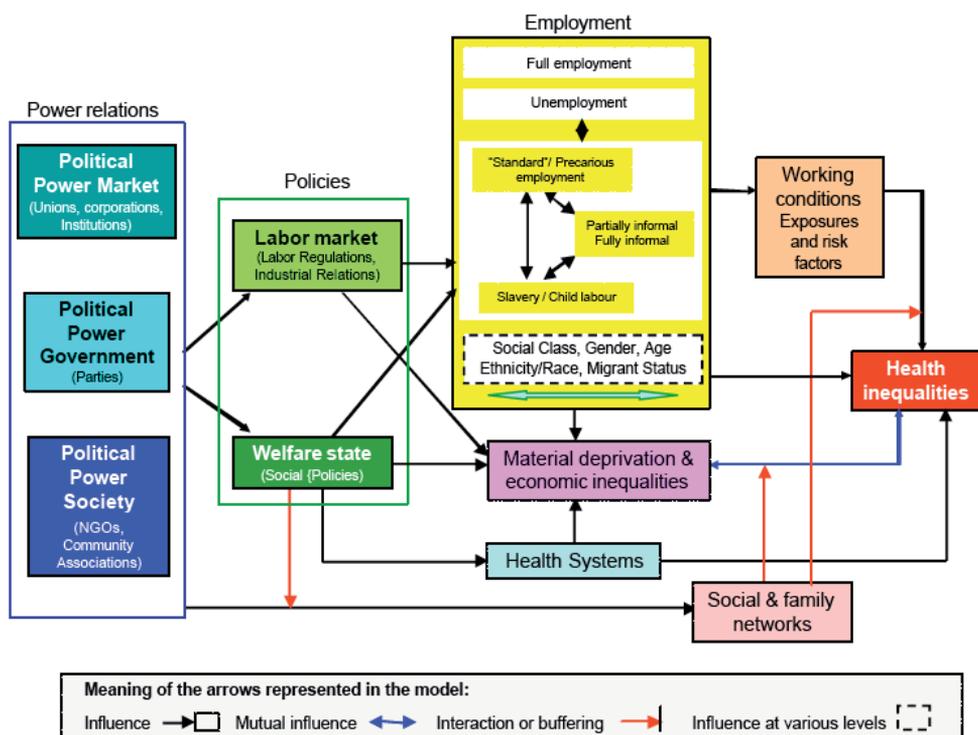


Fig. 1. Macro-theoretical framework of employment relations and health inequalities
Source: EMCONET (2007, p. 31).

This macro-theoretical framework shows the interconnected nature of the political processes that influence employee health.

At the micro-theoretical level the Report provides a framework of employment conditions and health inequalities. At this micro level the resulting working conditions shape health behaviours, provoke physio-pathological changes and determine psychosocial factors that influence mental wellbeing.

The effects of many of these factors in Figure 1 and 2 and compounded in real world situation. For example material deprivation and economic inequalities is characterised by poor nutrition, poverty, poor housing and low income, and they develop from lack of welfare policies in many developing countries and employment conditions where there is little social justice, for example those in the informal economy. Material deprivation and economic inequalities have an 'effect on chronic diseases and mental health via severe psychological factors life-style behaviours ad physio-pathological changes' EMCONET 2007, p. 33).

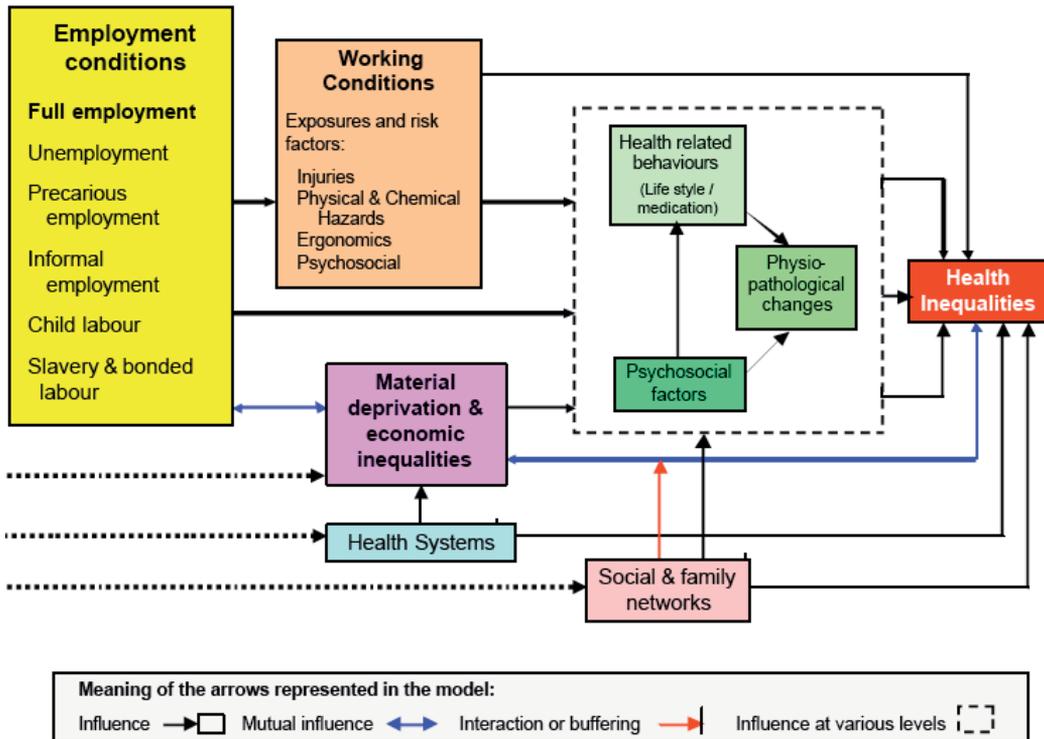


Fig. 2. Micro-theoretical framework of employment conditions and health inequalities
 Source: EMCONET (2007, p. 32).

There is much in the literature on psychosocial theories about the importance of social stratification or where one stands in relation to others, and its effect on health and mental wellbeing. Marmot (1996:63) uses Dahlgren and Whitehead’s framework to describe his significant findings about the social patterns of disease. Marmot and a group of researchers known as the Whitehall team have advanced understanding in this area, particularly in relation to the patterning of disease in the social hierarchy at work. The Whitehall research involves a longitudinal study of 10,308 male and female British civil servants and was started in 1985. Marmot and Theorell (1988:659-673) report there is a steep inverse association between grade of employment and mortality from coronary heart disease and a range of other causes. In Whitehall II, Stansfield, Head and Marmot (2000) use the General Health Questionnaire and the SF-36, as well as other measures, and sickness absence of both short spells (1-7 days) and long spells (8 days or more). Stansfield, Head and Marmot’s findings show that low decision latitude, high job demands, low social support, and the combination of high effort and low rewards are associated with poor mental health and poor health functioning. Their results suggest that intervention at the level of work design, organisation and management might reduce morbidity in working populations.

Marmot’s work in the Whitehall I and Whitehall II studies show a social gradient in mortality and morbidity. Morbidity and mortality rates are higher for those at the bottom of the social hierarchy than at the top. Van Rossum et al. (2000:178) also report from the Whitehall II study to show that the mortality differentials persist at older ages for almost all causes of death in this ‘white collar’ cohort. The mortality rates are higher in the lowest

grades of employment. More specifically, the workers at each point in the hierarchy have worse health than those above them and better health than those of lower rank. In effect, this indicates that social, cultural, working and economic factors, have a strong influence on biology. This work emphasises the social and biological pathways that underlie the social patterning of disease (Marmot 1996, 1998:403; Marmot Shipley & Rose 1984).

In the United Kingdom, the Acheson Report (1998:33) into Inequalities in Health is adamant that policy emphasis should be made 'upstream' from the individual (i.e. targeting the factors in the outer boxes of the Dahlgren and Whitehead framework) to the social and economic structures if any worthwhile changes in health inequalities are to be made, because comparatively little is accomplished by addressing 'downstream' influences of individual lifestyle, age, sex, and hereditary factors (i.e. the inner boxes of the framework).

Results from the Australian Health Promotion Survey of 1994 reported by Harris Sainsbury and Nutbeam (1999) support the differentials in health status and exposure to risk that are found in the Whitehall studies. Lower education levels, unemployment rather than employment status, areas of residence of socio-economic disadvantage, living alone, and rural compared to urban residence are associated with poorer health status. On the other hand belonging to a particular immigrant group was not associated with a difference of health status (Harris Sainsbury & Nutbeam 1999:19-31). These researchers find that structural factors, that is, poor quality of social and economic environments account for most of the health status differentials observed. In Australia it is a problem of relative disadvantage rather than absolute lack of resources for these groups that experience health inequities. This type of research is the background for Petersen and Lupton's (1996) opinions about the diverse causal pathways that influence disease patterns in society rather than the simplistic interpretation of Dahlgren and Whitehead's framework that implies genetics, age and sex are the sole or primary determinants of health status.

In the literature on work and health three theories are so frequently mentioned that they are referred to here:

- Demand-Control-Support (Karasek 1979)
- Person-Environment Fit (Caplan 1983)
- Effort-Reward (Siegrist 1998:190-204, Siegrist & Theorell 2006).

Wilkinson's list of social determinants of health in the workplace include:

- Demand-control (Karasek 1979)¹
- Support with work processes (Cohen & Syme 1985; Winnubst & Schabracq 1996:87-104)
- Stimulation (Edwards, Caplan & Van Harrison 1998:28-67)
- Effort -reward (Siegrist's 1998:190-204)
- Ability to unwind (Gutek, Repetti & Silver 1988:141-174).
- Participation (Holbeche 1998:30-35)

Table 2. Psychosocial theories of work and health

These three theories help to explain the action of the psychosocial factors that affect the individual worker's health in the work environment. Briefly, the Demand-Control-Support theory relates the demands placed on workers with the degree of control that they have over those demands and the support that they perceive is offered to them in doing the work. The Person-Environment Fit describes the satisfaction that is derived from the worker being

appropriately skilled and adjusted to the work situation. The Effort-Reward theory links the inducements or rewards that the organisation offers to the effort that the worker has to put into work.

Wilkinson (2001) in the preface to her book, *Fundamentals of Health at Work* refers to the 'neglected social context of workplaces', and within the text provides a list of the social determinants of health in the workplace and the theories behind some of those concepts (2001:9-10). The sources of these social determinants vary in the work environment. Some relate to the job itself, to the worker's role in the organisation, to the worker's aspirations and career development, to relationships at work, and/or to the organisational structure or culture of the workplace (Sutherland & Cooper 1988:3-31). A modified form of Wilkinson's list includes the following concepts:

- **Demand-Control:** The Demand-Control-Support model was first developed by Karasek (Karasek 1979; Karasek & Theorell 1990; Theorell 1998). Demand incorporates the concept of quantitative work overload or underload, that is, too many or too few tasks, whereas qualitative work overload or underload refers to tasks that the worker does not feel capable of doing. In essence, constraints on decision making or decision latitude, rather than decision making itself are a major problem. Decision latitude or control, or the degree of autonomy that a worker has in performing work tasks, is a central component of this model and has been found to be closely related to job satisfaction. This affects not only executives but also workers in lower status jobs with little freedom to make decisions. The most adverse reactions of physical strain, anxiety and depression can occur when the psychological demands of the job are high and the workers decisions latitude in the task is low (Karasek 1989; Karasek & Theorell 1990). Lack of control over working systems has been found to lead to stress and predisposes to cardio-vascular disease (Marmot et al. 1998). The ability to plan work tasks involves several aspects of control in the work environment. Role conflict, ambiguity, overplanning and work methods, all of which mean that the employee has a lack of control, predispose the individual to stress (Sutherland & Cooper 1988:3-31). Role conflict occurs when compliance with one set of role pressures makes compliance with another set of role pressures impossible. Role ambiguity refers to inadequate or misleading information about how a person is supposed to do the job (Ross & Altmanier 1994).
- **Support with work processes:** The support component of Karasek's model of Demand-Control-Support refers to optimal matching of the amount and type of support appropriate to a work situation with its particular demands, and the amount of decision latitude available to the worker in that situation. There are different types of supports provided in the workplace through relationships with peers and supervisors. These human ties are important in mental and physical health (Cohen & Syme 1985; Winnubst & Schabracq 1996:87-104).
- **Stimulation:** De-skilling and fragmentation of tasks has been linked to stress. The person must 'fit' into the work environment (Edwards, Caplan & Van Harrison 1998:28-67). This fit in the Person-Environment Fit model refers to the match between what the worker expects and what the job actually requires. As well as expectations, the skill of the worker fuses with what the job requires (Cox 1978). The person-in-environment psychology has been extended by Wapner and Demick (2000:27) to be holistic, developmental and systems orientated.

- **Effort–Reward:** Siegrist’s Effort–Reward model (1998:190–204) proposes that there is an appropriate balance between the rewards that the worker expects and the efforts needed to obtain those rewards. Workers act formally and informally to change their work environment so that inequities between what they offer and what they get, and what they perceive other workers receive in relation to what they contribute, are removed. Using different terminology but dealing with similar concepts as the Person–Environment fit and Effort–Reward, Williams (1993) refers to the congruent person and organisation. Congruency is achieved by merging belief systems, values, plans and strategies so ‘so that we can gracefully move through life being congruent and functional’ (1993:165). Although Williams is casting his argument in terms of the ideal, there is no doubt some validity in the optimisation of enhancing employee personal strength and enhancing the creative potential of the organisation.
- **Ability to unwind:** To recover vitality through interpersonal relationships at work and through relationships and interests in the home domain is necessary because of the persistent requirements of work. The circular and reciprocal relationships between work and non-work or work and home domain are important because the balance in these linkages affects quality of life for the worker and his/her significant others (Gutek, Repetti & Silver 1988:141–174).
- **Participation:** Participation of employees in the work effort varies from optimal performance producing maximum productivity, to hostility that sabotages productivity. Holbeche (1998:30–35) found the more common response from employees experiencing poor work conditions was non-participation which meant holding back on human resources. The most extreme problem of this kind is called ‘presenteeism’, which occurs when employees come to work but contribute little to the work effort because they are distressed by their jobs or some aspect of the work environment (Schabracq, Winnubst & Cooper 2003:xv). Aronsson, Gustafsson and Dallner’s study (2000:502) into ‘sickness presenteeism’ shows that members of occupational groups whose everyday tasks are to provide care, welfare services, teach or instruct have an increased risk of being at work when sick, which is itself a form of presenteeism.
- **Emotional work:** Performance of emotional work in the long-term, particularly in the caring professions and service industries, like teaching, can produce a ‘burnout syndrome’ that is characterised by mental exhaustion, cynicism and loss of commitment (Maslach 1982, 1998:68–85; Maslach & Jackson 1986:253–266).

5. Contemporary employment issues in developed and developing countries

The culture of a group is very influential for health. Culture is defined as: a complex integrated system that includes knowledge, beliefs, skills, art, morals, law, customs, and other acquired habits and capabilities of the human being. (Murray, Zentner & Samiezade-Yard 2001:4).

A culture is both ideal, in that it aspires to certain values and health beliefs, and it is also manifest. The manifest culture is the expression of the way people think and behave. Within the dominant culture there are subcultures – groups of people within a larger culture, of the same age, socioeconomic level, occupation, or with the same goals, who have an identity of their own but are related to the total culture in certain ways. For example, regional culture refers to the local or regional manifestations of a larger culture (Murray & Zentner, 2001:5). In the same way, workgroups and organisations form subcultures of the larger societal

culture. Workgroups share industry and professional allegiances, and organisations develop cultures related to their founder, origins and evolutionary experiences. The health status of a workgroup derives much from the organisational culture and wider community culture to which the workers and organisation belong.

Cultures, however, are not static entities. They are subject to changes. For example, in Western modern society some of the cultural problem areas and trends that Murray, Zentner and Samiezade-Yard (2001:9) note include:

- need for more professional knowledge
- greater expectation of the public for services and quality of services
- more goods considered to be public goods
- lack of measurement to show what is actually needed, and thus where the money and resources should be directed
- short-term rather than long-term considerations in the business economy, health services and social service
- changing demography and more urban concentration
- increased life expectancy
- changing values with little understanding of the historical roots of the culture
- power struggles between groups.

From this list two unifying themes in contemporary cultural changes are individualism and economic rationalism and it is necessary to understand their impact on health and work (Murray, Zentner and Samiezade-Yard 2001:9). These themes are significant in the tertiary education industry because of their effect on the nature of educational services offered and the means of delivery of those services. Technology also shapes the educational workplace and other service industries through its impact services and service delivery.

5.1 Individualism

According to Naisbitt and Aburdene (1990:299) the doctrine of individual responsibility was a major cultural trend in the last decades of the 20th century. Individualism fosters a climate of 'independence', with freely choosing individuals who do not need to care about others individually or collectively. Notwithstanding the self reliance that individualism ostensibly creates, Naisbitt and Aburdene acknowledge that society as a whole gains by the action of individuals when they achieve in any area of human endeavour.

Cultures also vary in the degree to which they balance the interplay of collectivism and individualism. Strongly collective cultures are tightly bound and cohesive and expect unswerving loyalty, whereas individual cultures are those in which connections between people are loose and individuals are expected to look after themselves. Cultures that are collectively bound usually have power distance dimensions within them. Power distance is defined as 'the extent to which less powerful members of organisations expect and accept that power is distributed unequally' (Erez & Earley 1993:104). Culture influences both systems and individual behaviour and is influenced by them (Anthony 1994:2). The tension between individualism and collectivism, which is a cultural characteristic of the wider society and organisations and workplaces, is translated in the workplace through the concepts of personal social capital, social capital and community capacity. The development of organisations and workplaces and the health of individuals at work are interactional and the level of trust between employees, who are usually not related by family ties, impacts on their health.

5.2 Personal social capital, social capital and community capacity

At the personal level, social capital refers to strength of personal support networks and ability to access such support, as well as trust, mutual responsibility and effective collaboration (Putnam 2000:19–26). Social capital also operates at the level of society, in a set of complex interactions between community level characteristics, such as trust, participation and cooperation evident in values, norms and connections that allow people to work together for the common good. Trust operates at the micro level of the interaction between people and is regarded as the ‘most valuable factor’ in social capital (Berry & Rickwood 2000:36). Trust is most valuable to the social capital of an organisation because it allows people to support each other. Through trust employees are free to be open and to achieve their potential in life (Bruhn 2001:38).

Putnam (2000:19) clarified the differences between physical capital, human capital and social capital thus: physical capital refers to physical objects; human capital refers to properties of individuals; and social capital refers to connections among individuals, social networks and norms of reciprocity and trustworthiness that arise from them. This is not a romantic view of social capital (Baum 1999:195) or a costless way of making society and the economy work better (Wilkinson 2000:411), or a preference for psychosocial conditions over material conditions (Lynch et al. 2000:404). Navarro (2002:427) does not accept the use of the term ‘social capital’ because, he states, Putnam does not consider power and politics as factors that affect an individual’s ability to compete for resources but considers only participation and togetherness. A more balanced view however, sees social capital as strongly influenced by political, legal and corporate action rather than simply being individually determined (Lynch et al. 2002:407). Social capital can be fostered or not through the way social networks and supports are developed and encouraged by governments and organisations. Collective action to increase social capital can be a public strategy to overcome some socio-economic inequalities and improve health.

Social capital operates at two levels—bonds and bridges. Bonds refer to the strength of internal relationships in the group and bridges refer to the capacity of the group to connect to other societies (Kreuter & Lezin 2002: 239), whereas the concept ‘community capacity’ relates to the ability of the community to change constructively in relation to social and public health problems (Norton et al. 2002:194–227).

The dimension of individualism—collectivism existing in a particular workplace—is demonstrated by the social capital and community capacity that work teams and the organisation have at their disposal to cope with change. The social relationships involved determine health status and productivity. Therefore, the dimension of individualism—collectivism and the corresponding social capital and community capacity—are the group level constructs that operate in the work subculture and influence employee health.

5.3 Economic rationalism

A second unifying theme in the cultural changes effecting post-industrial society is economic rationalism. Economic rationalism is a form of ideological reasoning which took hold in the 1980s in Australia and is based on the notion that the free market is a much better arbiter of economic and other matters than are governments (Pusey 1991). Economic rationalism sees itself as a science largely devoid of social goals, and the language and logic of economics begins to dominate social policy. A corollary of such reasoning is a reduction in spending by the state on such things as education, health and social welfare, and a shift in providing these services to the private sector (Holmes, Hughes & Julian 2003:231).

Economic rationalism and capitalism sit more easily with profit making businesses. However, the provision of public goods by public institutions such as hospitals, universities and schools, is achieved nowadays by producing these public goods in a cost-conscious competitive environment with the same awareness of the 'tyranny of the bottom line' that profit driven organisations experience (Estes 1996).

The interplay between culture and economic theory has had an illustrious recorded history in the work of classical sociologists, as for example, in Marx's *The Economic and Philosophic Manuscripts of 1844* (Marx 1964; Tucker 1978) and continues in the work of Braverman (1974). In his book, *Economic Rationalism in Canberra*, Pusey (1991:10) points out that the priorities of economic rationalism are the economy, political order and then social order. Opposition to economic rationalism is seen as cultural resistance to a 'necessary condition' or as 'rancour against (post) modernity' (1991:21).

The challenge for the 21st century is the impact of these cultural trends and their underlying themes of individualism and economic rationalism on social capital. Economic life is pervaded by culture and depends on the moral bonds of trust (Bruhn 2001:5). In the business world trust is the unspoken, unwritten bond that is a prerequisite for the legal bond because it facilitates transactions.

5.4 Technology

Technology is part of modern life and shapes many cultural dimensions and operates as part of the socio-economic, cultural and environmental conditions (i.e. included within the outer layer of Dahlgren and Whitehead's framework of patterns of disease). Cairncross (2001) predicts a business and lifestyle revolution based on technological supremacy. In his book, *The Death of Distance* (2001), Cairncross discusses cultures and communication networks that will hold businesses together through technology rather than rigid management structures. Additionally, he believes the line between home and work will blur, with more work being performed at home. The social consequences of these changes and their impact on the health of employees have not been fully researched, according to Konradt, Schmook and Malecke (2000:90).

The view of culture as resistant and therefore 'bad' occurs frequently in writings on policy implementation at the national and organisational level of strategy development and implementation (Mintzberg & Quinn 1998). Nevertheless, culture is essentially the binding force that regiments those within the culture through its cohesive action. It defends the insiders by placing boundaries around them that distinguishes them from outsiders. Thus, rather than being resistant, culture is, according to Erez and Earley (1993:104), the moderator of change.

5.5 Socio-economic status

Several authors in Australia mention that social class not only determines values, attitudes and lifestyle, but also determines health (Bates & Linder-Pelz 1987:20-25; Harris, Sainsbury & Nutbeam 1999:16-35; Lupton & Najman 1995; Palmer & Short 1994:243; Russell & Schofield 1986:51-65; Short 1999: 90-95; Turrell 1995:113-135). For example, people with higher socio-economic levels, (i.e. those with good income, higher education, and full employment) experience better health and have medical insurance, use private medical facilities and often live longer. Graycar and Jamrozik, in their review of Australia's social policy, find that as far as employment benefits are concerned, men, higher income earners

and executives, administrators, professionals and sales personnel have considerable advantages over women, low income earners and lower grade occupations (1993:201). Using education as a marker for socio-economic status, Steenland, Henley and Thun (2002:11) report that life expectancy is shorter for the least versus the most educated in their 37-year follow up study of two million people in the American Cancer Society Cohort. Harris, Sainsbury and Nutbeam (1999:43) state that:

It is generally accepted that the most powerful influence on differences in health across population groups is relative poverty and associated structural forces, which serve to increase and maintain the differences. One's position in society's economic hierarchy determines choices of health promoting activity directly through access to resources such as goods and services, and indirectly through social expectations and opportunities.

Those people who belong to lower socio-economic groups lack power in social and political relationships, and may be vulnerable to workplace bullying. Research on workplace bullying identify employees whose health is affected by that experience. The victims of bullying are often subordinated or discriminated against, marginalised or disenfranchised, and suffer mental health problems as a result of the bullying (Hoel, Rayner & Cooper 1999:195–231). Victims of bullying experience more illness and a lower quality of life overall, and there are more premature deaths among the group members than comparable groups. Individuals in the middle and upper socio-economic levels who lack power in workplace structures may also be vulnerable to workplace bullying.

5.6 Risk

Risk is a social construct that assumes great importance in health and work literature as a means of quantifying a potential health problem. Risk is defined as:

the exposure to possible loss, injury or danger; the probability of occurrence of a particular event (Murray, Zentner & Samiezade-Yard 2001:53)

a probability of an adverse outcome, or a factor that raises this probability (World Health Organization 2002:1).

Risk factors are characteristics associated with an increased probability of a particular event, usually an injury or illness occurring (Murray, Zentner & Samiezade-Yard 2001:53). Risk assessment is part of the process of weighing up health problems and trying to be effective and efficient with interventions to benefit the individual and community. The regulation of risk involves attempts to control risk by setting and enforcing behavioural and product standards.

Within the workplace in Australia, the assessment and control of health risks is the responsibility of management through Occupational Health and Safety legislation, but this self regulation is far from effective. In an effort to improve this, the Australian government has appointed Richard Johnstone and Neil Gunningham to the National Research Centre for OHS Regulation to initiate, encourage and support research into OHS regulation (Johnstone 2002:4).

According to the Australian Bureau of Statistics report on the *Social Trends for Health: Risk Factors among Adults* (2003), the risk factor responsible for the greatest disease burden in Australia is tobacco smoking. Another common risk is excessive alcohol consumption. Excess alcohol consumption is linked to some cancers, liver disease, pancreatitis, diabetes and epilepsy. Smoking and drinking together account for about 17% of all disease

(Australian Institute Health Welfare 2000:146-148). The risk factors of smoking and excessive alcohol intake have been studied extensively.

Beck's *Risk Society* (1992) offers fair warning about the deceptive simplicity of the concept of risk in modern society. According to Beck (1992:3) risk is an 'intellectual and political web' cast by modern industrial society, in terms of problems (or risks) for the individual. These risks for the individual are conveyed in scientific language that ignores social rationality. Risks seem to concentrate in society at the lower end of the socio-economic spectrum. For example, lower socio-economic groups or those who are less powerful consume more tobacco. Also in the workplace, the least well paid workers not only operate in more hazardous environments, their amenities (e.g. tea rooms, wash rooms, etc.) are usually more limited than workers who attract higher wages. Their opportunities to have a break from work and refresh themselves, as well as their opportunities to move to better work environments are also constrained. Beck (1992:35) makes the point that 'risks seem to strengthen, not abolish the class system', on the other hand [the] 'wealthy [i.e. those with high incomes, power and education] could purchase safety and freedom from risk'.

Lupton (1995:77-105), Nettleson (1996:37, 53) and Petersen and Lupton (1996:18-20) comment on the pervasiveness of risk in literature of health and lifestyles and the limited ability that people have to control the social circumstances of their lives. These authors agree with Beck that more advantaged people have more control over socio-economic, environmental, living and working conditions. Therefore concentrating on lifestyle factors only, rather than cultural and socio-economic factors, may contribute to increasing health inequalities because advantaged people will gain doubly—from their own power base to control external factors influencing their health, and societies renewed push to enhance better lifestyle choices.

5.7 Developing countries

Notwithstanding some relatively small dips, Western economies have achieved great prosperity since Industrialisation. However the developing countries have not been so fortunate. One of the difficulties has been the lack of rule of law upon which trade relies, and the lack of modernisation. It is wrong to say that there is global integration of trade but there is some regional integration. The high-income economies represent 11.5 per cent of the world's population and produces 74 per cent of total GDP, whereas East Asia and the Pacific produce less than 7 percent, and Latin America and the Caribbean only produce 5.4 per cent (EMCONET 2007, p. 35). This inequality means that workers in developing countries are generally poorer than they compatriots in developed countries.

In developing countries there are usually less social protection standards, and employment relations and employment conditions are informal and workers are not protected by International Labour Organisation standards (ILO) and unionisation. Although the agricultural sector is still important to many developing countries it is usually done in a low productivity manner. It is mainly a family concern producing enough for the annual needs of the family and very little extra if any, compared to high productivity and high technologically driven broad area productivity in the agricultural industry in North America. There is significant rural-urban migration in some developing countries as the young and the healthy go to urban areas to seek a better life. Rural depopulation occurs when numbers of working age people migrate from the countryside to earn more money in the city. They leave behind the old and the young. For the Less Economically Developed

Countries (LEDC) the problems that develop with the influx of these rural migrants into urban areas are shanty housing, lack of clean water, pollution, poverty, poor education, provision of health services and sewerage systems. If they get employment, the migrants usually work in the informal sector because of their lack of skills and education and are stuck with the 'dirty' jobs. Family relationships are under threat because of long-term separations for work, or overcrowding and poverty. Drugs, gangs and crime also flourish in the informal economy that survives with corruption at many levels.

In developing countries employment conditions in informal employment and informal jobs, child labour, and slavery/bonded labour are of major importance. Within informal employment there are few protections for workers such as regulations about minimal wages, hours of work, conditions of employment and occupational health and safety. Those who are least able to resist, children and women are heavily represented in those who are involved in forced labour. Throughout the world 317 million children aged between 5-17 years work and 218 are child labourers, and many, 126 million, are involved in hazardous work. The current estimate is that there are about 28 million slaves and 5.7 million children in forced or bonded labour in the world (EMCONET 2007, 16). The children in forced labour suffer from the effects of the work environment, for example, cramped conditions, poor lighting, heavy lifting etc and also suffer from the lack of normal development process of childhood for example, family support, education, shelter and peer childhood relationships.

6. Recent research

6.1 Developing countries employment and health

There are two pieces of research that I have conducted recently that relate to the employment and health. The first was conducted with my colleague Dr Leigh Lehane in 2006. It was a small study in primary health care in rural Thailand: *Towards realising primary health care for the rural poor in Thailand: health policy in action*, and demonstrates the nature of health issues generally for the rural population but in particular it demonstrates the problems of employee health and the lack of awareness of the toxicity of pesticides in developing countries. Because of the small scale of this study the results can only be taken as indicative. This work was accepted for publication after having been peer reviewed but was withdrawn from publication by the editor because of its political nature.

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Introduction

In 2001 Thailand established Universal Health Coverage (UHC) to provide primary health care (PHC) through its network of 9,738 primary care units (PCUs) (sometimes also called health centres) to make health care accessible for uninsured Thais (including about 40 million rural people). UHC (known as the '30 Baht Scheme') meant that, for patients, the cost of medical and hospital treatment was 30 baht per episode of care (Wibulpolprasert 2002). In October 2006, General Surayud Chulanont, the current Prime Minister of Thailand and Head of the Interim Government, abolished the 30 baht fee and made the health care program free (The Nation, 2006).

PHC services in Thailand provide treatment for common illnesses and injuries, health promotion, disease prevention and control and rehabilitation. PHC refers to first contact,

continuous, comprehensive and coordinated care (Ministry of Public Health, 2001) (Starfield 1994).

PHC for Thailand's rural poor has been problematic because of a shortage of rural medical practitioners (Wibulpolprasert and Pengpaibon 2003) and challenges raised by recent epidemics, such as avian influenza, SARS and HIV/AIDS (Beaglehold 2004, World Health Organisation 2003).

The authors, comprising the research team, looked at what PHC was being done, and how well it was being done, by one rural PCU. The aim was to provide Thai stakeholders, among whom were executives, senior provincial health officers and academics, with a report that would help them implement strategies to improve PHC throughout rural Thailand.

Methods

The authors evaluated the delivery of PHC at one PCU in Nakhon Ratchasima ('Khorat') Province, Thailand. The research design is best described as a case study. During the course of the study we were immersed in the life of the PCU for one month and lived in Provincial Health Services accommodation for that period.

The case study PCU was located about 250 km north-east of Bangkok and was chosen by the Thai stakeholders in collaboration with the researchers because it was considered to be representative of most PCUs throughout rural Thailand. Thai stakeholders included the Provincial Chief Medical Officer; Dean of Public Health from a rural university in another province; Community Hospital Director of the District Hospital; other provincial health officers, including the Provincial Chief Development Officer in charge of Training and Research; and staff of the selected PCU and a Thai health professional/interpreter.

The population served by the case study PCU was comprised of 2800 villagers, most of whom were poor (Jitsanguan, 2001) earning a seasonal income of about 3000 baht (around A\$100) a month as labourers and small-scale farmers (National Economic and Social Development Board 2004). The nearest private doctor's clinic was 14 km from the PCU, but it was economically beyond the reach of most villagers. PCUs throughout the district were supported by a 30-bed referral hospital which served a total population of 27,616 people from 46 villages. Selected characteristics of the case study PCU and the district hospital are shown in Table 3.

According to the Community Hospital Director of the District Hospital in which the research was conducted, the main causes of death for the population served by the case study PCU were:

- Heart/circulatory disease (151.96/100,000 persons)
- HIV/AIDS and other infections (81.3/100,000 persons)
- Cancer (63.6/100,000 persons)
- Accidents (42.4/100,000 persons).

The leading causes of morbidity were respiratory disease, digestive problems, musculo-skeletal problems, infections and circulatory diseases.

The questions used to guide the evaluation were:

- What PHC is provided by the PCU?
- How well is PHC delivered by the PCU?

During the process of data collection, we sought to elicit whether the care provided by the PCU was relevant and appropriate for the patient; done well; made available in a timely manner to patients who needed it; continuous with other care and care providers; performed in a safe, efficient caring manner; and respectful of the patient (Gilpatrick 1999).

	PCU	District Hospital
Nurses	3 nurses: 1 nurse manager 1 general nurse (4 years training) 1 public health nurse (2 years training)	23 nurses (training details not available)
Doctors	1 doctor, 5 hours a month	4 full-time doctors
Dentists	1 dental assistant, 3 hours a month	2 full-time dentists
Pharmacists	1 pharmacist, 3 hours a month	3 full-time pharmacists
Additional experts	None	15 (e.g., health promotion officer, radiologist)
Population served	2,800 people from 5 villages rural poor small scale farmers serving geographical area of 30km ²	27,616 people from 46 villages rural poor small scale farmers serving geographical area of 200km ²
Capacity	No inpatients beds 6,000 outpatients consultation per year	30 inpatient beds 38,000 outpatients consultations per year
Facilities	Two story concrete building Motor cycle for nurses providing community work	Single -level building with dormitory for inpatient accommodation; outpatients; radiology; laboratory; administrative areas; conference facilities; cars and ambulances.

Table 3. Selected characteristics of the case study Primary Care Unit and the associated District Hospital

Starfield's approach to evaluating the quality of primary health care (Starfield 1998) informed the study variables and methods of data-gathering (Table 2). The latter were primarily qualitative, and included interviewing, focus groups, observations, and documentary and photographic analysis. Data were collected in field notes, and when focus groups and interviews were conducted they were then translated into English.

By accompanying the PCU staff on all their duties and using Kemmis and McTaggart's 'spiral of self-reflective cycles', (2000) we reflected daily with the PCU staff on the data gathered. Each afternoon the researchers (with their field notes) and the PCU staff would discuss the patients seen in the clinic that day. These discussions involved examination of patient records in family folders. The family folder is the primary health record file in the PCU and it contains brief health information of all family members, a genogram, family members' general characteristics, major health problems of each, and progress notes on treatment (Sennun, Suwannapong, Howteerakul, and Pacheun 2006). Questions arising from these discussions provoked subsequent investigations. Every evening the researchers reflected on the data gathered and prepared questions to be answered the following day with the help of the PCU staff.

Thai stakeholders participated in two reflective focus groups (Table 3), each of about three hours duration; one in the first week of the research and a second at the end, when an interim report was presented and discussed. Both focus groups were facilitated by the principal researcher, and a Thai interpreter, who was also a health professional, was used throughout the project.

Starfield's unique attributes and appropriate sources of evidence ¹	Application to this study	
Unique attributes of PHC* and process elements/study variables***	Sources of evidence**	Methods used in this study
<p><i>First contact care:</i> Accessibility of the service and the extent of actual use of the service Process element of performance in regard to first contact care: utilisation.</p>	<p>Program design: hours of availability; accessibility to public transport; provision of care without requirements for payment in advance; facilities for handicapped; after-hours arrangements; ease of making appointments; and absence of language and other cultural barriers.</p>	<p>Program design was accessed by: interviews with staff and local health officials; taped focus groups with stakeholders; observations of daily activities of PCU over one month; observations of patient care; interviews with patients and villagers; review of charts of patients seen each day; home visits; attendance at governance meetings.</p>
<p><i>Longitudinality:</i> Person focused contact over time (involves the extent of provider-consumer contact for all but referred care) Process elements of performance in regard to longitudinality: population eligibility; patient identification with a particular provider.</p>	<p>Review of patient lists and interviews with patients about the regularity of their contact for disease management; management of signs and symptoms; administration(need for certification of illness and health) test results; need for and return from consultation for secondary level care; and prescription of drugs and other therapies.</p>	<p>Reviews of patients claims/costs under Universal Health Coverage (UHC); receipts; records (family folders); clinical and management documents of PCU. Attendance at presentations of 1) structure of health services in the District; and 2) Structure of health services at PCU.</p>
<p><i>Comprehensiveness:</i> Primary health care services to meet the common needs of the consumer over time. Process elements of performance in regard to comprehensiveness: problem recognition; diagnosis; management and assessment; knowledge of patient's social profile; recognition of psychological problems; attitude towards and knowledge of preventive and psychological needs.</p>	<p>Recognition of the range of activities the system is designed to handle.</p>	<p>Documents reviewed: agenda of April meeting of the Contracting unit of the PHC Board; avian influenza simulation rapid response team exercise; after action review of above; checklist of yearly review of PCU activities; health education review document, which every household had to complete; health survey for diabetes and hypertension;</p>

<p><i>Coordination:</i> Health –related services and information brought to bear on patient care. Process elements of performance in regard to coordination; recognition of information from visits elsewhere; documentation of medication and compliance; problem lists/problem-orientated medical records; preventive care.</p>	<p>Patient records and interviews; seeking information about prior visits; the organized system of referral and retrieval of information about the results of referral</p>	<p>list of disabled people; antenatal record book; personal health record book.</p> <p>Review of clinical information system: methods, nature of, frequency of, and type of communication.</p>
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1. Starfield B. Primary care: balancing health needs, services and technology. New York: Oxford University Press; 1998 (*p. 29-30; **p. 282; ***p. 255-261)

Table 4. Conceptual framework used to guide study variables and data collection methods

The standards and protocols against which the process elements were evaluated were those of the Australian College of Rural and Remote Medicine (1997) and the Royal Australian College of General Practitioners, which were familiar to the Thai stakeholders and the researchers. The principal researcher was familiar with agricultural chemical management strategies as a member of the Safety Institute of Australia (SIA) and the Global Occupational Health Network (GOHNET).

The research proposal was approved by the Human Research Ethics Committee of the University of New England, Armidale, Australia. Nakhon Ratchasima Province Health Services accepted the Australian Ethics Committee approval to proceed. Information sheets for participants and consent forms were translated into Thai and the Thai interpreter ensured that the informants understood their part in the research process.

Results

First contact care

Accessibility and utilisation of the services provided by the PCU were influenced by the lack of public transport. Most patients walked to the clinic, others came on the back of trucks, or on motorcycles carrying up to four people (including children). Handicapped or elderly patients were sometimes wheeled along the side of the road in barrows. The District Hospital reimbursed a local villager for the use of his truck in emergencies, when it was used as an ambulance.

Thais are registered at the PCU nearest where they live for purposes of UHC, but people sometimes sought care elsewhere. This occurred for reasons of privacy (e.g. women seeking abortions), convenience (e.g. seasonal workers who became injured in the district), or lack of confidence in the staff of the PCU at which they were registered. Clinical reports were not sent back to the home PCUs of such patients.

When a person was referred to a hospital, or for specialist services in Bangkok, the contact between the patient and staff at the PCU was disrupted. This was because the PCU staff did not receive timely advice on the diagnosis, treatment or prognosis that was made elsewhere, nor were they consulted on what part they could take in the patient's treatment or rehabilitation.

FOCUS GROUP 1		FOCUS GROUP 2	
Participants	Procedures	Participants	Procedures
<ul style="list-style-type: none"> • PCU staff: nurse manager, general trained nurse, public health trained nurse • Provincial Chief Medical Officer • Community Hospital Director of District Hospital • Nurse Manager of PCU at District Hospital • District Chief Health Officer (Public Health) <input type="checkbox"/> Health professional/interpreter 	<p>Topics discussed:</p> <ul style="list-style-type: none"> • The nature of the research project, and what was required of the participants. <p>All questions were answered and suggestions from participants recorded.</p>	<ul style="list-style-type: none"> • PCU staff: nurse manager, general trained nurse, public health trained nurse • Provincial Chief Medical Officer • Dean of Public Health* • Community Hospital Director • Nurse Manager of PCU at District Hospital • District Chief Health Officer • Chief of Local Government • Head of Administration in Local Government • Assistant Provincial Chief Medical Officer • Provincial Chief Development Officer in charge of training and research and • Deputy Provincial Chief Development Officer (training and research) <input type="checkbox"/> Health professional/interpreter 	<p>Topics discussed:</p> <ul style="list-style-type: none"> • The research process • The research findings, conclusions and recommendations. <p>Stakeholders' opinions and discussion points, including possible means of implementation of recommendations, were recorded.</p>

*At the time of the focus group 2 this informant had resigned from this position temporarily and was elected Senator of the Thai legislature. After the coup of 2006, he returned to the position of Dean of Public Health.

Table 5. Focus group participants and procedures

Thais registered at other PCUs were welcomed at the PCU if they chose to come there. Elderly people attended for repeat prescriptions and minor illnesses. Patients with minor injuries came for dressings, because some of them could not afford to buy bandages or antiseptic.

The usual number of patients per day was between 10 and 20. On antenatal days, the PCU staff attended to between 20 and 30 women. When the doctor, pharmacist and dental assistant visited the unit, the number of patients swelled to between 60 and 80. Whereas the nurses sometimes spent up to an hour on a consultation, the doctor spent about five minutes with each person. The dental assistant bought a mobile dental chair to the PCU and treated about 15 people during each three hour session; extracting teeth and prescribing antibiotics for abscesses. The dentist at the District Hospital performed more difficult procedures (e.g., fillings).

Longitudinality

Measurement of 'longitudinality' relates to who in the population is eligible to receive PHC from this PCU, and how exclusive that eligibility is. This is linked to the concept of identification of the patient with the provider over time.

These are registered at the PCU nearest where they live for purposes of UHC, but people sometimes sought care elsewhere. This occurred for reasons of privacy (e.g. women seeking abortions), convenience (e.g. seasonal workers who became injured in the district), or lack of confidence in the staff of the PCU at which they were registered. Clinical reports were not sent back to the home PCUs of such patients.

When a person was referred to a hospital, or for specialist services in Bangkok, the contact between the patient and staff at the PCU was disrupted. This was because the PCU staff did not receive timely advice on the diagnosis, treatment or prognosis that was made elsewhere, nor were they consulted on what part they could take in the patient's treatment or rehabilitation.

Comprehensiveness

As indicated in Table 2, measures of the comprehensiveness of PHC services deal with: problem recognition; diagnosis, management and reassessment; knowledge of patients' social profile; recognition of psychological problems; and attitudes towards and knowledge of preventive and psychological needs. The following examples demonstrate the complex nature of the problems presenting to the PCU and the inadequacy of some diagnoses by PCU staff:

1. While waiting to see the doctor on his monthly visit to the PCU, middle-aged women chewed betel nuts as they talked together. When these women went to the dentist for extraction the first author noted what appeared to be palatal leucoplakia (precancerous slowly developing change in the mucous membrane) and gum disease. The same women complained to the doctor of longstanding insomnia and abdominal pain. They were diagnosed with 'insomnia' and 'dyspepsia', and given sedatives and antacids. It was neither considered nor recorded that the women were betel-nut chewers, although they openly enjoyed the habit as they waited to be seen.
2. A cluster of four people, one man and three women, presented over a period of 18 hours with fatigue, headaches, dizziness, itchy skin, blurred vision and sore eyes. On examination they all exhibited very low blood pressure. The diagnosis was 'weakness', and they were treated with vitamin B complex and analgesics without advice on the possible cause of the condition or means of preventing its recurrence. We found that these patients were all agricultural workers who did not use personal protective equipment when spraying chemicals in the hours before presentation at the PCU. The most severely affected woman had a blood pressure of 90/60. The researchers and PCU staff followed up this woman the next day at her second worksite and found that her blood pressure had returned to normal.
3. Six people, four men and two children, presented with cuts and deep lacerations to the feet and lower legs. These injuries, including those of the children, occurred at work, and were caused by knives, machinery or broken glass. The villagers either went without shoes entirely or wore rubber 'thongs' or 'flip-flops'. Although antibiotics were used, healing was delayed because the staff were not permitted to take swabs for microbiological diagnosis and sensitivity testing; dressings were cheap and not water-

proof; and the local water was not clean. Preventive strategies (e.g. encouragement to wear shoes) were not considered. Two of the men smelt of alcohol and their regular and excessive alcohol intake was known to the PCU staff. The latter did not comment or try to intervene about the alcohol abuse, explaining to us that it was a private matter for the patient.

We observed that many older patients presented regularly with the same complaints, and received the same combination of medications, without their clinical data being reviewed periodically for reassessment. One woman with diabetes, who had multiple PCU service contacts, several inpatient stays in the District Hospital and ten doctor consultations, had no reassessment or enquiry about her lack of compliance with control of blood sugar.

Coordination

Measures of coordination included: retrieval of health information about consultations conducted elsewhere; documentation of medication and compliance; problem lists/problem-orientated medical records; and population and individual preventive care. Coordination was problematic at the PCU in many ways.

There were instances of children with congenital disorders and blindness who had been referred to specialists, but no information accompanied the family on return, or was sent back to the PCU. The PCU did not have a landline telephone. The staff relied for communication on mobile technology, erratic internet connections, and personal travel (mainly by motorcycle). They did not have ready access to supervision about problem cases. There were several tools used in the PCU for documentation of patients' records: the family folder; a personal records book; and an antenatal care records book. Information on the social, occupational and economic history of the patient, together with the history of clinical or surgical contact, was not gathered together in one file. Primary data such as those contained in laboratory reports were transcribed by hand, with the possibility of introducing errors. The personal records book and the antenatal care records book were used to a variable extent by the community.

The PCU staff showed some natural reserve in talking of 'moral' or 'private' matters (e.g. alcoholism, drug addiction and HIV/AIDS) although, on enquiry from us, they were generally well aware of patients' problems. This was not just discretion in front of the researchers: such issues tended to be ignored, not being discussed in interviews with patients or recorded in family folders. The Thai interpreter would return at a later stage by himself without the 'farangs' (Thai word meaning foreigners) and discuss some of these culturally sensitive issues fully with the staff to gain a better understanding of their approach in these matters.

Statistics on HIV/AIDS were collated by local government officials. Testing was done confidentially at the District Hospital and provision for income support was available through local government. However, information that existed on the incidence of HIV/AIDS and its prevention was not freely disseminated. Condoms were available on request as part of the HIV/AIDS program of the Ministry of Public Health and we were told PCU staff advertised this in villages. However, although AIDS was the fifth most common cause of death in the district, only one man asked for condoms during the period of our research. In antenatal care, women were given the choice of an HIV test, but, as they had to pay themselves, only about half took up the offer.

Medicines were handed out liberally after each consultation. These included antibiotics, anti-inflammatories, antifungals, antihistamines, analgesics, antacids and sedatives. No

record of the medications received by the family was included in their folder. Some medications (e.g. digitalis) could not be dispensed by the nurses, even for repeat prescriptions, and writing out repeat prescriptions took up a large part of the time of the doctor's monthly visit to the PCU.

Discussion

Principal findings

The PCU can act as a 'gatekeeper' to specialist health services in the District Hospital, protecting the patient from unnecessary medical treatment and limiting access to high-cost medical services (Franks, Clancy, Nutting 1992). There is a trade-off between freedom of the patient to choose and operational efficiency of health services management. Both the transport arrangements and the lack of advanced-level medical functions (e.g. reassessments, clarifying differential diagnoses, supervision and training, and complex case management) at the PCU did not allow it to act in a gatekeeper role. The PCU could not provide comprehensive care for the patients over time because of a lack of diagnostic skills of the PCU staff; and lack of access to direct supervision by the PCU staff.

PHC differs from secondary and tertiary care because of the lack of differentiation of the problems that present in the primary care setting (Starfield 1998). The women with insomnia, decayed teeth and dyspepsia are examples of poor problem recognition and staff-selective attitudes towards preventive health because betel nut is the most widely used stimulant in the developing world and is associated commonly with dental decay, oral cancers, insomnia, stomach discomfort and intestinal cancers (International Agency for Research on Cancer Monographs 2004). Betel-nut chewing was considered by the PCU staff to be the private business of the patients and not part of their responsibility as health professionals. Similarly the presenting symptoms of the agricultural workers were not considered work-related. However, such symptoms are commonly attributed to agricultural chemical toxicity. Acute chemical toxicity is the major problem arising from the use of pesticides in the developing world (Jeyaratnam 1999). Community preventive strategies were not developed from an awareness of local need because preventive health programs were decided nationally. Despite the weakness of problem definition, the health data from the PCU went on to become statistics in district, provincial and national health databases.

PCU staff were not included in ongoing health interventions initiated by other services, with the result that patients could not go to the PCU for informed follow-up care. Because these patients were poor and not medically literate, this was a deficiency in the quality of health services available to them. While the family folder is important institutionally and traditionally because it conveys a family focus, it had shortcomings as a medical record as it was not adapted to the mobility and privacy of the rural people.

Strengths and weaknesses of the study

The strengths and weaknesses of this study are those associated with the case study design. A strength of the design is the intense focus on a single case (here it was the rural PCU). Such an approach has the potential to provide new insights into complex organisational issues that may be used to build theory (Bryman 2004). This research was further strengthened by the use of Starfield's conceptual framework (1998) and the involvement of PCU staff and Thai stakeholders in the final stages of data analysis and interpretation. The main weakness of the design is that the results are not able to be generalised to the relevant population; a problem of external validity. Despite these known limitations, Thai

stakeholders accepted the findings presented in an interim report as a true account of PHC at that case study PCU, and considered them to be applicable to other rural PHC settings in Thailand.

Policy and practice implications

As a result of our study, it was recommended that health professionals in rural PCUs in Thailand would benefit from:

- clinical supervision with specific, regular and close attention from experts;
- provision of timely/appropriate/accurate information to use for patient care;
- training programs for clinical, community, occupational and management skills-development at the PHC level; and
- authority to prioritise services for the disabled and aged through the development of a health advocacy role for the PCU Manager.

With a community approach in PHC as recommended by the World Health Organization (WHO) in 2003, PCU staff should be trained to recognise and institute control measures for occupational illnesses; conduct assessments of mental status, and provide supportive counselling for alcohol and drug abuse; teach children to floss and brush teeth regularly; and provide education on HIV/AIDS prevention. Thailand has one of the highest pharmaceutical drug consumption rates per capita in the world, (Cohen 1989, Filmer, Hammer, and Pritchett, 1997) a fact that indicates a strongly embedded bias towards curative rather than preventive medicine. Improving the efficiency of the supply and use of drugs is one management system change that would reduce costs substantially. Health initiatives to provide trained health professionals are needed where public health infrastructure and occupational and environmental health are poorly developed and the community lives in or near poverty. Research into methods and processes of collaboration and communication between primary and secondary care needs to be carried out in order to integrate community, PCU and hospital services.

Conclusion

This process evaluation of one PCU in rural Thailand five years after UHC was introduced in 2001 was undertaken to provide Thai stakeholders with recommendations to improve the quality of PHC within current resource constraints. The evaluation concluded that improvements in the performance of PHC in rural Thailand could be made so that resource use could be maximised.

Thai stakeholders contributed to the evaluation and accepted the interim report as a true account of PHC at the case study PCU. They considered the recommendations appropriate for application in this setting and possibly other rural PHC settings in Thailand and indicated that they intended to implement the recommendations in the study province

6.2 Developed countries, employment and mental illness

The second piece of research that I conducted has been published in the journal, *Higher Education Research and Development*, and is titled: *How social relationships influence academic health in the 'enterprise university': an insight into productivity of knowledge workers*. This is an important article from my thesis research that is available in a book: *The health that workers want*.

This research highlights some important aspects of contemporary employment. The employment relations, employment conditions and working conditions in developed

countries impact on employees' mental health because of the social relationships in the work environment. When employees feel the psychological contract is not balanced they respond by withdrawing their efforts.

Social relations in the work place

Downsizing is the most common form of rationalising business operations by reducing salaries and expenses. Leigh and Mayhew (2002:344) report that 10% of workers suffer a stress-related or depressive illness each year and there are increased proportions of stressed workers in organisations undergoing large-scale restructuring, and that stress contributes to 30% of all work-related illnesses. Downsizing produces two types of problem that influence health according to the Demand–Control–Support theory. First, there is increased workload because of reduced staff and second, there is loss of support as staff networks are disrupted by redundancies or redeployment of staff. The combination of high expectations and low support is frequently associated with dissatisfaction and ill health according to Karasek's (1979) Demand–Control–Support theory. Employees are affected by the way work is constituted, constructed and managed, and in service industries, work is a socially determined activity and the social nature of work has positive and negative benefits for health and productivity. Putnam's 'social capital' (2000:326) is a group level construct and refers to social connectedness through these social relationships, and according to Putnam, is one of the most powerful determinants of well being. Social capital is a metaphor for performance advantage obtained by social network development as a function of social structure (Burt 2000:346).

The employee–employer relationship has been conceptualised in the psychological contract since Barnard in 1938 and refers to the exchange of implicit and explicit factors that bind the parties in the relationship. Rousseau (1995:7) comments on the difficulty of reestablishing balances between the contributions that employees make and the inducements that organisations offer to employees when those balances are disturbed. Employees actively change what they offer to the organisation if they perceive that the inducements (i.e. material and social rewards) are not appropriate, particularly in relation to their health and wellbeing. The nature of the employer–employee relationship is important in shaping the work culture and the dynamism of this relationship is demonstrated in relation to critical health events when employees change their behaviour.

Employee behavioural responses, particularly to restructuring in organisational and industrial changes show two main forms. Individualistic employees try to cope by detaching intellectually and/or physically from the organisation and 'working to rule', while in the other response employees try to change the workplace from within. This detachment from the organisation is also a detachment from social networks at work. In its extreme form this detachment is called 'presenteeism' which means that the employees comes to work but actually does not contribute much to productivity. Not only does each response require a personal struggle on the part of the followers, the existence of the two responses in the one workplace creates division among the employees and there is a risk of disunity, dissent and multiple purposes within the work culture.

The rationale of employers supporting restructures and their proposed view of its implementation are not consistent with the reality that unfolds for employees. The rhetoric of employers is that employees will be listened to, workload will not change, and it will all be for the best, but in fact, employees find that their comments are ignored, or worse, regarded as divisive, and the workload increases.

The four issues that define and differentiate types of stress are: the sense of control the employee have over the work situation; the balance that exists between the work and home domains in the employees life; the perception of the effort put into work and the rewards received for that effort; and finally the relationships at work with fellow workers, supervisors and managers. The first three issues are more important to differentiate workplace stress as productive or counterproductive. Whereas the last issue, that is, relationships at work, is more significant for the pervasive and formless systemic stress that is felt at the level of the workgroup.

Productive workplace stress is associated with intellectual stimulation and accomplishment, and counterproductive workplace stress is associated with negative states such as limitation and burden. These individual perspectives of workplace stress are positivist representations of the 'reality' of the employer-employee relationship at work. Ways of thinking about workplace stress are culture bound in this relationship. However, recognising systemic stress challenges the limitations of this epistemology and ontology. The third type of workplace stress is more diffuse and is associated with lower levels of trust in the organisation and is a social reality rather than an individual reality. With social or post-modern relativism this additional and systemic stress is cultural bound, socially conditioned, historically relative and contextual; it is as Scheurich's (1997: 34) states 'a political struggle'. The broad issues involved in coping with workplace stress relate to the active response of employees to workplace stress, the different categories of staff affected and their evolving experience of the workplace operated at the level of the individual, workgroup and the organisation. The health effects of workplace stress are described as minor and major physical and mental illnesses affecting the individual and a more generalised reduction in the quality of employees' lives. Stress in the workplace is summarised in below.

- Productive stress
 - stress is productive when there is the successful application of the individual employees abilities
 - work tasks are associated with intellectual stimulation and work is a challenge that is achievable
 - central issues for the individual are: a sense of control about how and when to do work; rewards are appropriate to efforts extended; the employee's skills are fit for the work duties
 - employment contract is mutually rewarding, characterised by trust
- Counterproductive stress
 - stress is counterproductive when work is a burden to endure because tasks constrain the employee and limit the sense of achievement
 - origin of counterproductive stress is quantitative and qualitative work overload
 - central issues for the individual are: decreased control and imbalance between effort extended and reward received
 - employment contract is not satisfactory to employees and they feel exploited
- Systemic stress
 - stress is systemic because it operates at the level of the workgroup and is associated with negativity in the social processes of the work environment
 - origins of systemic stress are competitive adjustments of organisations in market economies

- employer–employee master narrative is positivist and acknowledges competition but does not acknowledge the impact of competition on social processes at work
- work activities are made harder
- central issues for the workgroup and organisation are the development of individualism and the fragmentation of social relationships
- employment contract is strategically managed by both employers who want knowledge workers with flexibility, and employees who want continuous financial security through employment with one or a series of employers
- Broad issues in coping
 - employees are active in coping with workplace stress
 - different categories of staff react differently to stress
 - responses to workplace stress at different levels, that is, individuals, workgroups and organisations to workplace stress are dynamic, changing over time.
- Health effects
 - employees suffer minor and major physical and mental illness
 - reduced quality of life can occur

Bullying in the workplace is the failure management to shape workplace relationships in a constructive manner. The phenomena of bullying, in its obvious form is associated with persistent insults, offensive remarks, persistent criticism, personal and even physical abuse. In its subtle form bully consists of excluding or isolating the victim from his/her peer group or excluding them from information and/or appropriate interactions and opportunities in the workplace. The exact frequency of bullying is hard to determine but it is generally more common than employers like to state Einarsen et al (2003). In Australia the federal health and Safety regulator Comcare said that workplace bullying is on par with workplace stress as the main causes of serious mental stress claims (Griffiths, 2011).

Employees who suffer mental illness are disadvantaged compared to employees with physical illnesses for two reasons. Firstly the nature of mental illness is such that it rarely starts suddenly. There is a gradual deterioration in wellbeing particularly with depression, and with treatment there is a gradual recovery. The gradual nature of the onset and recovery means that the employee is likely to be at work and not performing at his/her best. This is usually hidden, and fellow workmates cover and do what is necessary to protect their colleague, or if it is obvious the lower performance is viewed critically. The burden of hiding the depression-illness is an additional problem for the employee as workplaces generally are not sympathetic or knowledgeable about the true nature of the cycle of depression and its impact on the persons' performance.

7. Future research

Employment and mental illness is an important area for future research. These include:

1. What are the optimal social networks and social supports for employees and employee groups in different situations and how are these matched?

There is not a universal social network or support that is beneficial to all employees in every circumstance. For example, employees living alone and near retirement have different social needs from the workplace than young employees with children who are just entering the workplace. Tailoring support to the particular mix of employees would ensure the most beneficial effect for their health in the most efficient manner.

2. What are the mechanisms of action of social relationships on health?
Rutter (1985:316) suggests that the protective processes of social relationships may act in several ways: (1) by reducing exposure to risk by groups being more cohesive; (2) by reducing negative consequences of exposure to risk; (3) by developing employees' resilience through increased self-esteem and self-worth; and (4) by developing enhanced adaptive behaviour through the opportunities for better outcomes at critical turning points in employees' lives. The mechanism of action of social relationships on health may also be determined by the nature of the risk that the individual within the group is exposed to. Greater knowledge of the buffering and transmitting effects of social relationships would increase our understanding of disease patterns.
3. How can the concept of stress be clarified to incorporate the reality of compounding factors, variable timeframes, vulnerability and resilience and assessment of outcomes?
Research in the empirical world of work needs to consider compounding factors, variable timeframes and lengths of exposure and latency periods for illness onset. These issues represent the reality of risks at work in contrast to the injury model with its isolated exposure to a noxious environment causing an immediate illness. The injury model is applied inappropriately to illness and disease at work.
4. What are constructive human resource interventions with organisational change?
With organisational change being common, human resource management needs to follow the process through so that employees who are retained in employment are better able to manage. Human resource interventions would be constructive if they prevented harm to employees and sustained productivity after the restructure.
5. What are the short-term and long-term influences of electronic communication systems and new technology on the socialisation process?
Electronic communication and new technology are pervasive in everyday life and at work in particular. The speed of information transfer is obvious but the effect on accepted behavioural patterns and activities of employees is less obvious.
6. What are the effects of telework on employee health and organisational productivity?
The various forms of telework are increasingly used by organisations to attract staff that they would otherwise not be able to employ. Telework also removes the need to provide office space and other facilities for staff. There is increased need however for communication and monitoring systems to ensure that outcomes are achieved. Additionally, for complex deliverables the coordination functions of a project manager are needed to bring together the outputs of employees with disparate skills connected by communication systems. With extensive use of telework as an organisational strategy for competitive advantage, the skills of the management and the well being of the employees need to be reviewed because telework is a significant departure from the familiar workplace where employers and employees are housed together.
7. What are the health effects of mobility and short-term contracts on executives, and what are their mechanisms of action?
Nowadays the vulnerability of lower paid workers to changes in employment contracts is seen in the increasing use of part time staff, short-term contracts and other strategies to allow the organisation flexibility to hire staff with the skills that are needed at the time, and terminate those employees when they are not needed.
At the other end of the spectrum, executives too are accepting short-term contracts. However, compensation would be made in the contract for the executive for the risk of unemployment between contracts. Nevertheless, the health effects of mobility and

short-term contracts are important considerations for this group of executive employees.

8. What are the health effects of quality employment on women? In dealing with workplace stress, how do women's coping styles differ from those of men, particularly when they are in the same industry?

It is important to specify as carefully as possible what factors influence health. The notion of quality employment has merit because it implies some freedom over the work situation that is not there with low quality employment. When summarising the literature in the area of workplace stress, Langan-Fox (1998:273) recognised coping styles being influenced by gender. In the qualitative data this research shows some differences between married women and men in their adjustment to work, but that adjustment is hinged around the needs of children. Women without children and women who are single parents are not identified in the qualitative data. Further clarification of the issues that are involved here, (that is, responsibility for children, financial resources in the home and living as a single parent) would be helpful to identify the impact of gender on employee health.

9. What is the optimal mix of values for employee health and organisational outcomes and how can that mix be achieved?

The values of the stakeholders embedded in the employer–employee relationships are vary. Some values, such as competitiveness, support profit over health, whereas other values, for example, sustainability, indicate a long-term view with profit being reconciled with social justice. The present employer–employee relationship is dominated by profit generating values and policies and practices that flow from these values are utilitarian and individualistic in nature. Being aware of this starting point and trying to change these values is more useful than trying to negotiate within the present employer–employee relationship. The optimum mix of the various stakeholders' values would ensure both organisational profit and employee health are achieved. This mix would produce greater flexibility with the utilitarian and ontological variation in individualism–collectivism dimension in the employer–employee relationship.

8. Conclusions

In this chapter employment and its link to the burden of mental illness, has been traced in its theoretical and practical aspects. Employment is a major factor in the genesis of ill health. In developing countries employment is on the whole agricultural and the major hazards are chemical poisoning and physical injury. Recent research in rural Thailand is presented to highlight these factors.

In developed countries where service industries are predominant the main health problems are those related to stress and bullying with the erosion of employment conditions. Recent research highlights the complex nature of stress at work and its impact on employees. The employer–employee master narrative dominates work and is responsible for social relationships at work that bear heavily on stress situations and create the environment for bullying.

Employment and mental illness is a rich area for future research and many factors that bear on employment conditions and work conditions need to be researched to find ways to improve work for the health and well being of employees. The employer–employee master

narrative will be influenced by increasing awareness of the impact on productivity of many of the poor work arrangements that harm employee's mental health.

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Workplace Functional Impairment Due to Mental Disorders

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1. Introduction

Psychiatrists are commonly expected to conduct disability assessments. These include an assessment of the worker's functioning, putative impairment, risk, and capacity to work. Employers and other third parties, either administrative or judicial, subsequently make disability determinations based on such assessments. This assessment also forms the foundation for return-to-work determinations, or for determining the employer's duty to accommodate to the point of undue hardship.

To the extent the general psychiatrist becomes involved in assessing these occupational matters, the psychiatrist is practicing forensic psychiatry. The role and responsibilities of the treating psychiatrist, within in the context of a traditional physician-patient relationship, differ vastly from one conducting an occupational or forensic evaluation. Yet, the boundaries between these distinct and often irreconcilable roles are not always clearly delineated, properly understood, or abided by. The forensic aspects of psychiatric practice are often viewed as intrusive and challenging by non-forensically trained psychiatrists, representing a role conflict many psychiatrists find themselves poorly equipped to navigate.

This chapter outlines the common psychiatric disorders encountered in clinical and occupational settings. It discusses the concepts of impairment and disability, as well as the benefits of working. The most commonly requested opinions in occupational psychiatric assessments are that of a psychiatric diagnosis, causation, impairment, fitness to work (FTW), and disability, along with recommendations for further investigations and treatment. The importance of objectively measuring impairment is outlined, along with reliably establishing a diagnosis (if any), along with the non-linear relationship between mental disorder, impairment and disability. For the purposes of this chapter, any reference to mental disorders are implied to include the broad range of disorders captured in the Diagnostic and Statistical Manual of Mental Disorders, the DSM IV-TR, which includes the substance-related disorders (i.e. Substance Abuse, Substance Dependence, or Addiction, and others, e.g. Addiction).

This chapter addresses the main pitfalls and risks associated with Independent Medical (i.e. Psychiatric and Addictions) Evaluations (IME), and provides a template for conducting these. The potential cost saving associated with implementing evidence-based interventions drives a sound business case for addressing mental disorders in the workplace. This chapter offers a pragmatic approach to treatment matching and disability management for workers with mental disorders (i.e. including substance-related disorders). It outlines the principles of vocational rehabilitation in the context of psychopathology, mental disorders, impairment and disability, ensuring safety, as well as optimal clinical and economic outcomes.

The enjoyment of the human right to optimal health, without discrimination, is vital to a person's well-being. This chapter aims to provide a pragmatic approach, albeit non-exhaustive, to determining mental impairment in the workplace.

2. The purpose of work

The Merriam-Webster dictionary defines *work* as “an activity in which one exerts strength of faculties to perform something: (a) sustained physical or mental effort to overcome obstacles and achieve an objective or result; (b) the labor, task, or duty that is one’s accustomed means of livelihood; (c) a specific task, duty, or function, or assignment often being a part of phase of some larger activity”.

Work plays a central role in daily life, and for most people, work is probably second only to love as a compelling human activity (O’Toole, 1982). Society values work and those who do, echoing the Latin phrase: “*Labor corona vitae*”, loosely translated, “Work is life’s crown”. Working, gainfully or not, employed or not, may hold a range of psychological, monetary, and other potential benefits (Gold & Shuman, 2009):

1. Income and sense of security;
2. Source of identity, from which people derive a sense of recognition, belonging, and understanding;
3. Sense of purpose in life;
4. Source of self-worth and self-esteem;
5. Opportunity to develop skills and creativity;
6. Autonomy and independence;
7. Relationships outside the family;
8. Structuring time into predictable, regular periods;
9. Defines activities whereby work provides a temporal framework within which other activities, such as leisure, gain meaning.

The psychological benefits of work significantly overlap with several of the treatment goals in mental health settings. It suggests that employment has positive therapeutic benefits, but not all aspects of work are beneficial under all circumstances, or for every worker, e.g. where work causes inordinate levels of stress, or where a worker is exposed to discrimination or risks. Most workers do not become excessively distressed by the presence of challenges in their workplace, but rather by their inability to meet the particular challenge they are faced with (Aneshensel & Phelan, 1999).

Almost as a rule, the risk of exacerbating mental illness by returning workers to the workplace is minimal. Based on the evidence, return to work is generally stabilizing and therapeutic for the lives of these patients. In general, ongoing employment has a beneficial effect in persons with mental illness (Blustein, 2008). For the vast majority of workers, and under most circumstances, it is reasonable to suggest that active participation in work is therapeutic and beneficial.

3. Adopting a common language

Foundational to working with common psychopathology or mental disorders in the workplace is the use of common language. It is erroneous to use concepts like *impairment* and *disability* interchangeably. Failure to adequately and reliably delineate concepts of *risk*, *tolerance*, and *capacity* in the disability assessment, compromises a valid response to return-

to-work determinations, the duty to accommodate, or further mental health disability management.

3.1 The definition of a “mental disorder”

Two major global classification systems provide a common language and standardized criteria for the diagnosis and classification of mental disorders. These are the 10th revision of the World Health Organization’s (WHO) International Statistical Classification of Diseases and Related Health Problems (ICD-10) (WHO, 1992), and the 4th Edition (text-revised) of the American Psychiatric Association’s (APA) Diagnostic and Statistical Manual of Mental Disorders (DSM IV-TR) (APA, 2000). There exists significant congruence between these two classification systems, with a reduction in differences between these two classification systems over time.

For the purposes of this chapter, the authors will utilize the DSM as the predominant classification system and frame of reference in the authors’ jurisdiction. Since the publication of the first edition of the DSM in 1952, the manual has undergone vast changes, and the manual is currently in its 4th edition, of which the text has been revised. The DSM-5 is expected within the next 2 years, updating the current DSM IV-TR, describing almost 300 mental disorders, which includes the categories of substance-related disorders (i.e. substance use disorders, e.g. abuse and dependence, and the substance-induced disorders).

The terms *illness*, *disease*, and *disorder*, as it pertains to the mental (psychiatric) status of the worker, are often used interchangeably. For the purposes of this chapter, the term *disorder* is preferred, defined as a “*deviation from the normal or expected status, associated with distress or a deterioration in functionality*”. The term *mental* refers to “(a) inner experiences, relating to mood, thought content, or sensory experiences; (b) behavioral patterns, and (c) cognitive functions such as learning, social understanding, and reality assessment”, and a *mental disorder* is conceptualized in the DSM IV-TR (APA, 2000) as a “*clinically significant behavioral or psychological pattern that occurs in an individual and that is associated with present distress (e.g. a painful symptom) or disability (i.e. impairment in one or more important areas of functioning) or with a significantly increased risk of suffering death, pain, disability, or an important loss of freedom*”. The concept of mental disorder does not include a situation that is merely an expectable and culturally sanctioned response to events, e.g. the emotional response of bereavement following a significant loss, e.g. the death of a loved one.

Symptoms and signs of mental disorders may include any combination of affective, behavioral, cognitive, and perceptual components. To allow for consistency of diagnosis, standardized criteria are outlined in the DSM, based on the best available research and clinical literature. Illegal or deviant behavior and conflict (i.e. primarily between the individual and society) are not considered mental disorders unless this actually represents a symptom of dysfunction in the individual. Mental disorders are a rarely cause of unlawful behavior or violence.

Mental disorders are diagnoses representing syndromes, based on clusters of symptoms and signs, as opposed to many other medical conditions with consistent and proven underlying pathophysiology. It utilizes a categorical approach where there exists no assumption that each category of mental disorder is completely discrete from other mental disorders, or that there exist absolute boundaries dividing disorders from one another. The diagnostic criteria, albeit based on consensus of current formulations of evolving knowledge in the field, do not encompass all the conditions for which persons may be treated (APA, 2000).

3.2 The 5-Axis formulation

The DSM system has gained wide international acceptance and the 5-Axis description is deemed a gold standard for offering a standardized psychiatric formulation, across international borders and cultural boundaries. To standardize the approach for occupational assessments, the 5 Axes formulation is also considered an essential component of formulating the results of the assessment:

- Axis I: Clinical Disorder(s)
Other condition(s) that may be a focus of clinical attention
- Axis II: Personality Disorder(s)
Mental Retardation
- Axis III: General Medical Condition(s)
- Axis IV: Psychosocial and Environmental Problem(s)
- Axis V: Global Assessment of Functioning (GAF)

The use of *specifiers* assists in further describing the specific diagnosis on Axis I. If criteria are met for a specific mental disorder, severity may be specified as mild or moderate or severe, and if criteria are no longer met, a specifier for remission may be offered, e.g. in partial remission, in full remission, or suggesting a “prior history” of the disorder existed.

On Axis V, the GAF rating offers a dimensional assessment of overall functioning, but which is not only indicative of occupational functioning. The scoring for Axis V is divided into 10 ranges of functioning, and reflects the clinician’s judgment of the respondent’s overall level of functioning. It is useful in monitoring impact of treatment, and also in predicting treatment outcome (APA, 2000). Although the adjudication of insurance claims takes GAF scoring into consideration, it should not be the sole determinant of fitness-to-work. The GAF score, albeit useful, is not specific to fitness-to-work. Utilizing GAF scores alone to determine fitness-to-work should be avoided.

3.3 Expressing a degree of uncertainty

In determining if a worker fulfills the diagnostic criteria for a specific mental disorder, a certain degree of uncertainty may prevail. These include situations where inadequate information is available for making an accurate diagnostic judgment. In other situations limited information may be available, perhaps only sufficient to determine and validate the presence of a *class* of disorders (e.g. mood disorder, psychotic disorder, anxiety disorder), but where further specification of the particular disorder within the class is not possible. In other cases information may be altogether inadequate to offer any diagnosis whatsoever. Under these circumstances where a formal diagnosis cannot be offered with a reasonable level of certainty, the situation may call for a proper description of the level of uncertainty. The use of terms to describe these levels of uncertainty include the following: offering a *provisional* diagnosis, *deferring* a diagnosis, offering the diagnosis of an *unspecified* mental disorder, or of a mental disorder “*not otherwise specified*” (NOS). As a result of the limitations of this categorical (as opposed to a dimensional) approach, in some cases the diagnosis of a mental disorder can only be offered in a probabilistic fashion.

3.4 Limitations in the use of the classification system in occupational context

The categorical approach to diagnosis of mental illness poses challenges in quantifying mental and behavioral impairment in a dimensional fashion. Mental disorders, in the absence of the currently proven underlying pathophysiology and absent operational

definition, have been defined by a variety of concepts, e.g. distress, dysfunction, dyscontrol, disadvantage, disability, inflexibility, irrationality, syndromal pattern, etiology, and statistical deviation (APA, 2000). These levels of abstraction do not constitute a consistent or equivalent description of any one specific mental disorder in any single class.

Relying on the diagnosis alone does not provide sufficient evidence of the existence of impairment or disability. The levels of abstraction appear on a continuum of severity, and no single diagnosis of a mental disorder automatically implies a universal or specific level of impairment, or a specific degree of disability.

Volatility, interpersonal conflict, and unreliability are also relevant to fitness for work. These may be unrelated to mental disorders, and may hence not qualify as compensable conditions under disability determination paradigms used by a third party. Further, the inclusion of diagnostic categories (e.g. antisocial personality disorder, pedophilia) does not imply that the specific condition meets the *legal* criteria for what constitutes a mental disorder.

The determination of the level of functional impairment faces significant impediments: the disturbance in functional activities is driven by the diagnosis and not test results per se. For example, a diagnosis alone does not determine fitness for work – just as the diagnosis of diabetes is not necessarily limiting to work under certain circumstances. But, uncontrolled diabetes poses a risk for work, especially in safety-sensitive settings. In the absence of external validation, there exists a potential for large inter-individual variability in interpretation of levels of impairment or disability associated with a mental disorder. There are few objective measures to ensure reliability and validity of impairment ratings. The dearth of validated tests to confirm the percentage of psychiatric impairment and the apportionment due to mental disorders, poses a salient challenge.

The use of the DSM in forensic settings should be conducted with caution, as the categorization of disorders in clinical and research context may not take into account the necessary issues of responsibility, competence, tolerance, risk, or disability. Blindly relying only on the DSM diagnostic criteria poses a significant risk that the clinical information may be misused or erroneously interpreted by a third party that does not take into account any level of clinical judgment. The classification system is ultimately intended to serve only as a guideline to be informed by clinical judgment and are not meant to be used in a “cookbook fashion” (APA, 2000). The establishment of a DSM IV-TR diagnosis represents only the first step in a more comprehensive evaluation. This is the basis for further assessment or treatment planning may rest, and also upon which disability management or accommodation may be based.

3.4 Impairment versus disability

The AMA Guides to the Evaluation of Permanent Impairment, Sixth Edition (AMA, 2011) defines *impairment* and *disability*. Impairment refers to “a significant deviation, loss, or loss of use of any body structure or body function in an individual with a health condition, disorder, or disease.” Impairment rating is a physician-provided process that attempts to link impairment with functional loss. It is also a “consensus-derived percentage estimate of loss of activity reflecting severity for a given health condition, and the degree of associated limitations in terms of activities of daily living”. Impairment ratings are conducted by the physician, whereas disability assessments are conducted by the third party.

Disability refers to “activity limitations and/or participation restrictions in an individual with a health condition, disorder, or disease.” The disability determination takes into account the lack or restriction in the ability to perform an activity in the manner or within the range of what

is deemed normal or expected. Impairment and disability fall on a spectrum of low to high severity. The determination of disability is thus a relational outcome, contingent upon the environment in which the particular demands are met, by a specific individual, based on the activities performed, within a specific occupational environment. The level of disability is dependent on the relational aspects or interplay between impairment and several factors within the occupational environment.

Regardless of the diagnosis, the relationship between impairment, disability, and fitness to work depends on the respondent's functional abilities and functional limitations, the occupational environment, and the specific demands of any particular job (Bonnie 1997; Gold and Shuman 2009). Not all individuals with psychopathology or mental disorders necessarily display significant impairment or disability, despite the presence of diagnosable DSM conditions. Similarly, not all persons displaying mental disorders are necessarily deemed disabled based on the presence of a psychiatric disorder. No linear relationship exists to predict the level of impairment or disability associated with any particular mental disorder. Return to work depends on availability of modified work, job skills, and medical limitations.

3.5 “Presenteeism” and absenteeism

Absenteeism refers to repeated absence from work, duties, or obligations. *Presenteeism* refers to a situation where the employee is present at work, but not functioning at full capacity, or at a lower level of productivity, as a result of a mental disorder or psychopathology. Both presenteeism and absenteeism may be indicative of employer performance issues, workplace issues, employer issues, relational issues between employer and employee, or of a medical or psychiatric impairment and subsequent inability to perform in the expected fashion, or the incurring of risks. More than 80% of lost productivity and associated cost related to mental disorders is accounted for by *presenteeism* as opposed to absenteeism.

3.6 The concepts of risk, capacity, and tolerance

Commonly requested occupational psychiatric opinions pertain to that of risk assessment, tolerance, and capacity. *Risk* refers to the potential for a specific situation to translate into negative outcomes, including accidents, lack of attention, violence, injury (patient, coworkers, public, or equipment), or aggressive behavior. The risk may result from specific actions or inactions by the employer, and is confounded by a range of factors of which the class of substance use disorders is a salient predictor of violence, especially when co-occurring with mental illness.

Aggressive behavior constituting increased risk ranges from minor incidents to more significant behavioral actions and disturbances, including homicide, suicide, assault, terrorism (e.g. some industrial settings may be at risk of such attacks) or the damaging of property. Certain mental disorders are more likely to be associated with increased risk, i.e. the psychotic disorders, individuals with a previous risk of harm to self or others, those with a previous history of aggressive behavior, those with comorbid mental disorders and substance use disorders, those with paranoia or homicidal or suicidal ideation, persons with antisocial personality disorders, or any combination of such factors. Risk assessments trump most other considerations in the assessment.

Capacity refers to the employee's ability to perform or to produce according to occupational expectations. Mental disorders and substance use disorders can impact on the employee's

memory, the ability to concentrate, focusing attention, and on judgment, fatigue, insomnia, tendency to fall asleep, and decreased reaction (e.g. truck driver, pilot, or police) Medical conditions, mental disorders, substance use disorders, or any combination of these, including the adverse effects of medications, may adversely impact on the employee's performance and may pose safety risks.

Tolerance addresses the employee's ability and/or willingness to tolerate (accept or similar word) the workplace and associated circumstances and stressors. The most prominent factor in this context refers to motivation (representing an inner state) to return to work, or to perform in the workplace. Motivation is impacted by the respondent's appraisal of the relative importance to perform particular duties according to standards and expectations, paired with the relative confidence that he/she would be able to do so. It represents a predominantly volitional state of choice in terms of what the employee chooses to tolerate and what the worker chooses not to tolerate. Difficulties in the workplace, including unreasonable workload demands, job dissatisfaction, suboptimal goodness-of-fit, job changes, relational and interpersonal problems with co-workers or supervisors, negative evaluations or warning letters, or threat of layoff or termination, may foreseeably impact or contribute to the subjective distress. These, however, have to be separated from bona fide mental disorders in causing subjective distress or functional impairment.

Workplace issues may contribute to symptoms, but are not considered causally related to bona fide psychiatric illness or disability as a result of a mental disorder e.g. when a worker is disciplined for performance issues, the expected response is to react with a sense of subjective distress, like feeling depressed, anxious, frustrated, or angry. This is, however, to be distinguished from bona fide symptoms related to a psychiatric disorder in adjudicating disability matters. When an employer or supervisor disciplines a worker for performance issues, then the worker often claims stress or depression attributed to this event. Workplace stress and burnout are commonly attributed to the workplace. Post-Traumatic Stress Disorder (PTSD) from life-threatening events at work may plausibly cause impairment, preclude fitness for duty, and legitimately lead to disability.

3.7 Restrictions and limitations

An integral part of the occupational assessment concerns itself with the determination if the worker's psychiatric clinical condition is severe enough to limit or restrict their ability to perform occupational functions. In general, *restrictions* refer to activities / duties the worker "should not do", while *limitations* describe as what a worker "cannot do" due to severity of psychiatric impairment. Fitness to work-related terms are described as follows: a. Capabilities (i.e. the maximum that this person can do); b. Limitations (i.e. this person cannot do more than this); and c. Restrictions (i.e. this person can do this, but should not do this).

4. Causality of the workplace in the development of impairment

There exist no single or definitive model for understanding the etiology and pathology of mental disorders. Psychopathology and mental disorders stem from a variety of origins, and vary widely across disorders and classes. A variety of hypotheses have been postulated to explain the origins of mental disorders, and these theories continue to evolve. Some of the most common perspectives for the understanding of psychopathology and etiology of mental disorders include: (1) neurobiological, (2) sociobiological, (3) psychodynamic, (4) behavioristic, (5) cognitive, (6) interpersonal and systems, (7) humanistic, and (8)

anthropological (Thomas & Hersen, 2004). The stress-diathesis and bio-psycho-social models offer two of the more generic approaches to understanding respectively the significant roles of stress and the role of biological, psychological, and social factors play in human functioning as well as in the development of illness or disorders (Engel, 1977). None of these categories suggest participation in work per se to be psychopathogenic, i.e. causing psychiatric disorders or psychopathology.

Working, unlike the commonly understood etiological factors, is not viewed as a risk factor and therefore also not a cause of the development of a mental disorder or substance-related disorder. Despite common claims made by workers suffering from mental disorders, there is a lack of definitive empirical evidence to suggest that employment is a causal factor in the development of mental disorders. In determining the etiology, it is commonly understood that non-occupational factors are overwhelmingly deemed as causal and relevant agents in the development of mental disorders. In other words, work does not cause mental illness or addiction, but work rather protects against the development of mental disorders. When a worker is disciplined, or where workplace issues may exist, a worker may claim “stress” or attempt to attribute depression (or a mental disorder) as a result of these events in the workplace. Workplace stress and burnout are commonly attributed to the workplace, despite the dearth of empirical evidence to support a direct and causal relationship. Where the treating physician becomes involved in offering opinions or conclusions related to disability, the role of the advocating physician might obfuscate the adjudication of a claim.

There are legitimate occupational causes for mental disorders, e.g. where an individual has been exposed to a significant or life-threatening stressor (e.g. where he/she feared for life), PTSD may develop.

5. Psychopathology and psychiatric disorders in the workplace

5.1 Prevalence of mental disorders and disability in the workplace

Over a third of people in most countries report meeting criteria for the major categories of either mental illness or addiction, or both at some point in their lives. Psychiatric impairment and disability may be associated with a broad range of psychiatric disorders, and may be debilitating under some circumstances. Disability is a common, though uniquely personal experience, with an estimated 15% of the world’s population thought to have a disability.

Most of the empirical work to date focused on persons with Mood Disorders (Major Depressive Disorder, Bipolar Disorder), Anxiety disorders (specifically Generalized Anxiety Disorder (GAD), and Post-Traumatic Stress Disorder (PTSD), the psychotic disorders (specifically Schizophrenia), Personality Disorders, Substance Use Disorders (Substance Abuse and Substance Dependence), the functional somatic syndromes (e.g. Somatoform Disorders). These disorders represent the mental disorders most commonly found in occupational settings and comorbidity (i.e. co-occurrence of psychiatric illnesses) is common. The prevalence of commonly encountered workplace psychiatric disorders by class and specific diagnosis is reflected in Table 1 (Kessler, Berglund, et al., 2005; Kessler, Chiu, et al., 2005).

The majority of individuals with psychopathology and mental disorders continue to be employed. The presence of a mental disorder does not automatically preclude an individual from working safely and successfully. In general, however, severe and persistent mental illness (SPMI) tends to be more likely disabling, e.g. Bipolar Disorder and Schizophrenia. The worker who suffers from at least one SPMI is often are unable to compete on equal footing for employment, and hence SPMI is rarely encountered in most occupational

settings. The less severe mental disorders do not typically preclude individuals from competing for employment, and are hence seen more commonly in occupational settings.

Class of Disorder	Specific Diagnosis	Lifetime Prevalence (%)	12-month prevalence (%)
Anxiety Disorders		28.8	18.1
	Panic Disorder	4.7	2.7
	Specific Phobia	12.5	8.7
	Social Phobia	12.1	6.8
	Generalized Anxiety Disorder	5.7	3.1
	Post-traumatic Stress Disorder	6.8	3.5
Mood Disorders	Obsessive Compulsive Disorder	1.6	1.0
		20.8	9.5
	Major Depressive Disorder	16.6	6.7
	Dysthymia	2.5	1.5
Bipolar I and II		3.9	2.6
Impulse Control Disorders			
	Attention deficit / hyperactivity Disorder	8.1	4.1
Substance Use Disorders			
		14.6	3.8
	Alcohol Use	13.2	3.1
	Alcohol Dependence	5.4	1.3
	Drug Use	7.9	1.4
Drug Dependence	3.0	0.4	

Table 1.

5.2 Major Depressive Disorder (MDD)

Major Depressive Disorder (MDD) is often a common and chronic condition, with a lifetime risk of 10-25% for women and 5-12% for men, in community-based settings. The essential feature of MDD is a clinical course that is characterized by one or more Major Depressive Episodes (APA, 2000). Major Depressive Episodes may occur in the context of MDD or Bipolar I or II Disorder. The MDE in a MDD has to be distinguished from legitimate stress related to workplace issues, a depressed mood related to substance use, (i.e. Substance-Induced Mood Disorder, e.g. with the use of alcohol or cocaine and other drugs), and a Mood Disorder due to a General Medical Condition, e.g. where hypothyroidism is responsible for symptoms of a mood disorder.

The use of the term “depression” to describe the mental disorder diagnosis is inappropriate as it represents only one symptom of a syndrome, by itself does not reliably describe a specific mental disorder. The diagnostic criteria for MDE and MDD, as well as other disorders associated with a depressed mood are captured in the DSM IV-TR (APA, 2000). The term “clinical depression” is no longer recommended for use, and for the diagnosis of MDD a range of specifiers allow for finer description of the disorder, e.g. severity (i.e. mild, moderate, or severe). There also exist remission specifiers, i.e. partial or full remission, as well as specifiers to indicate the presence of catatonic features, psychotic features,

melancholic features, atypical features, or with post-partum onset. Course specifiers, i.e. with or without interepisode recovery, or with seasonal pattern allows for longitudinal descriptions, along with the descriptors of single episode, recurrent, and chronic. Dysthymic Disorder refers to a disorder associated with a chronically depressed mood or irritability that occurs for most days for at least two years, upon which a MDD could be superimposed. There are no diagnostic laboratory tests for any of the depressive disorders, but non-specific findings have been described, e.g. elevated glucocorticoid levels as well as EEG sleep alterations. Because up to a quarter of persons with certain medical conditions will develop depression (APA, 2000), medical conditions and substance-related disorders have to be ruled out in any person diagnosed with a MDE.

Depressive disorders are considered a leading cause of disability globally (Murray & Lopez, 1996), projected to become the world's leading cause of disability. Most persons with mild depression can continue to function in the workplace, despite the presence of some degree of impairment or the presence of related symptoms. In those suffering from one or more depressive disorder absenteeism and presenteeism are linked to decreased productivity and an increased potential for risk in some, as a direct result of the symptoms (both physical and mental) of depression. These include depressed mood, irritability, low energy, cognitive symptoms (attention, memory, distractibility, executive function) and loss of motivation, or thoughts of death, dying, and suicide. Like in the case with other mental disorders, the mere presence of the diagnosis of MDD is not an indication of the level of impairment. The DSM IV-TR criteria require to be supplemented with a dimensional functional assessment to determine the level of impairment, based on which disability determinations should be based.

A number of substance-related disorders may mimic the features of MDD and other disorders in this class, and require to be ruled out in the diagnosis of the condition. These include mood disorders that develop as the direct result of the use of alcohol, amphetamines, cocaine, hallucinogens, inhalants, opioids, sedatives / hypnotics, or any combination thereof, i.e. poly-substance use. The condition of a depressive episode may be mimicked in either intoxication or withdrawal phases of substance use, and may be compounded by the presence of a bona fide medical condition.

Clinical practice guidelines for the treatment of MDD typically include multimodal pharmacotherapy and psychotherapy combinations. In the management of MDD, attention should be given to the detection and treatment not only of the primary condition, but also of comorbidity of any substance-related disorder, specifically Alcohol Abuse or Dependence, as well as the potential for imminent risk of harm to self or to others. With the appropriate treatment, 80% of depressed individuals can return to normal activities, including work. Improvements following treatment initiation are usually notable within 10 days to 2 weeks, and with relatively rapid improvement in work function. Adverse effects of antidepressants are usually evident within the first two weeks, and in general these are mild and transient. In the face of untreated depression, chronicity may develop, with subsequent increased levels of disability as a result of chronic impairments.

Because MDD and other depressive disorders may be associated with an increased risk of harm to self, the necessary level of vigilance is required to detect any safety risk in occupational context.

5.3 Bipolar Disorder

Bipolar I Disorder is ranked as a leading cause of disability, but is less prevalent than MDD. As a result of the heterogeneous nature of this disorder, workers can present with a variety

of symptoms, e.g. depressed, hypomania (Bipolar II Disorder), mania (Bipolar I Disorder), or psychotic features (i.e. hallucinations, delusions, disorganized behavior). The condition is typically characterized by the presence of chronic symptoms, either mania, or depression, or both in alternating or mixed cycles. The diagnosis of Bipolar Disorder also warrants the rigorous exclusion of any substance-related disorder as the clinical presentation of this condition may be mimicked by a number of substance use disorders, e.g. alcohol, stimulants (e.g. cocaine, crystal methamphetamine), and over-the-counter medications. The impairment related to Bipolar I Disorder will depend on the phase of the illness the worker is in as well as the relative intensity of the symptoms, e.g. cognitive symptoms during the depressive phase, as opposed to disinhibition during the manic phase of the disorder.

Bipolar Disorder is considered chronic, yet treatable, but treatment is generally more complex than for MDD, and closer attention is given to treatment adherence. The utilization of multimodal interventions, i.e. including mood stabilizers and psychotherapy, along with longitudinal follow-up by an attending physician, is deemed the mainstay of treatment. Although considered treatable, the course of the disorder is typically recurrent and more than half of persons diagnosed with the disorder continue to experience interpersonal or occupational difficulties between acute episodes. As a general statement, the prognosis for Bipolar I Disorder is less optimistic than for MDD, and approximately 10-15% of persons diagnosed with Bipolar I Disorder complete suicide.

A number of substance use disorders may mimic the features of Bipolar Disorder, and requires to be ruled out in the diagnosis of the condition. These include: alcohol, amphetamines, cocaine, hallucinogens, inhalants, opioids, and poly-substance use.

5.4 Anxiety Disorders

On a daily basis, most persons in the general population will experience varying degrees of anxiety. This is necessary for survival and tends to increase performance, and is not considered pathological. However, when the threshold for a disorder is reached (i.e. causing significant distress or leading to significant functional impairment), and the DSM criteria are met, an Anxiety Disorder is diagnosed. Anxiety Disorders are the most common psychiatric disorders, and may be associated with significant impairment. This class of disorders includes Generalized Anxiety Disorder (GAD), Post-Traumatic Stress Disorder (PTSD), Acute Stress Disorder, Social Anxiety Disorder (Social Phobia), Panic Disorder with / without Agoraphobia, Agoraphobia without a history of Panic Disorder, Specific Phobias, Obsessive-Compulsive Disorder (OCD), Anxiety Disorder due to a General Medical Condition, and Substance-Induced Anxiety Disorder. While low levels of anxiety is ubiquitous and may increase productivity, it may equally be potentially impairing when it exceeds threshold levels.

There is no direct correlation between any single Anxiety Disorder, the level of impairment, fitness to work and subsequent disability. The complex relationship requires the assessment of the individual, with measurement of the level of functioning and the putative impairment as a result of the condition. Panic attacks and PTSD tend to be most disabling, and special attention should be given to ruling out medical conditions or substance use patterns that may mimic anxiety, or substances, which may be used to self-medicate anxiety symptoms.

Anxiety Disorders are highly treatable, with multimodal interventions, including pharmacotherapy and psychotherapy. The response to medication in the context of OCD may take longer than for other anxiety disorders, and higher dosages may be required

compared to other disorders in the same class. Caution should be taken with regards to the use of sedating or habit-forming classes of medication for the treatment of the worker with an Anxiety Disorder, as it may increase the risk of cognitive impairment, the risk of accidents (specifically in safety-sensitive positions), or it may provoke complications with regards to other addictive disorders (e.g. in a person with pre-existing history of problem related to among others alcohol, barbiturates, opioid, or benzodiazepines).

5.5 Substance-related disorders

The impact of substances on the workplace is diverse and potentially severe, posing salient safety concerns for those working in safety-sensitive occupations. The essential feature of Substance Dependence (addiction) is a cluster of cognitive, behavioral, and physiological symptoms indicating that the individual continues use of the substance despite significant substance-related problems (APA, 2000). Eleven classes of substances are listed in the DSM, including alcohol, amphetamines, caffeine, cannabis, cocaine, hallucinogens, inhalants, nicotine, opioids, phencyclidine, sedatives-hypnotics or anxiolytics, and there is allowance for poly-substance use as well. The use of caffeine and nicotine are generally not deemed impairing in the short-term, although the chronic use of tobacco is an obvious and common cause of death, disease, and medical disability.

Although the use of substances is ubiquitous in the general population, only a fraction of those who use drugs are deemed as suffering from a mental disorder, i.e. Substance Abuse or Dependence. Substance abuse disorders can be associated with lifestyle changes, such as socializing at bars or having business meetings in facilities where alcohol is served. The use of substances may be used recreationally and in a non-addictive pattern, or the user may become addicted to it. Substance use, whether used recreationally or in the context of having become addicted, poses significant concerns to persons working in safety-sensitive occupations. Ongoing substance use in a worker who has ever been diagnosed with Substance Abuse or Dependence (excluding nicotine) is generally inconsistent with functioning in a safety-sensitive position. Total abstinence of all classes of drugs of abuse (excluding nicotine) is usually required under such circumstances, to avoid the potential impact ongoing use may have.

The impact of substances on performance and safety in the workplace goes beyond the immediate intoxicating effects of the substance, may also be related to withdrawal symptoms, and also to carry-over effects of certain drugs that are used outside working hours. An additional and significant factor for the worker consuming illicit substances is that the person must purchase the substance by illegal methods, and this requires the worker to have contacts with individuals engaging in criminal activity. This exposes the worker to a range of potential complications, associated with the subculture in which trafficking occurs.

Apart from the acute effects of drugs during intoxication and withdrawal, chronic drug use, especially alcohol, may also be associated with cerebral atrophy and cognitive deficits. Many psychiatric disorders are associated with an increased risk for Substance Abuse, and comorbidity has to be ruled out. This suggests that an individual undergoing a psychiatric assessment should be assessed for substance use issues, and vice versa. The request for an “addiction assessment” in the expressed absence of any psychiatric assessment represents a potential ethical quandary, which may impact on safety as well as the adjudication of any disability claim.

5.6 Personality disorders

The DSM IV-TR defines Personality Disorder (PD), as applied to the 10 specific Personality Disorders: *“An enduring pattern of inner experience and behavior that deviates markedly from the expectations of the individual’s culture, is pervasive and inflexible, has an onset in adolescence or early adulthood, is stable over time, and leads to distress or impairment”* (APA, 2000). The Personality Disorders are divided into three Clusters: A, B, and C. Individuals in Cluster A (Paranoid PD, Schizoid PD, and Schizotypal PD) appear odd or eccentric, while individuals in Cluster B (Antisocial PD, Borderline PD, Histrionic PD, and Narcissistic PD) appear dramatic, emotional, or erratic. Persons in Cluster C (Avoidant PD, Dependent PD, Obsessive-Compulsive PD) often appear anxious and fearful (APA, 2000).

In this category the DSM includes the following disorders, with descriptions offered from the same source:

- Paranoid Personality Disorder: (referring to a pattern of distrust and suspiciousness such that others’ motives are interpreted as malevolent);
- Schizoid Personality Disorder: (a pattern of detachment from social relationships and a restricted range of emotional expression);
- Schizotypal Personality Disorder: (a pattern of acute discomfort in close relationships, cognitive or perceptual distortions, and eccentricities of behavior);
- Antisocial Personality Disorder: (a pattern of disregard for, and violation of, the rights of others);
- Borderline Personality Disorder: (a pattern of instability in interpersonal relationships, self-image, and affect, and marked impulsivity);
- Histrionic Personality Disorder: (a pattern of excessive emotionality and attention-seeking);
- Narcissistic Personality Disorder: (a pattern of grandiosity, need for admiration, and lack of empathy);
- Avoidant Personality Disorder: (a pattern of social inhibition, feelings of inadequacy, and hypersensitivity to negative evaluation);
- Dependent Personality Disorder: (a pattern of submissive and clinging behavior related to an excessive need to be taken care of);
- Obsessive-compulsive Personality Disorder: (a pattern of preoccupation with orderliness, perfection, and control)
- Personality Disorder Not Otherwise Specified: (this section is reserved for situations where the person’s personality meets the general criteria for a Personality Disorder and the traits of several Personality Disorders are present, but the criteria for any one specific Personality Disorder are not met).

Although persons with Personality Disorders may legitimately suffer from symptoms and signs, which may constitute impairment, these disorders (in the absence of Axis I disorders) would generally not be deemed compensable in disability adjudication processes. Individuals with personality disorders may experience a lack of goodness-of-fit in the context of their occupational situation, and issues are often dealt with in a performance fashion as opposed to an accommodation paradigm.

6. The cost of mental health disability

Common psychiatric disorders, including Addiction, frequently lead to an inability to work and contribute to both visible and invisible costs of disability (Armstrong, 2008). The

invisible costs associated with not treating mental disorders in the workplace include loss of productivity, absenteeism, presenteeism, and the inability to retain a worker, i.e. leading to increased employee turn-over. Globally, mental disorders rank among the most common workplace disabilities. The key drivers of increasing disability costs are psychiatric disabilities or mental disorders. Mental disorders are the leading cause of long-term disability (72%) and short-term disability (82%), representing about 12% of overall Canadian business payroll costs (Watson Wyatt, 2007). Indirect costs of mental illnesses account for about 75% of total employer costs (McCulloch et al., 2001). The 2001 Health Canada report “The Economic Burden of Mental Health Problems in Canada” estimates the cost of lost productivity due to depression and stress at more than \$8.1 billion dollars a year (Stephens & Joubert, 2001).

7. The occupational mental health assessment

7.1 Dual agents and advocacy bias

The World Medical Association reminds treating physicians that they have an ethical duty and a professional responsibility to act in the best interest of their patients without regard to age, gender, sexual orientation, physical ability or disability, race, religion, culture, beliefs, political affiliation, financial means or nationality (WMA, 2006).

Often a conflict emerges between the patient’s legitimate health interests and the third party’s specific requirements. When conducting independent assessments, the expectations from the patient and the treating physician are not always or necessarily aligned with those of the employer, insurer, regulatory, or legal system (collectively termed “third party”). Situations arise where there exists a conflict between the interest of the patient (and whereby the treating physician is obligated to act as a patient advocate, or where the duty dictates that the physician should act in the best interest of the patient) and the third party, whose decisions are typically shaped by economic, administrative, occupational, or legal parameters. It is considered a failure to meet professional standards as well as an ethical violation for a treating physician to offer conclusions about causation and other forensic issues (Greenberg & Shuman, 1997; Hales & Yudofsky, 2002; Barth & Brigham, 2005, Talmage, et al, 2011).

Under all circumstances, the independent assessment boundaries should clearly communicate (in advance) that the assessing physician has no duty to advocate for the patient (respondent). The duty also exists to communicate that the assessing psychiatrist is not employed by, or otherwise affiliated with, the retaining third party. If an assessing physician has previously provided treatment to the worker who has to be assessed, or has other affiliation with the retaining third party, the assessment is no longer deemed independent and the results may not be valid. To avoid these pitfalls, clear boundaries should be communicated in advance of the commencement of the assessment.

Attempting to fulfill both services and roles for the same worker (who has to be assessed) represents a conflict of interest for the psychiatrist and represents an ethical conundrum. These concerns pertaining to acting as dual agents should be addressed with the party in violation of the guideline. Psychiatrists acting as treatment providers should avoid offering opinions and conclusions pertaining to fitness-to-work, causation, or other forensic matters. It is however, permissible for the treating health professional to offer content witness input, but should avoid acting in both capacities.

7.2 The setting in which the Independent Medical Examination (IME) is conducted

The typical IME is conducted on an elective outpatient basis. The office setting deemed suitable for general psychiatric practice is usually suitable for conducting an IME. The reliance on usual protective measures to ensure safety is recommended. The assessment usually takes longer than a regular clinical assessment, and is not routinely audio/video-recorded unless the request for such is made in advance. The presence of a collateral source is not encouraged, but is not disallowed if requested.

7.3 Issues related to consent for obtaining or release of information

In an IME, the examining psychiatrist is responsible to explain the parameters, scope, risks, and who receives the report. This function, like obtaining consent, should not be delegated to office staff. The health professional conducting the independent assessment has an ethical and legal obligation to ensure that respondents are informed of their legal rights with respect to the assessment service (in this case referring to the occupational assessment, which is a forensic assessment). The respondent is advised that a traditional physician-patient relationship is not established, and that no duty to advocate or engage in a longitudinal therapeutic relationship is implied. This limited physician-patient relationship is subject to compliance to the same ethical principles as a traditional therapeutic relationship, in that objectivity needs to be achieved, the highest degree of confidentiality needs to be maintained, potential conflicts of interest should be declared, and boundaries should be honored (i.e. adherence to the same rules strictly proscribing boundary violations).

The respondent has to be informed of the purposes and parameters of the evaluation, of the nature of procedures to be employed, of the intended uses of any product of the assessing physician's services, and of the party who has retained the assessing professional. To protect confidentiality, the employer is typically entitled only to the fitness-to-work information (as opposed to the entire clinical assessment), while the disability manager may have access to the entire data set. Although the employer is not entitled to receive information pertaining to the exact diagnosis, it is not unusual for the employer to demand the full independent report. This conflict is resolved by attempting to utilize the services of a separate health professional (e.g. Occupational Health Nurse) as the designated employer representative. This person then acts as a caretaker of the information (in order for the non-relevant clinical and personal information to not go to Human Resources, the Employer, or beyond), but to remain in the hands of a health professional.

The worker should understand the lack of confidentiality in regards to anything discussed during the assessment, as it would potentially form part of the assessment report, which is communicated to the retaining third party, i.e. the employer or its designate. The results of any blood testing or urine drug screening should be incorporated into the report as deemed necessary to provide a reliable and valid independent opinion, and the worker should be fully informed and unless valid consent is obtained, such assessment cannot proceed. Only under the circumstances under which the worker fully understands the nature of the assessment, as well as his/her legal rights, could consent be viewed as valid. In the absence of valid consent, the assessment cannot proceed. Valid consent statements should be included in the report to the third party, and an example of such statement is as follows:

"Mr. John Doe was advised to the purpose and parameters of this assessment, as well as to the lack of confidentiality in regards to anything discussed, as it would potentially form part of the assessment. Mr. Doe was also informed that the information would be sent to the requester of this report, and that the results of any blood testing or urine drug screen would be incorporated into the report. Mr. Doe

was notified and understood that this would be an independent assessment, initially requested by a third party, and that a retainer was initiated by the third party. However, there existed no other affiliation with such, or with her employer, and the writer confirmed that he had not previously provided health services to him. Mr. Doe was also notified that this assessment would constitute a single liaison, which did not, and would not in future, constitute the establishment of a physician-patient relationship. As the writer, I notified Mr. Doe that I could not release a copy of this report to him, but that he would be able to approach the retaining third party regarding the protocols for obtaining a copy of this report. The writer also has no objection if a copy of this report is to be shared with any of the attending health professionals, with the appropriate consent as needed. Mr. Doe was given the ongoing opportunity to ask questions regarding the assessment, and was satisfied with the parameters of this protocol, and fully complied with the entire assessment. Upon request, he furnished the writer of this report with a government-issued proof of identification. There were no issues with language competence or understanding”.

In situations where the respondent is unable to furnish the assessing party with a reasonable form of picture identification, the assessment report should include a detailed description of the respondent to ensure that the person assessed was indeed the individual under discussion and referred for assessment. If there are issues with language competence, the duty of the assessor is to wait until adequate interpretation services to be utilized. The responsibility for such falls on the shoulders of the retaining third party.

7.4 Duty to report

In certain situations the assessing physician may have a duty to report the IME findings to the authorities. Where there are threats uttered against any third party, a duty to report to the appropriate authorities exists. The duty to report motor vehicle drivers that are deemed incapable of operating a vehicle depends on the jurisdiction the provider practices in. As is the case with acute intoxication as a contra-indication to driving, it should be noted that several other acute contra-indications to driving exist (CMA, 2006):

- Acute psychosis;
- Condition relapses sufficient to impair perceptions, mood, or thinking;
- Medication with potentially sedating effects initiated or dose increases;
- Lack of insight or lack of cooperation with treatment;
- Lack of compliance with any conditional licensing limitations imposed by the authority;
- Suicidal plan involving crashing a vehicle;
- The intent to use a vehicle to harm others.

7.5 The nature independent assessment

The aim of the independent psychiatric evaluation is to reach specific and reliable answers to the questions posed by the retaining third party.

The domain of the independent assessment overlaps with the typical psychiatric assessment of adults, but differs in a number of ways. It is geared towards the resolution of a specific legal, administrative, or other nonclinical questions, and the respondent is not the physician's patient, and there does not exist any past or future prospects for the establishment of a patient-physician relationship. The independent assessment relies on previous or current medical records, additional documentation pertaining to the respondent's occupational circumstances, performance in the workplace, and knowledge of

the existence of any workplace issues, taking into account the potential biases that may exist. In the context of an evaluation, the main focus is the collection of sufficient information to be able to provide a valid and reliable independent opinion, and the usual task of establishing a working relationship with the patient is completely avoided.

It is deemed unethical to use psychotherapeutic techniques or approaches (e.g. specialized cognitive, coercive, contingency, or motivational enhancement) to obtain information the respondent would not otherwise have offered, or to attempt to obtain information by implying or suggesting any future therapeutic involvement. The independent evaluation is by definition not an emergency evaluation, and the assessor should exercise great caution when a request is made for an emergency independent assessment. The IME is typically a time-intensive exercise, conducted over consecutive hours, the duration of which is dependent on the complexity of the case.

Although there has not been established a traditional physician-patient relationship, the IME may yield information pertaining to threats to the safety of others. Although emergency issues are relatively rare in the context of IME's, the duty of the assessing psychiatrist would be to ensure the safety of the patient and others, and a duty to report may exist. When the respondent is agitated or psychotic, or if imminent risk of harm to self or others is identified, immediate steps are required to ameliorate the risk of harm. Involvement in the IME precludes active involvement in treatment, but does not negate the duty to address immediate safety issues. Depending on the duty to report impaired drivers in the particular jurisdiction, a respondent who is under the influence of a substance at the time of the IME may have to be reported to the transportation authorities or police if there is an imminent risk of impaired driving.

The psychiatric evaluation is aimed to establish whether a mental disorder or other condition is present, and the DSM IV-TR 5-Axis formulation is used to summarize the clinical picture, which may include a differential diagnosis if uncertainty exists. The assessment includes the evaluation of longer-term issues (e.g., premorbid personality issues or disorders, pre-existing psychiatric conditions or vulnerabilities) that may impact on the outcome of the disability assessment.

7.6 The domains of the psychiatric evaluation

The independent psychiatric evaluation involves the systematic consideration of the broad domains, including:

- i. Reason for the assessment.
- ii. History of the present illness.
- iii. Occupational history, including exploration of workplace issues.
- iv. Past psychiatric history, previous psychiatric hospitalizations, previous suicide attempts or treatment.
- v. Past and current medical history.
- vi. Medication, including dosage and duration of use, as well as previous trials of use of medication, including over-the-counter preparations.
- vii. Legal history, including current or past involvement, and the existence of outstanding charges.
- viii. Family history.
- ix. Substance-related history including (but not limited to) alcohol, caffeine, nicotine, marijuana, cocaine, opiates, sedative-hypnotic agents, stimulants, solvents, MDMA, androgenic steroids, and hallucinogens; or any combination thereof.

- x. Developmental, social and interpersonal, cultural, and military history.
- xi. Review of systems, to identify symptoms not already listed to date in the assessment.
- xii. Functional assessment, e.g. activities of daily living (ADL), activities necessary for public transportation, Activities of Daily Living Commonly Measured in Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL). These include (Cocchiarella & Andersson, 2001):

Self-care, personal hygiene	Urinating, defecating, brushing teeth, combing hair, bathing, dressing oneself, eating.
Communication	Writing, typing, keyboarding, seeing, hearing, speaking, reading.
Physical activity	Standing, sitting, reclining, walking, climbing stairs.
Sensory function	Hearing, seeing, tactile feeling, tasting, smelling.
Non-specialized hand activities	Grasping, lifting, tactile discrimination.
Travel	Riding, driving, flying.
Sexual function	Orgasm, ejaculation, lubrication, erection.
Sleep	Restful, nocturnal sleep pattern.

- xiii. Mental Status Examination (MSE), a systematic collection of information, is designed to obtain evidence of the existence of any mental disorder, and to augment the assessment of risk, capacity, and tolerance. In documenting the findings of the mental status examination, it is often useful to include examples illustrative of the clinical observations. The typical MSE includes the domains of (1) Appearance and general behavior. (2) Psychomotor activity, (3) Characteristics of speech, (4) Mood and affect. (4) Thought processes, (5) Thought content, (6) Perceptual disturbances, (7) Sensorium and cognition, which includes include orientation (e.g., person, place, time, situation), attention and concentration, memory (e.g., registration, short-term, long-term), and the respondent's fund of knowledge. Additional comments pertaining to intelligence, language functions (e.g., naming, comprehension, repetition, reading, writing), drawing (e.g., copying a figure or drawing a clock face), abstract reasoning (e.g., explaining similarities or interpreting proverbs), and executive functions (e.g., list making, inhibiting impulsive answers, resisting distraction, recognizing contradictions) are useful in formulating the opinion; (8) Insight; and (9) Judgment. The MSE should also include statements about the respondent's reliability as a historian. The MSE should contain documented information on the putative presence of any imminent or substantial risk of harm to self or to others.
- xiv. Physical examination, if deemed contributory.
- xv. Further diagnostic testing.

7.7 Assessment of work functions

To describe the dimension of putative impairment of work functioning, the assessing psychiatrist attempts to determine the potential impact the specific symptom (associated with the diagnosed mental disorder), or other reported symptoms or signs, may have on the

specific work functioning. Three domains for such have been identified (Gold & Shuman, 2009):

- a. Social / emotional
 - Giving directions
 - Requesting clarification
 - Initiating interpersonal contact
 - Asking for feedback on job performance
 - Responding appropriately to negative feedback
 - Initiating corrective action
 - Providing explanations
 - Describing events
 - Communicating intelligibly, fluently, coherently
 - Responding appropriately to supervision
 - Maintaining relationships with supervisors
 - Responding appropriately to supervisors
 - Responding appropriately to coworkers
 - Adapting to a new supervisor or new coworkers
- b. Cognitive
 - Understanding, remembering, carrying out directions
 - Assessing own performance
 - Making decisions
 - Seeking information when necessary
 - Exercising judgment
 - Problem-solving capacity:
 - Managing multiple pressures or stresses
 - Balancing work and home life
 - Solving routine problems that make it possible to work, such as getting up on time, taking public transportation.
 - Recognizing when to stop doing one task and move on to another
 - Learning new tasks
 - Transferring learning
 - Adapting to a change in work assignment
 - Focusing on multiple tasks simultaneously
 - Screening out environmental stimuli
 - Processing information (e.g. understanding, analyzing, synthesizing)
 - Maintaining boundaries of responsibility
- c. Physical
 - Maintaining fixed work schedule, including:
 - Need for flexible schedule or breaks or modified hours due to the impairment;
 - The effects of medication;
 - The need for appointments to receive treatment;
 - The need for leave to receive acute treatment.
 - Maintaining work pace
 - Maintaining stamina throughout the day

The AMA Guide to the Evaluation of Work Ability and Return to Work (AMA, 2011) suggests screening tests for establishing functional capacity. These include (adapted) the “Grocery Store” test question [*“If the individual owned his/her own grocery store, would he or she be able to find a way to work safely? If the answer is yes, then an absence from work is probably not medically required”*]. This suggests that a non-medical aspect (or psychosocial issue), as opposed to the medical condition, is creating the disability. Another test is that of the “Molehill Sign”: [*“Is the individual making a mountain out of a molehill, or is an apparently minor health condition having a major effect on the individual’s daily life and functions?”* In the case of an affirmative response, the issue creating disability relates to motivation, i.e. tolerance. A final test is that of “The Obstacle”. The question is posed what the specific obstacle is that is preventing the individual from working *today*, hence attempting to uncover the situational or environmental obstacles to returning to work (AMA, 2011).

7.8 Documenting the results of the Independent Medical (Psychiatric and Addictions) Evaluation (IME)

Upon completion of the IME, the assessing physician should be able to respond to the questions posed. The report should restrict its scope to such questions posed, and inclusion of unnecessary information not pertinent to issues under discussion should be avoided in the interest of privacy. The IME report aims to provide a succinct overview of issues related to:

1. The DSM IV-TR diagnostic formulation and the symptoms and evidence to support such.
2. The existence of any risk issues.
3. The respondent’s capacity in the context of activities of daily living, and activities outside the workplace.
4. The existence of any workplace issues.
5. Tolerance and fitness to return to work, as well as in which capacity that would be feasible.
6. Potential recommendations for further management.

Like in clinical practice, if a specific finding or item is not documented, it is reasonable to suggest that it was not tested. The source file (i.e. the notes made during the actual assessment) may be requested by the retaining third party, or in tort cases by the opposing counsel. These should be available and released only with the appropriate level of consent. Handwriting should be legible and the content should be consistent with the opinions provided and conclusions offered in the final report. The industry standards for turn-around (i.e. from assessment to report submission) are approximately ten days for IME’s, and no draft versions are offered for review to the retaining party. Reports are offered in its entirety and should not be severed as this may distort the collective opinion and conclusions.

7.9 Psychiatric disorders and shift work

It is not uncommon for workers to request to be excused from shiftwork. There exist very few indications for legitimately recommending the avoidance of shift work. Under circumstances where Bipolar Disorder has been diagnosed, where unnecessary sleep disturbance or deprivation may trigger a manic episode, the worker may be restricted from conducting shift (night or rotating) work. For the majority of cases of psychiatric disorders,

there is no basis for restricting shift work. Pregnancy, in the absence of another basis for imposing a restriction, is not just cause for recommending the avoidance of shift work.

7.10 The issue of over exaggeration of symptoms

Cognitive deficits resulting in erroneous comprehension, recall, and expression may lead to inaccurate reporting of information. However, there is also a real risk of malingering and deception in symptom reporting. In the absence of objective and validated correlates for most mental disorders, the assessing psychiatrist should maintain a high index of suspicion with regards to the over-exaggeration of symptoms. Exaggeration of cognitive symptoms is widespread in disability-related evaluations, and it is unwise to accept self-reported memory complaints at face value (Richman, et al., 2006). Symptom exaggeration can create a seriously misleading impression of impairment and disability, but there exists no simple measure to detect malingering during independent evaluations.

7.11 Offering a disclaimer to the IME

The IME should include offering a verbal disclaimer to the worker who is about to be assessed, but such disclaimer should also be included in the written report. This allows for sufficient protection of the assessing party and also decreases the likelihood of a future successful suit against the psychiatrist. An example of a disclaimer is as follows:

“The writer of this report is responsible for the documented comments based on reviewing the listed information, and is independent from the adjudication of claims by the requesting third party. The writer was not in a position to objectively verify the historical accuracy of all of the information provided, and if significantly inaccurate or incomplete, it may understandably impact on the accuracy of the opinions provided, and the writer’s stated opinion may be subject to modification or change. The writer reserves the right to alter his opinion should further information come to light, which would warrant reconsideration of the opinion. The opinions are provided with a reasonable degree of medical certainty, and recommendations for treatment are provided independently from the requesting third party. The reader is advised to contact the writer if any clarification is required regarding the content of this report”.

8. Quantifying impairment in across different classification systems and guides

The triangulation of criteria of three published rating scales (i.e. the DSM IV-TR GAF scale, the AMA Class of Impairment, and the Washington State WAC Permanent Impairments of Mental Health) describes a practical strategy to allow for quantitative objectivity in measurement of impairment, and the GAF scores have been matched through triangulation with the Washington State WAC Permanent Impairment of Mental Health (omitted from the table below), and the class of impairment of the AMA Guidelines (Williams, 2010).

In an attempt to construct a similar grid that would be applicable to the Worker’s Compensation Board’s definition in the authors’ jurisdiction, the authors compared the AMA classes with the Alberta WCB classes of impairment (WCB, 2001).

To allow for reconciliation of the GAF scores and the rating of permanent impairment in Alberta (WCB, 2006), the authors propose the following alignment between existing practice in the jurisdiction of Alberta, Canada’s WCB Permanent Impairment Rating and the DSM

IV-TR GAF scores. The alignment, although less intuitive than what has been achieved with the AMA classes of impairment, appear to offer some additional clarity in quantifying the levels of impairment through triangulation. These correlations are based on face value, best matching of the GAF score descriptors with the category in the Alberta WCB description, based severity of impairment. The impairment classes based on WCB descriptions were tentatively placed in the categories as outlined in the table below. The local jurisdiction's class I and II appear to be consistent with a GAF of 80-100, which appears dissimilar to the AMA impairment rating, and for Class V, the GAF scores from 0-20 and 21-40 appear to match. This triangulation requires further study and validation.

DSM IV-TR GAF Score	Class of Impairment (AMA, 2011)	Description of Class
80-100	1 No Impairment	No impairment detected
61-80	2 Mild Impairment	Impairment levels are compatible with most useful functioning
41-60	3 Moderate Impairment	Impairment levels are compatible with some but not all useful functioning
21-40	4 Marked Impairment	Impairment levels significantly impede useful functioning
1-20	5 Extreme Impairment	Impairment levels preclude useful functioning

Table 2.

DSM IV-TR GAF Scale (APA, 2000)	Class of Impairment: WCB Guide (WCB, 2006)	Description (WCB, 2006)
<p>GAF 81-100:</p> <ul style="list-style-type: none"> - Superior functioning in a wide range of activities, life's problems never seem to get out of hand, is sought out by others because of his or her many positive qualities. No symptoms. - Absent or minimal symptoms, good functioning in all areas, interested and involved in a wide variety of activities, socially effective, generally satisfied with life, no more than everyday problems or concerns. 	<p>Class I: No impairment, 0%</p> <p>Class II: Minimal impairment 1-10%</p>	<p>The worker:</p> <ul style="list-style-type: none"> - Is able to carry on with all the activities of daily living; and - Is able to perform work related duties without difficulty under normal conditions of stress, or - May exhibit intermittent pain behavior without restriction of functional ability. <p>The worker:</p> <ul style="list-style-type: none"> - Is able to carry out all the activities of daily living with some decrease in personal and social efficiency, AND - exhibits mild anxiety in the form of restlessness, uneasiness and tension which result in minimal functional limitation, OR - exhibits pain behavior causing a minimal restriction of functional

DSM IV-TR GAF Scale (APA, 2000)	Class of Impairment: WCB Guide (WCB, 2006)	Description (WCB, 2006)
		ability, AND - is able to function in most vocational settings but develops secondary psychogenic symptoms under normal conditions of stress.
<p>GAF 61-80: - If symptoms are present, they are transient and expectable reactions to psychosocial stressors; no more than slight impairment in social, occupational, or school functioning. - Some mild symptoms OR some difficulty in social, occupational, or school functioning, but generally functioning pretty well, has some meaningful interpersonal relationships.</p>	<p>Class III: Mild Impairment 11-30%</p>	<p>The worker: - is capable of taking care of all personal needs at home but may experience a reduced confidence level and an increased dependency outside the home, AND - experiences a definite limitation of personal and social efficiency, OR - suffers episodic anxiety, agitation, and unusual fear of situations which appear to threaten re-injury, OR - exhibits persistent pain behavior, associated with signs of emotional withdrawal and depression (e.g. loss of appetite, insomnia, chronic fatigue, low noise tolerance and mild psychomotor retardation), OR in the case of conversion reactions, consistently avoids the use of affected part leading to restriction of everyday activities, AND - will probably require vocational adjustment depending upon both the signs and symptoms present and the nature of the pre-accident work.</p>
<p>GAF 41-60: - Moderate symptoms OR moderate difficulty in social, occupational, or school functioning. - Serious symptoms OR any serious impairment in social, occupational, or school functioning.</p>	<p>Class IV: Moderate Impairment 31-50%</p>	<p>The worker: - Suffers definite deterioration of familial adjustment and incipient breakdown of social integration, AND - in the case of conversion reactions, exhibits bizarre behavior and a tendency to avoid anxiety creating situations to the point of significant restriction of everyday activities, AND - may require periodic confinement to the home or a treatment facility and will need significant vocational adjustment.</p>
<p>GAF 21-40: - Some impairment in reality testing or communication,</p>	<p>Class V: Severe Impairment 51-75%</p>	<p>The worker: - exhibits a chronic and severe inability to function both in and out of</p>

DSM IV-TR GAF Scale (APA, 2000)	Class of Impairment: WCB Guide (WCB, 2006)	Description (WCB, 2006)
OR major impairment in several areas, such as work, school, family relations, judgment, thinking, or mood. - Behavior is considerably influenced by delusions or hallucinations or serious impairment of communication or judgment OR inability to function in almost all areas.		the home, - suffers obvious loss of interest in the environment, extreme emotional irritability, emotional lability and uncontrolled outbursts of temper, OR - experiences mood changes with psychotic levels of depression, severe motor retardation and psychological regression, AND requires constant supervision and/or confinement as well as major vocational adjustment.
GAF 1-20: Some danger of hurting self or others, OR Occasionally fails to maintain minimal personal hygiene, OR Gross impairment in communication. Persistent danger of severely hurting self or others, OR Persistent inability to maintain minimal personal hygiene, OR Serious suicidal act with clear expectation of death.	Also Class V: Severe Impairment	The worker (as above): - exhibits a chronic and severe inability to function both in and out of the home, - suffers obvious loss of interest in the environment, extreme emotional irritability, emotional lability and uncontrolled outbursts of temper, OR - experiences mood changes with psychotic levels of depression, severe motor retardation and psychological regression, AND requires constant supervision and/or confinement as well as major vocational adjustment.

Table 3.

9. Providing remedies through comprehensive mental health disability management

9.1 Towards an operational definition for Mental Health Disability Management:

Mental Health Disability Management (MHDM) is a relatively new field involving a range of health professionals from different disciplines. The authors offer the formal definition of “the restoration of functional capacity, or the prevention of deterioration thereof, in a person who has been chronically or permanently impaired as a result of psychopathology, mental and/or addiction-related disorders”. MHDM should be offered on the least restrictive level of care that is likely to be effective and proven to be safe, consistent with the principles of treatment matching in other areas of healthcare. It aims at developing the individual’s existing resources, mobilizing additional resources, and to correct the relational interplay between impairment, the respondent, and the environment, collectively responsible for the disability. MHDM has a broad focus and is concerned with an individualized approach to limiting risk and ensuring safety, improving capacity (or preventing further deterioration),

increasing tolerance, remedying negative attitudes towards MHDM, and increasing motivation to return to work.

With financial expenditure related to psychiatric disability appearing to be out of control, and the existence of an empirical body of evidence suggesting the economic advantages of management of psychiatric disability, the authors are observing a growing trend and demand for evidence-based MHDM.

9.2 The goals of MHDM

In 1981 the World Health Organization stated that the aims of rehabilitation should be to reduce the impact of disabling conditions and identified three levels of action to bring this about. These same three goals (Harder and Scott, 2005) translate into the goals of MHDM:

- Reducing the occurrence of impairments
- Limiting or reversing disability caused by impairment
- Preventing the transition of disability to *handicap* (which is defined as a disadvantage for a given individual, resulting from an impairment or disability, which limits or prevents the fulfillment of a role that is normal for the individual).

9.3 The components of MHDM

MHDM includes a variety of components: prevention (primary), assessment, claim management (secondary, tertiary prevention), accommodation, return to work, and aftercare monitoring. Early identification and intervention are superior to lengthy and delayed protocols of assessment and management. Identification of mental health impairment and disability is a shared responsibility between employer and employee, and the responsibility of co-workers to report safety concerns or impairment in co-workers is beneficial in early initiation of remedies to prevent injuries and disability.

- Under ideal circumstances, workplace mental health promotion programs have the potential to prevent the development of a range of disorders. These prevent the development of mental disorders and addiction in vulnerable individuals and allow for prevention of use of drugs to cope or to self-medicate subjective distress.
- When a safety issue or a performance deficit has been identified, and there is reasonable suspicion of the existence of psychopathology, a mental disorder, or risky behavior, the confidential collection of accurate information pertaining to the health status of the respondent is mandated. The minimum data set in this regard should include an objective diagnosis (if any), formulated in a 5-Axis format, which includes a Global Assessment of Functioning, information pertaining to the safety issue / performance deficit that brought the case to the attention, information on putative predisposing, precipitating, and modulating factors in this regard, as well as the existence of any workplace issues. The claimant's motivation to return to work and the factors that could be affecting it should be assessed, and routine screening for any substance-related disorder or issues, which may be impacting the employee's presentation and recovery, should be explored. The symptoms reported by the employee should be documented, along with their frequency, severity, and duration, and the objective clinical findings during the examination, including the results of any mental status testing, should be included. A determination should be made whether the objective findings are consistent with

the subjectively reported findings, and if there is any evidence of malingering, symptom amplification, or simulation.

A routine part of the independent evaluation should include the previous psychiatric history, including previous hospitalizations, previous suicide attempts, and previous psychiatric treatment received. The assessment should include questions pertaining to adherence to previous treatment, as well as the nature of any trials offered, e.g. the dose and duration of pharmacotherapy. If counseling or psychotherapy were offered in the past, a determination should be made if this represented a reasonable and appropriately focused trial, and if a reasonable level of adherence was achieved. With an appropriate description of previous and current treatment modalities, the employee's response to treatment should also be determined, along with the identification of factors that might have impacted on the clinical course and recovery.

- In all cases the existence of personality disorders or the prominent use of specific ego defense mechanisms should be assessed, to determine if any DSM IV-TR Axis II factors are impacting on the response to treatment? Activities of daily living, such as household chores, child care, hobbies, interests, ability to socialize or travel, and any academic or vocational pursuits should be assessed and reported on.

With the completion of a standardized and comprehensive psychiatric assessment, an opinion can be rendered pertaining to risk, tolerance, and capacity. To offer informed opinions pertaining to any putative restrictions and limitations, which may exist, the assessor should obtain sufficient information regarding the essential duties of the job, any potentially safety-sensitive elements of the job, and of any potential workplace issues the employee may not have reported.

Following the completion of the comprehensive psychiatric assessment, discussion should ensue with the employer to assist in informing further MHDM.

9.5 Claim management

This component falls outside the scope of practice of the assessing physician, and it is recommended that the assessing physician clearly communicate the boundaries. The reporting on impairment, psychiatric illness, capacity, risk, and tolerance are not implied to construe a recommendation pertaining to the adjudication of any claims or legal matters. The opinions provided also do not suggest that a specific administrative function be made or enforced, and are offered independently from the requesting party's interests. Many persons becoming ill, psychiatrically or otherwise, find it challenging to navigate the maze of healthcare systems. It falls outside the scope of the physician conducting the assessment to assist in such navigation as it might be interpreted (by the worker undergoing the assessment) as the establishment of a physician-patient relationship. Such relationship would be associated with other duties and obligations. At a time with the worker is psychiatrically unwell; he/she may be particularly vulnerable, and less inclined to assume responsibility for accessing care unless additional support is offered.

9.6 The Duty to Accommodate

Under Human Rights legislation, the employer has a duty to accommodate disability to the point of undue hardship. This is a legal determination, falling outside the scope of this manuscript.

9.7 Return-to-work

The safe and timely return to work has favorable human and financial results (Curtis & Scott, 2004), and is often therapeutic in psychiatric conditions. Lengthy disability decreases the likelihood of a return to work.

9.8 Follow-up monitoring

Following the establishment of a diagnosis and after furnishing treatment recommendations, the worker should be matched with the appropriate level of evidence-based treatment interventions. In cases where a substance-related disorder was diagnosed, the need for ongoing random drug screening may be necessary, within what is permissible under human rights or disability legislation.

10. Avoiding common pitfalls in the assessment and management of mental health disability

The authors offer a non-exhaustive table of 10 common pitfalls (along with proposed solutions) in the practice of conducting psychiatric IME's:

Description of common pitfall:	Proposed remedy:
1. Dual agency conflicts.	Treating physicians should avoid involvement in offering conclusions pertaining to forensic matters. Similarly, physicians conducting IMEs should not become involved in treatment, in the context of a traditional physician-patient relationship. The assessing physician should refrain from acting as an advocate for the worker, but is also not an advocate for the retaining party.
2. Equating mental disorder diagnosis with impairment and disability.	There is a non-linear relationship between mental disorder, impairment, and disability. Rigorous and distinction between these matters is required, and each domain should be quantified based on collected evidence. Assessment of disability should be related to work-specific functions. The criteria for disability are determined by the particular third party and may vary across jurisdictions. The Social Security Administration's Criteria for Total disability requires that the mental disorder persist despite adequate treatment, for at least 12 months, at a level that produces at least two of the following: 1. Marked restriction in ADL; 2. Marked difficulties in maintaining social functioning; 3. Marked difficulties in maintaining concentration, persistence, or pace, and 4. Repeated episodes of decompensation, each of

	extended duration.
3. Assumption that occupation is an automatic and causal factor in mental disorders.	Work is therapeutic and is rarely considered causally related to the development of mental disorders. Consideration should be given to workplace issues, motivation, psychosocial issues, and other non-occupational factors in determining causality.
4. Reporting without the use of standardized diagnostic language, e.g. using “depression” to describe a Major Depressive Disorder.	Strict adherence to the diagnostic classification system of choice, e.g. the DSM IV-TR or the ICD-10.
5. Reliance on Mental Status Examination and GAF scores alone to determine degree of impairment.	The systematic determination of functioning should be conducted.
6. Failure to obtain valid consent.	Consent should be informed and valid, and this task should not be delegated to administrative personnel. The explanation of the scope and nature of the assessment should be the duty of the assessing physician, and should include the opportunity for the worker to ask questions.
7. Failure to report imminent risk of harm.	In a small number of situations there may exist a duty to report imminent risk of harm to self or others, or a reporting to the appropriate transportation authorities.
8. Failure to take Axis II conditions into consideration	A standard IME should include an opinion pertaining to the presence of any possible Personality Disorder, or the salient use of defense mechanisms that may impact on the individual’s clinical condition.
9. Reliance on self-reporting only in the context of symptoms, e.g. cognitive symptoms.	The assessing physician should take into account that cognitive dysfunction cannot be determined by relying on self-report only. Exaggeration in this context is widespread, and objective measures are required to validate the presence of any cognitive disturbance.
10. Failure to provide a well-substantiated report, or failure to respond to the referral source’s questions.	Care should be taken to ensure that the questions posed to the assessing physician are clarified in advance of conducting the assessment, and the report should focus on responding to these questions only. If an opinion is reached based on the review of records only, such fact should be clearly communicated in the report.

Table 4.

11. Summary

Disability is on the increase, and mental disorders are projected to be the leading cause of disability in future. Work is therapeutic, and most individuals do not experience an exacerbation of mental disorders as a result of working.

Conducting independent occupational assessments to determine capacity, risk, tolerance and fitness for work, is a specialized area of psychiatry, with its own pitfalls and caveats. Many psychiatrists experience this as intrusive and feel they are ill-prepared to navigate this arena.

This chapter outlined the common mental disorders, encountered in clinical and occupational settings, including Depressive Disorders, Anxiety Disorders, Substance-Related Disorders, and Personality Disorders. Of central importance is the duty to objectively measure impairment, and to not only rely on the diagnosis to determine the level of impairment. The non-linear relationship between mental disorder, impairment and disability is a key concept, and utilizing a template for conducting independent assessments may assist in bypassing some of the most common pitfalls.

The assessment of the functional impairment is the first step towards implementing the appropriate level of mental health disability management. The enjoyment of the human right to optimal health, without discrimination on the grounds of any disability, is vital to a person's well-being.

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Part 4

Control

Early Intervention in Psychiatry Challenges & Opportunities

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1. Introduction

We may agree that psychiatry has advanced so much within a relatively short life span.

Civilized life is a sign & reason for good physical and mental health. Herodotus in V Century BC expressed his admiration for the health of Egyptians, saying that they were the healthiest in the world, that "Egyptian are different from other people... they take their meals outside their homes, while they attend to their needs inside". Diodorus Siculus in the first Century BC stated that "the whole manner of life of the Egyptians was so wholesome that it would appear as though it had been arranged according to the rules of a learned physician rather than those of the legislator (Ghaliongui 1983).

Legislation may have an important role to play at some stage of nation's building, but with progress of life, maturity and stability of the population the legislation may be of less importance than previously.

The first mental hospital in the world was built Ephesus of the old Roman empire in the ancient times. In Middle ages there was a mental hospital in Baghdad, Iraq in 705 AD. This was followed by hospitals in Cairo (800 AD), Damascus 1270 AD and Aleppo in Syria). At the at time, mentally ill patients were being burnt, condemned and punished in Europe (Okasha, 1993)

Psychiatric asylums were landmarks in the history of psychiatric care. Mental Asylums were essentially to help 2 main purposes:

1. Caring for & protecting the mentally ill people
2. Public protection.

In 18th Century some documentation in the Journal of the Liverpool Psychiatric Club may demonstrate how psychiatry was at that time (Fig 1,2) (Psychiatry in Liverpool,1800).

1.1 Early attempts to understand mental illness

In a great step forwards, Benjamin Rush invented a tranquilizer chair as he believed that mental illness is due to irritation of blood vessels in the brain and his treatment method included bleeding, purging, hot & cold baths and mercury and he invented a tranquilizer chair (Fig4).

This style of thinking is not considered to be scientifically based or evidence based by the rules of our time nowadays but was a very courageous attempt to understand more about mental illness at this relatively early time. With this development the beginning of thinking

about mental illness, its underlying causes and how to treat started. This may have been an early attempt in the wrong direction but we may agree that a lot of discoveries in the field of medicine were not well-planned or evidence-based but started as trial & error. Most of our recent styles of thinking in the era of evidence-based medicine are relatively new. However, there was a belief that Evidence-based medicine, whose philosophical origins extend back to mid-19th century. Earlier, is the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients? The practice of evidence-based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research. By individual clinical expertise we mean the proficiency and judgment that we individual clinicians acquire through clinical experience and clinical practice (Sackett, 2006)

Liverpool, 18th century: Dealing with Mentally Ill in Liverpool in The 18th Century



Fig. 1.

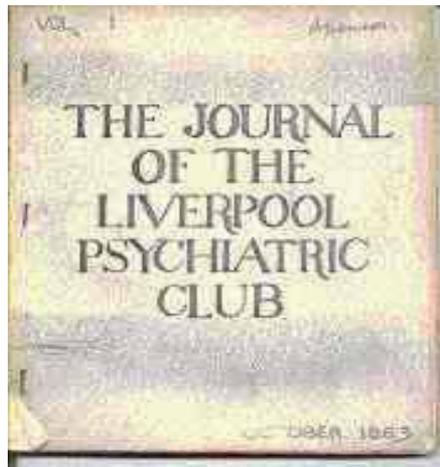
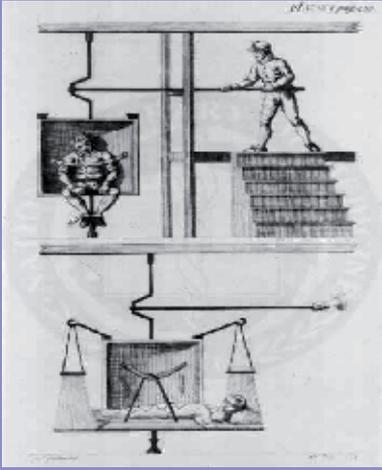


Fig. 2.

 UNIVERSITY OF LIVERPOOL

Psychiatry in Liverpool: 18th Century



5

The complex block features a blue background. At the top left is the University of Liverpool logo, which consists of a shield with three lions and the text "UNIVERSITY OF LIVERPOOL". Below the logo is the title "Psychiatry in Liverpool: 18th Century" in a bold, black serif font. Two black and white engravings are displayed side-by-side. The left engraving shows a person sitting on a bench in a room with a window and a door. The right engraving shows a person standing on a raised platform in a room with a window and a bed. A small number "5" is located in the bottom right corner of the blue background.

Fig. 3. Care for the mentally ill in Liverpool in the 18th century³



Fig. 4. Tranquilizing chair⁴

However, with further development, Modern psychiatric hospitals evolved from, and eventually replaced the older lunatic asylums.

1.2 The discovery of chlorpromazine

The discovery of phenothiazines, the first family of antipsychotic agents has its origin in the development German dye industry, at the end of the 19th century (Graebe, Liebermann, Bernthsen). Up to 1940 they were employed as antiseptics, antihelminthics and antimalarials (Ehrlich, Schulemann, Gilman). Finally, in the context of research on antihistaminic substances in France after World War II (Bovet, Halpern, Ducrot) the chlorpromazine was synthesized at Rhône-Poulenc Laboratories (Charpentier, Courvoisier, Koetschet) in December 1950. Its introduction in anaesthesiology, in the antishock area (lytic cocktails) and "artificial hibernation" techniques, is reviewed (Laborit), and its further psychiatric clinical introduction in 1952, with initial discrepancies between the Parisian Val-de-Grâce (Laborit, Hamon, Paraire) and Sainte-Anne (Delay, Deniker) hospital groups. The first North-American publications on the introduction of chlorpromazine took place in 1954 (Lehmann, Winkelmann, Bower). The introduction of chlorpromazine in the USA was more difficult due to their strong psychoanalytic tradition. The consolidation of the neuroleptic

therapy took place in 1955, thanks to a series of scientific events, which confirmed the antipsychotic efficacy of the chlorpromazine. (Lopez-Munoz et al 2005)

1.3 Closure of mental asylums & the beginning of psychiatric units attached to general hospitals

The development of the modern psychiatric hospital is also the story of the rise of organised, institutional psychiatry. While there were earlier institutions that housed the 'insane' the arrival of institutionalisation as a solution to the problem of madness was very much an event of the nineteenth century. To illustrate this with one regional example, in England at the beginning of the nineteenth century there were, perhaps, a few thousand 'lunatics' housed in a variety of disparate institutions but by 1900 that figure had grown to about 100,000. That this growth coincided with the growth of madness, later known as psychiatry, as a medical specialism is not coincidental.

The treatment of inmates in early lunatic asylums was sometimes brutal and focused on containment and restraint. With successive waves of reform, development and the introduction of effective evidence-based treatments, modern psychiatric hospitals provide a primary emphasis on treatment, and attempt where possible to help patients control their own lives in the outside world.

Closure of Mental Asylums & re-integration of people diagnosed with mental illness was claimed by some to have been associated with increased violence in the community. This matter was considered to be an important point to be discussed or even studied. Research did not confirm that release of mentally ill individuals or what was called at that time care in the community was a reason for increased violence and crimes in the community. Some research and published papers addressed this possibility and concluded that mental illness as a single factor may not be responsible for this (Ian Kooyman et al, 2007) and some scholars called for tightening and improving mental health legislations to minimise the possibility of loss to care (falling off the net) like Care Programme Approach (CPA) after certain famous cases e.g. happened in the UK e.g. Christopher Clunis and murdering Jonathan Zito. After a big famous investigation they concluded that everybody was to be blamed psychiatrists, social workers, the police, community psychiatric nurses, the Crown Prosecution Service, the probation service, hostel staff, and private sector care workers. (Timmins, 1994).

The use of a combination of psychiatric drugs and Psychotherapy. These treatments can be involuntary under the power of the Mental Health Act which gives the psychiatrists the power to treat even if refused by the patient in many countries. These powers were questioned by the Anti-Psychiatric movement and human rights activists.

1.4 Community Treatment Order (CTO)

More recently in countries like UK the Mental Health Act (The Mental Health Act 2005) has been updated giving some powers to enforce treatment in the community "Community Treatment Order" (CTO). However some viewed these as insufficient changes & some human rights activists viewed these as violations of human rights.

The CTO was considered by many mental health specialists as a good step forward towards ensuring that treatment can access people diagnosed with mental illness and refuse treatment while in the community. However the law has not been able to please everybody, on one hand most mental health professionals perceive it as not enough while human right

activists view it as a sort of violation of human rights. An important notice that Mental health Professionals had found initially CTO in UK of limited benefit which may reflect more about the understanding & use of the new Mental Health Act. However, the initial impression of CTO that has been used for sometime in North America especially Ontario Canada seem to be more positive. This may need to be researched and learning from the experience of use across the Atlantic to learn from each other's experience.

1.5 Mental Health Act

It is important to remember that there are some varying number of countries across the world of varying % that have no Mental Health Act which may be attributed to different factors. These countries may include % in Africa, Asia & east mediterranean & countries in America, (Wikipedia, 2007). With the improved awareness of human rights, the numbers of countries that have a Mental Health Act will hopefully gradually increase to include all patients on the earth. It is hoped that with the continuous efforts of World Psychiatric Association (WPA) and other relevant organisations e.g. WHO more countries will have its own Mental Health Act that would suit its culture and protect patients' rights.

Regions	With legislation	No legislation
Africa	59%	41%
The Americas	73%	27%
Eastern Mediterranean	59%	41%
Europe	96%	4%
South-East Asia	67%	33%
Western Pacific	72%	28%

Table 1. % of countries all over the world regions with or without Mental Health Act

Most psychiatric hospitals now restrict any device that can take photos and aim to protect patients dignity & human rights.

1.6 Electroconvulsive therapy (ECT)

Electroconvulsive Therapy (Previously known as Electric Shock) was first introduced in 1938 by Italian neuropsychiatrists Ugo Celettis and Lucio Bini gained widespread use as a form of treatment in the 1940s and 1950s.

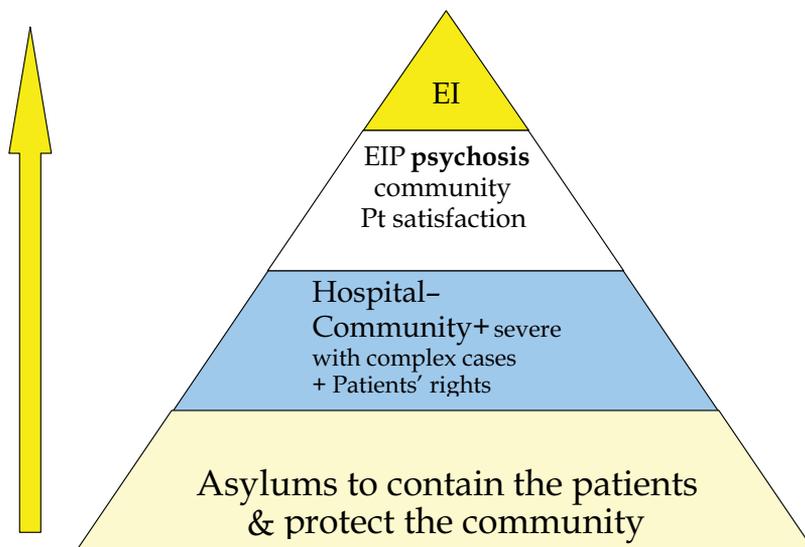
This Treatment Modality has been successfully used as therapy for mental illness for about 80 years. It may have been subject to various improvements but the original principle remains the same. It is considered to a relatively one of the safest & effective types of therapy. ECT remains the most effective treatment for major depression and a rapidly effective treatment for life- threatening psychiatric conditions, unlike contemporaneous somatic therapies, ECT remains in the active treatment portfolio of modern therapeutics.

It is estimated that approximately 100,000 patients have received ECT annually in the USA. A limiting Factor in its use has been the adverse effects of confusion and memory loss associated with associated with the course of treatment. However major innovation in ECT technique to diminish cognitive effects while maintaining benefits. New development in ECT techniques over offer the hope that this form of treatment will find better acceptance among psychiatrists and patients (Kaplan & Sadock, 2007).

The developments did not stop at the improvements of hospitals & hospital care or the community but included advances in drug development. Antipsychotics developed into Atypical Antipsychotics with less side effects and more safety if taken in overdose. However one major problem raised concern which is tendency of the new Antipsychotics to induce weight gain with varriable degrees and sometimes accused of precipitating Diabetes Mellitus.



Ephesus: The ancient Roman City (Located in Turkey as per map)

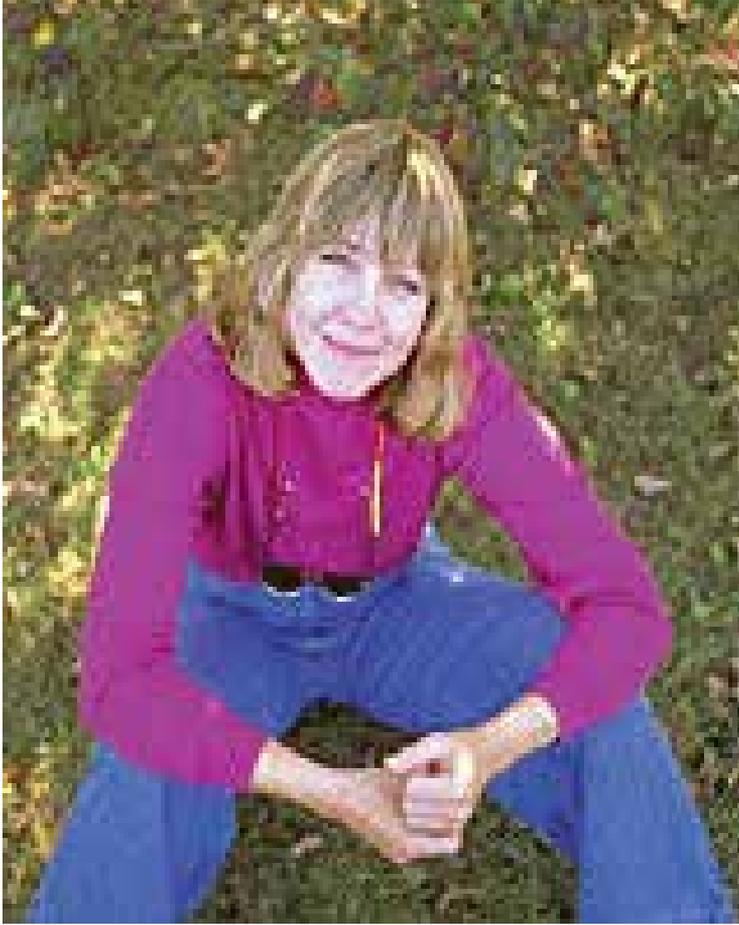


EI: early intervention, EIP: early Intervention in Psychosis,

Fig. 3. History of Psychiatry is developing relatively with a good momentum⁵

2. The importance of community care

We may have different views about care in the community but there is enough evidence that care in the community has been beneficial. We agree that care in the community is not a replacement for hospital care but compliment it. Unfortunately psychiatric services & resources are not well developed to the same extent all over the world. The following story may be an example that would be an evidence for the importance of community care. A mother killed her 4 year old daughter and attempted to kill her newly born baby.



Picture picked up from the net not related to the real incidence for confidentiality.

• الصفحة الأولى 23Sunday

< اخبار الدار 02:01 آخر تحديث 21-03-2008 استقرار حالة الأم القاتلة والابنة الرضعية دبي سيد الضبع: أكد الدكتور فيصل البديري رئيس قسم الجراحة بمستشفى راشد بدبي ان الحالة الصحية للأم المتهمة بقتل ابنتها البالغ من العمر 4 سنوات والشروع في قتل ابنتها الرضعية "عامان" بعدما اصابتها بجروح بالغة أدت لتتهتك الطحال والمعدة والكبد وجرح قطعي بالعمود الفقري أدى إلى تسرب سائل النخاع الشوكي مستقرة وفي حالة صحية جيدة بينما راحت تسيطر عليها حالة اكتئاب نفسي منعها من الحديث والتفاعل مع كل من يحاول الاقتراب منها وهي الحالة التي وصفها . و اضاف في تصريح ل"الخليج" ان الطفلة الرضعية ترقد حالياً بقسم الانعاش التابع للعناية المركزة بمستشفى راشد بدبي بعد ان شهدت حالتها استقراراً نسبياً ومن المتوقع خروج الطفلة من قسم الانعاش خلال اسبوع على اقصى تقدير ومن جهة أخرى من المنتظر أن تحال الام فور امتثالها للشفاء للنياحة العامة.

Translation of Arabic News:

A mother killed her 4 year old child, Dr Albadry, Head of Surgical Dept stated that the mother's condition is stable & her newly born baby is OK⁶. However this tells us that Psychiatric resources and services are not developed to the same extent all over the world, why? This may be related to local culture, economic factors, available resources, service priorities and service planning.

3. First episode psychosis studies

In a UK study addressed GPs experience with first episode psychosis we found out that Stigma remained a strong reason for patients and their families to refuse referral of the individual to see a psychiatrist. This could be imagined in a less developed country but not in a well developed country like UK, however, stigma of mental illness still a strong reason to deter patients and their family members from first psychiatric referral. This supports Norman Sartorius Who stated that :“Stigma attached to mental illness is the main obstacle to the provision of mental health care⁸ This may indicate the need for more work on stigma. We probably need to think of Anti-stigma Programmes not only a campaign.

It was also found that patients with first episode psychosis are less likely to ask for referral to see the psychiatrist but if offered this by their GP they are likely to accept referral. It is very important that we consider public education as a priority in our programmes worldwide. One important point that came out of this study is that GPs feel less inclined to treat psychosis in general especially early psychosis. The study did not address GPs prescribing trends in early psychosis. However GPs appear to be more comfortable treating depression than psychosis. This may be due to training programmes focusing on GPs treating depression to lower suicide rates. Does this indicate that psychosis especially early psychosis will remain the business of psychiatrists and not GPs. More importantly that early diagnosis of psychosis will need to be by specialist care not by primary care. One of the ways that can change the picture is to review GP education and training to give more attention to the area of psychosis. The answer for this question can only be answered with more time.

Interestingly in an Egyptian study on “Factors associated with delayed access to care in a rural Egyptian setting” lack of knowledge, financial factors and stigma were on the top of the list. It is obvious to us that lack of knowledge about mental illness is an important obstacle in developing & developed countries as well. In a Canadian study, treatment may be delayed if youth, young adults and parents are not aware of the early signs and symptoms of psychosis, the need for early diagnosis and treatment and where and how to get help. This article describes the use of the development of an early psychosis public education program's objectives designed to meet the learning needs of the target population (youth and young adults aged 15–30 years and their parents).

Another finding in the Egyptian Study was that DUP was about one year and this nearly the same in Studies of developed countries, this may be due to small sample studied in Egyptian study or due to presence of high% of affective psychoses in Egyptian study or this may mean that this is the natural course of the disease regardless the type of intervention or cultural difference i.e. patients with psychosis will arrive relatively late to service.

This may alert us to the need to the importance of working together to develop an international anti-stigma programme that would be culturally compatible worldwide. In the

case of Egypt & culturally and economically similar countries, improving public education about mental illness and developing a viable & effective national health insurance system is likely to play an important role in health promotion in general including mental health.

In his efforts to promote early intervention in psychosis, Professor Patrick McGorry from Australia developed a Clinical staging model Framework for Psychiatric Disorders (fig. 5) that correlates clinical signs with treatment. This may put psychiatrists while handling early psychosis in line with physicians & surgeons while treating early stages of cancer (Yung & McGorry, 2007).

It is very interesting and motivating that we can see developments in psychiatry are developing with big steps to catch up with our fellows in other braches of medicine thanks to the efforts of all those who devoted their life to help their patients worldwide.

Clinical Staging Model Framework for Psychotic Disorders (Yung & McGorry, 2007)				
stage	Def.	Target Population	Potential intervention	Markers
0	-? risk of psychotic disorder - No symptoms	FD teenage Rs of probands	? MH literacy, Family+ drug edu, Cog Skills train.	SPEmovements, P50, niacin sensiti.
1a	-mild/nonspecific symptoms including neurocognitive -mild functional change or ?	-Teenagers screening -Ref by GPs & school counsellors	formal MH literacy, family psycho-education, active drug misuse?, formal CBT	Trait & state candidates where feasible
1b	Ultra high risk: moderate but subthreshold symptoms e.g. neurocognitive changes & function. changes to caseness	Ref by GP, Education, Welfare agencies, ER	As 1a	Niacin sensitivity, folate status, MRI, HTPA axis dysregulation
2	FEPsychosis, full threshold disorder, mod.-severe symptoms, neurocog. Deficits, functional ?, (GAF: 30 – 50)	Ref by GP, Education, ER, Specialist care agencies, drug & alcohol services	As 1 + Atypical antipsychotic Vocational rehabilitation	State & trait markers & progression
3a	Incomplete remission from FEP Could be linked to stage 4	Primary & specialist services	As 2 + focus on medical & psychosocial→full Remiss	As 2
3b	Relapse/recurrence of psychosis, stabilises with treatment at a GAF level	As 3a	As 3a + emphasis on relapse prevention & early warning signs strategies	As 2
3c	Multiple relapses, impact of illness is objectively present.	Specialist service	As 3b + emphasis on long term stabilisation	As 2
4	Severe persistent or unremitting judged on symptoms, neurocognition & disability criteria	As 3c	As 3c + emphasis on Clozapine & Social participation	As 2

Fig. 5. Clinical Staging Model Framework for Psychotic Disorders (Yung & McGorry, 2007)

3.1 Challenges

1. Evidence based practice: further integration of research into clinical practice & Service planning is not always cheap but benefits are likely to outweigh costs.
2. Early intervention needs to be more inclusive e.g. Mood Disorders, Eating Disorders,...etc..
3. A preventive approach is necessary especially in Child Psychiatry
4. Stigma: we need Anti-stigma Programmes not only campaigns.

5. Third world countries patients: should not be forgotten.

3.2 Opportunities

1. Bringing Psychiatry more into medicine.
2. Further integration of Hospital care into Community programs.
3. Strengthening the Interface between secondary and primary care.

The Challenges are numerous and opportunities can be increased but we need to remain determined to make the future of Psychiatry & psychiatric patients a better future worldwide.

One important question that may need to be understood: do we expect that early intervention in psychiatry is going to be cheaper in cost compare to traditional care. The careful understanding and studying of this matter may tell us different answer that may disappoint some of us. The same may apply to working on evidence-based, is it likely to be cheaper? The experts believe that early intervention in psychiatry or working on evidence-based rules are likely to be associated with increased financial cost rather than reducing the cost. However, it may be important to do the appropriate practice with more cost than to practice inappropriately.

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Lost in the Social World: How Social Cognitive Deficits Affect Social Functioning of People with Asperger Syndrome

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1. Introduction

Were we to visualise autism spectrum disorders as a continuum, Asperger syndrome (AS) would be situated at one of its extremes. What appears to determine each individual's position in this continuum is his or her symptomatology. In the case of AS symptomatology presents itself more discretely. According to Barthélemy (2000), the abovementioned symptomatology can be grouped in three major areas: a) difficulties in development of social interaction; b) difficulties in verbal and nonverbal communication; and c) presence of fixated interests, routines or rituals and repetitive behaviours. Being a developmental disorder, symptoms vary according to age. While some features tend to disappear with time, others only appear in a posterior stage of development and the changes can be spectacular (Frith, 2006). Citing Frith (2006, p. 16), "the autism affects the development, as well as the development affects autism". Besides the variability on behaviour, there is also great diversity at a cognitive level, which can range from a medium or superior level of intelligence to profound mental retardation. Approximately 60% of autistic children present an Intelligence Quotient [IQ] under 50; 20% between 50 and 70 and 20% above 70 (Ritvo & Freeman, 1978). More recent data points to the presence of mental retardation in 75% of the cases (Barthélemy, 2000). The existence of a normal level of intelligence (IQ above 70) is the variable that distinguishes classic cases of autism from those considered as the "High Functioning Autism" or the person with AS.

However, it is not yet clear if there are significant differences between "High Functioning Autism" and AS from the point of view of cognitive and behavioural profile. According to the working group that is preparing the fifth edition of DSM-V (American Psychiatric Association [APA], 2010), the current field of research reflects two views: 1) That AS is not substantially different from other forms of 'high functioning' autism; i.e. Asperger's is the part of the autism spectrum with good formal language skills and good (at least verbal) IQ, noting that 'high functioning' autism is itself a vague term, with underspecification of the area of 'high functioning' (performance IQ, verbal IQ, adaptation or symptom severity); 2) That AS is distinct from other subgroups within the autism spectrum: e.g. Klin et al. (2005) suggest the lack of differentiating findings reflects the need for a more stringent approach, with a more nuanced view of onset patterns and early language.

Additionally, several studies have pointed to the non-existence of distinctive criteria at a cognitive and behavioural level to differentiate between these two clinical conditions (Manjiviona & Prior, 1999; Miller & Ozonoff, 2000; Ozonoff, South & Miller, 2000). Some researchers defend that what distinguishes a person with 'high functioning autism' from another with AS is the presence (High Functioning Autism) or not (AS) of a delay in the development of language in childhood. Since this criterion is not very significant in terms of cognitive and behavioural profiles (that is similar in both groups) and since there is still no consensus in scientific literature whether these two designations are referring to a unique disorder or not, in the present work we will only utilize the term AS to designate the group of people that belong to the autism spectrum disorder that have a normal or above normal IQ, independently of the delay in language development in childhood.

Now focusing on AS, we can say that one of its characteristic features is social impairment, but social cognition, or the ability to understand the social world around us, appears to be also affected. Nonetheless, the relationship between social cognition and social functioning in AS still remains unclear. The aim of this chapter is to describe the concept of social cognition, analyse how different aspects of the concept may be affected in AS and explore how social functioning may be impaired in this clinical condition. Possible connections between these two types of impairment will also be examined.

2. Social cognition in Asperger syndrome

In general terms, social cognition is related to the way each person understands and interprets social situations, i.e. it involves the information that is perceived from the world around us, the interpretations that we make from this information and the way we react to the social world in accordance with that initial interpretation. One of the most complete and utilized definitions of social cognition is given by Brothers (1990) and refers to the mental operations underlying social interactions, which include processes involved in perceiving, interpreting and generating responses to the intentions, dispositions, and behaviours of others. According to Striano & Reid (2009), social cognition involves our ability to predict, monitor, and interpret the behaviours and mental states of other people.

Social cognition includes various domains, such as emotional processing, theory of mind (ToM), social perception, social scheme, and attributional style. Emotional processing refers broadly to aspects of perceiving and using emotion. Emotion perception has been the most extensively studied social cognitive process and refers to the ability to infer emotional information from facial expressions, vocal inflections, or the combination of both (Horan et al., 2008). Theory of mind refers to the ability to understand that others have mental states that differ from one's own and the capacity to make correct inferences about the content of those mental states. Processes typically associated with theory of mind involve the ability to understand false beliefs, hints, intentions, metaphor, and irony (Horan et al., 2008). Social perception refers to a person's ability to judge social cues from contextual information and communicative gestures, including awareness of the roles, rules, and goals that typically characterize social situations and guide social interactions. Social perception can also refer to one's perception of relationships between people, in addition to perception of cues that are generated by a single person (Fiske, 1992). Social scheme is linked to social perception and refers to the ability to identify the components that characterize a social situation. The identification of social signs requires knowledge of what is typical in a social situation. It is the social scheme that determines how to act, what is our role and the role of others in a

social situation and what are the rules that should be followed and the goal of that situation (Ruiz et al., 2006). Finally, attributional style refers to how individuals characteristically explain the causes for positive and negative events in their lives (Horan et al., 2008).

In our daily routine we are constantly using social cognitive processes because we depend on them to feel socially situated, to understand social situations and others, to take perspective and to understand what others are expecting of us. All this seems extremely simple and normal. Nonetheless, things are different when social cognition is affected and AS is a disorder where this is very much so, with considerable deficits in emotional processing, social perception and theory of mind.

2.1 Emotional processing

It is important to analyse two aspects: 1) to understand how people with AS process emotions, and 2) to present studies that have been developed dealing with face processing that can explain difficulties in emotional processing in AS.

Different diagnostic criteria of AS describe, clinically substantial difficulties for comprehension, expression and regulation of emotions, e.g. lack of social and emotional reciprocity (APA, 2002); social and emotional behaviour inadequate for the social situation and limited facial expression that is inadequate for the situation (Gillberg, 1991); difficulties in perceiving feelings and emotions in others, limited facial expression and inability to read emotions through facial expressions, as well as transmitting messages through gaze. It is also common for people with AS to have a limited vocabulary to describe their emotional state, mostly when the emotions are more complex (Attwood, 2009). Most studies that have been carried out on emotional processing in AS have focused on the identification of basic emotions and the results have been contradictory, with some authors saying that there is a difficulty in recognizing basic emotions through facial expressions, voice tone or both (Celani et al., 1999; Deruelle et al., 2004; Hobson 1986a, 1986b; Kuusikko et al., 2009; Loveland et al., 1995; Macdonald et al., 1989; Yirmiya et al., 1992) while others maintain that there are no difficulties in this area (Baron-Cohen et al., 1993; Boucher et al., 2000; Grossman et al., 2000). On the other hand, studies that have evaluated the identification of more complex emotions have demonstrated a greater and more consistent evidence of the difficulty to recognize these types of emotions (Attwood, 2009; Baron-Cohen et al., 1999; Baron-Cohen et al., 2001; Capps et al., 1992; Golan et al., 2006; Golan et al., 2008; Happé, 1994; Shamay-Tsoory, 2008; Yirmiya et al., 1992).

The emotions and feelings of other's are interpreted either through voice tone, or through facial and corporal expressions (Kuusikko et al., 2009). We will focus only on facial expressions to introduce the second question, face processing. People with AS have difficulties in reading facial expressions because they process faces as they do objects and they seem to pay attention only to the individual components of a face, which affects the interpretation of emotional expression. Face processing can be described as the central source of information about the emotion and the ability to recognize the emotional state of others requires the ability to pay attention and to focus on relevant information (Kuusikko et al., 2009). Typical errors in AS are, on the one hand, not distinguishing between which keys are relevant and which are not and, on the other, wrongly interpreting those keys. Several studies using advanced technology such as eye-tracking to evaluate visual attention to faces, have reported that people with AS show reduced attention to eyes, which is the region of the face providing more information about the expression of different emotions (Baron-

Cohen et al., 1997b; Bassili, 1979; Calder et al., 2000). This has also been reported in a case study of a 15-month-old baby (Klin & Jones, 2008). Chawarska & Shic (2009) verified that AS children moved away their gaze from faces progressively with age, and they did not focus their gaze on relevant regions of faces (like the ocular region), focusing more on external characteristics. Similar conclusions were reported in several other studies (Freeth et al., 2010; Klin et al., 2002b; Pelphrey et al., 2002; Speer et al., 2007). With regard to the use of facial information to infer emotions, Spezio et al. (2007) verified that people with AS use more information from the mouth rather than the eye region to infer emotions. Other studies have reported that people with AS are less capable than people with typical development of inferring information from the eyes of another person (Baron-Cohen et al., 1997a; Baron-Cohen et al., 2001). Hence, using information transmitted by the eyes to know what another person is thinking and feeling, poses problems for people with AS. On the one hand, they do not look very much in the eyes of other people. On the other, when they are capable of establishing eye contact, the interpretation that they make about the information provided from the other person's eyes is not very efficient (Attwood, 2009). In the light of these studies about emotion identification and face processing, it is important to reflect on the possible relationship between emotional processing and face processing. Considering those studies that report deficits in face processing and postulate that people with AS tend to focus their gaze on external characteristics, not paying much attention to faces and that when they do pay it, tending to focus more on the mouth rather than the eye region and knowing that the eye region is the richest in information about emotions that are transmitted through faces, we can venture that the deficit in processing emotions can be due to inadequate face processing. To conclude, it is important to establish what implications these deficits have (whether in face processing or in emotion processing) in the life of a person with AS. If such a person cannot understand the emotions that are expressed by the people around her, she surely cannot know how to react to those people, because she is not capable of interpreting the signs around her, she does not know what to think, say or do. This being the case, it is very common for a person with AS to think, say and do awkward things that are misinterpreted by others. The person with AS knows when her speech or behaviour is inadequate, and this makes her feel socially incompetent. Being aware of her own difficulties and limitations, the person with AS feels like she does not fit in the social world, and this encourages her to avoid social interaction and leads to social isolation. She becomes closed in her own world, where she knows that no one will bother her and where she can have her desired peace, aware of the confusion inherent in the world of social relationships.

2.2 Theory of mind

As previously mentioned, ToM refers to the ability to recognize and understand what others think, wish or what their intentions are, with the goal of understanding and predicting their behaviour (Attwood, 2009). Several studies have demonstrated that both children and adults with AS present difficulties in the abilities of ToM (Baron-Cohen, 2001; Bowler, 1992; Frith, 2006; Happé, 1994; Kalland et al., 2002; Kalland et al., 2008; Leslie, 1987; Ozonoff et al., 1991; Ponnet et al., 2004; Spek et al., 2010). As Frith (2006) defends, these persons are not programmed to reflect automatically about the mental states of others and present difficulties in "putting themselves into others' shoes" or taking perspectives. For that reason, Baron-Cohen (1995) states that they are mindblind. One of the consequences of

deficits in theory of mind is the tendency to make literal interpretations of everything that is said by others. Metaphors, sarcasm and irony also generate much confusion. This occurs because these people are unable to understand the existing incongruence between what is said and facial expression, voice tone and context (Kleinman et al., 2001; Rutherford et al., 2002). ToM deficits also affect problem solving, due to difficulties in thinking about the point of view and priorities of others, limited abilities in persuasion, a tendency to polarize and to be rigid and inflexible and resistance to changing opinion and decision (Attwood, 2009). Another question related to ToM which affects the daily life of a person with AS is that these people are extremely sincere, putting this above anything else, including the emotions, opinions and feelings of others. People with AS do not know when to refrain from making comments that, although true, may hurt others, and all this is due to the fact that they are not able to infer the mental states of others or "put themselves in others' shoes". There are different levels of ToM and tasks have been created to measure ToM accordingly. There are first order tasks, that consist simply of making inferences about the mental states of others, e.g. 'Where does Sally think her doll is?'; second order tasks, that consist of attributing more complex mental states to others, e.g. 'What does Sally think that Anne is thinking?', and finally advanced ToM tasks, that consist of interpreting more complex social situations, based on subtle information (Spek et al., 2010). Children with AS can pass first and second order ToM tasks, but not at the age that was expected. They only can pass them at a more advanced stage of their development (Bowler, 1992; Happé, 1993; Happé, 1995). Adults with AS also do not present difficulties in these kinds of tasks (first and second order tasks) (Baron-Cohen, 2001; Bowler, 1992; Happé, 1994; Ozonoff et al., 1991). But this does not mean that they are able to function adequately in social situations, because in our daily lives we have to face more subtle social information, which is harder to interpret (Ozonoff et al., 1991). Hence, even adults with AS that can pass first and second order tasks of ToM, present difficulties in passing more advanced tasks of ToM (Baron-Cohen et al., 1997a; Baron-Cohen et al., 1997b; Happé, 1994; Kalland et al., 2008; Spek et al., 2010).

Given the above-mentioned studies, it is possible to say that people with AS present deficits in ToM, because at any level of development there is always an inability to pass tasks of ToM in keeping with their stage of development, which means that throughout their development, they will always demonstrate incomprehension of what people around them are thinking or feeling, resulting in their not knowing what to say or how to react to such people.

2.3 Social perception

While people with typical development can notably figure out social cues that indicate the feelings and thoughts of others and can understand these, as if their minds prioritise social cues above anything else, people with AS perceive more information from the physical world than from the social world (Attwood, 2009). Moreover this occurs in very early stages of development. Klin & Jones (2008) reported a case of a 15-month-old infant that suggested that the viewing patterns of the child with autism were driven by the physical contingences of the stimuli rather than by their social context. Studies with older children (around 5 years old) verified that while neurotypical children prefer hearing the voice of their mothers (social stimuli), children with an autism spectrum disorder (ASD) prefer hearing sounds that are not related to persons (non social stimuli) (Klin, 1991; 1992). Similar conclusions were obtained by Mongillo et al. (2008) and by Sheppard et al. (2010). Attempting to explain this preference we can say that the social world appears to be too confusing and difficult to interpret for people with AS. Hence it is much easier to pay attention to non-social

information because this type of information does not need to be deciphered according to some secret code that only people with typical development seem to master. On the other hand, difficulties in social perception can also be related to another question, that is the attention that is paid to social context. People with AS do not use context when processing social stimuli. Beyond having difficulties in utilizing information coming from context during information processing, people with AS invest more time on less relevant characteristics, paying more attention to details than to the big picture (Happé & Frith, 2006; Klin et al., 2002a). All this leads to a deficit in perception of socially relevant stimuli. Linked to this is the concept of central coherence, which refers to the ability to integrate information in context (Frith, 2006). Further to the deficit in ToM and in emotional processing, in AS there is also weak central coherence, i.e. when people with AS are processing information they are excellent at fixating on detail but present serious difficulties in understanding the general perspective or the context (Frith & Happé, 1994). Weak central coherence explains some difficulties felt by people with AS at a social level. Having a weak central coherence means that people cannot easily differentiate between what is relevant and what is superfluous in a social situation. For example, when a person with typical development goes into a large space, where there are a lot of people with a lot of social activity, the brain is inundated with a huge amount of new information, but is capable of identifying and selecting only that which is important and socially relevant. People with typical development have a system of priorities and the usual priority is to focus on people and on conversations and not on the drawing on the rug on the floor or on the decorative flowers or the lights that are illuminating the place. People with AS are less capable of determining what is important in social terms and what is not. Hence, they will probably pay more attention to the rug, to the flowers or to the lights because it is much easier to pay attention to physical stimuli rather than to social stimuli. After the event, people with typical development tend to remember the people, conversations and emotions felt and forget socially irrelevant information. Conversely, people with AS will not remember such detail, but instead will remember a lot of details that other people would consider unimportant (Attwood, 2009). It is possible to distinguish two important aspects of social perception. On the one hand, people with AS present difficulties in perceiving the world around them in a general way, i.e. they can not get the big picture because they prefer to focus on details. On the other hand, looking only at the information they perceive, they prefer to focus on non-social rather than socially relevant information.

All this has implications in the life of the person with AS, because by focusing on socially irrelevant rather than socially relevant information, the person with AS will present difficulties in interpreting social situations and will not know how to react to these. The behaviour of the person with AS will be socially inadequate. Being aware of their social maladjustment, people with AS avoid social contact, preferring to be isolated in their own worlds.

3. Social functioning in Asperger syndrome

3.1 Social functioning on adolescence and early adulthood

In adolescence, teenagers start to become more interested in social relationships and become concerned with being socially accepted in their peer group as well as attaching more importance to friends. This happens with most adolescents, even with those that do not have friends, but would like to, like teenagers with AS (Patrick, 2008). Nonetheless, wanting

to have friends is not the same as knowing how to enter into a relationship (Sicile-Kira, 2008) and this is where we can distinguish a teenager with AS from one without. People with AS do not know how to interrelate and consider this to be extremely difficult. Attwood (2009) mentions that some adults with AS feel that social interactions seem to employ a completely different language, like a foreign language that has not been taught to them by anyone and for which they have no translation. According to Sicile-Kira (2008), things get more complicated because different rules seem to exist according to different social relationships. Given the existence of these different types of relationships, each one with its own set of rules that seems to be obvious to people with typical development but less so obvious to those with AS, the latter has to learn an infinitude of rules and social skills that are suited to different kinds of social relationships (with parents, with friends, with teachers, with neighbours) and to different kinds of social situations (in job interviews, on a date). There are a lot of social interactions that people with AS have to face throughout their lives and each one of them requires specific social skills and it is precisely here where they have difficulty in knowing which one is appropriate for each situation. Learning social skills is an extremely hard and exhausting task for such people because the process consists of multiple attempts and errors, and thousands of misunderstandings occur in interpersonal relations. As Sicile-Kira (2006) points out, AS can be considered a disability of social misunderstandings. These constant misunderstandings lead the adolescent or the adult with AS to see the social world as an ocean of impossible navigation. The unpredictability of the social world is the cause of a constant state of anxiety governing the lives of a lot of these people and that is why many prefer to auto segregate in order to avoid confusion and suffering.

3.2 Social skills

Social skills are the capabilities that we are expected to use to interact with others in our society. They are based on the social norms of our society and tell us what attitudes and behaviours are considered to be normal, acceptable and expected in a particular social situation (Patrick, 2008). Social skills are important because they allow us to interact with each other with predictability, so that we can more readily understand each other and be understood. People who have well-developed social skills are generally viewed by others in their society as competent and successful. They also tend to be well liked by others, while those who struggle to master the social skills are often viewed by society as inept.

Entering adulthood is hard for most people. Nonetheless, it is particularly difficult for a person with AS because living independently requires a lot of abilities that they seem to have difficulties in acquiring, given their special characteristics. This is a propitious moment to start honing social skills. Nonetheless, while adolescents with typical development acquire these skills easily as part of a natural development process, people with AS face far more difficulties at this stage. People with AS fail to learn adequate social skills and this can lead to isolation, feelings of loneliness, frustration, rejection, and poor self-esteem.

According to Patrick (2008), social skills consist of three elements: social intake, internal process, and social output. Social intake refers to our seeing and understanding the words, vocal inflection, body language, eye contact, posture, gestures, and other cultural behaviours that accompany a social message. Internal process refers to our interpretation of the social message in addition to recognizing and managing our own emotions and

reactions. Social output refers to how we respond to the message through our own words, vocal inflection, body language, eye contact, posture, gestures, and cultural behaviours.

Attempting to explain difficulties in social skills felt by the person with AS and taking the above-mentioned elements as a point of analysis, we can say that the person with AS fails early on the first element, that is social intake.

This is related to the fact that they present deficits in social cognition. Information processing is more selective and more focused on details and not on the global context or on the big picture. Additionally, there is a preference for perceiving socially irrelevant rather than socially relevant stimuli. So, if people with AS prefer to focus their attention on physical stimuli (socially irrelevant) and not on social stimuli it is perfectly normal that they will not be paying attention to vocal inflection, body language, posture and to all non verbal communication elements that are transmitted in a social interaction. Since they are not paying attention to this type of information, they fail early on in the first stage of the process of putting social skills into practice. And if there is a failure at this first stage, then it is obvious that everything later in the process will be affected, i.e. the person that does not correctly perceive social stimuli, will not be able to process them at an internal level, so will therefore not know how to adequately react. This results in extremely deficient social skills and lack of adjustment to social situations.

It is a fact that people with AS present a deficit in social skills, but can these be learned? The biggest problem with learning social skills in AS is the fact that these people fail on the application of social rules to daily situations. And this is a very hard task because we live in an age where social norms are changing at a rapid rate and where it is virtually impossible for any human being to know and master every social skill required for every setting, since one way of acting in a specific situation may not be adequate for another one if the context is different (Patrick, 2008).

Nonetheless, a lot of adolescents and young adults with AS can improve their social skills, albeit slowly. Because changes in social behaviour are so difficult, every little gain or advance must be highly valued. Grandin, an adult with AS, asks, "Does this give us an excuse to put aside the effort it takes to function socially? No. It just means that our social learning never stops" (Grandin & Barron, 2005, p.24).

3.3 Communication

Even if a person with AS has exhibited some exceptional abilities at language since childhood, such as using a rich and complex vocabulary, that could include technical terms (usually associated with a particular interest) and some expressions that are used only by adults, these persons also present a lot of difficulties on a communicational level. One of the most visible is the incapability of modifying language in accordance with social circumstances. Pragmatics is the area that studies the use of language in social contexts and this is extremely affected in AS. Another language characteristic of people with AS is prosody, i.e. the melody of speech, in particular, voice tone, that in some persons can sound strange because it is perceived as flat and monotonous. When we hear a person with AS speaking, peculiarities of the tone, inflexion and rhythm of the voice are evident (Fine et al., 1991; Paul et al., 2005; Shriberg et al., 2001). Prosodic function involves three aspects: grammatical, pragmatic and affective. Grammar seems not to be affected in AS. Nonetheless the prosody of people with AS is strange at a pragmatic and affective level (Shriberg et al., 2001) because the speech of these persons does not transmit the degree of social and

emotional information that is expected. People with AS also have difficulties in understanding the importance of voice tone, inflexions or the accentuation of certain words when they are listening to someone else talking (Koning & Magill-Evans, 2001). These subtle keys are very important if we want to identify the different intentions, thoughts and emotions of others. Another speech characteristic that seems to be affected in AS is the volume of the voice, that may be too high or too low for the situation. A too-high tone of voice is extremely irritating to family members and hard for teachers, who are constantly trying to maintain silence in the classroom (Attwood, 2009). As for the fluidity of verbal expression in AS, Attwood (2009) maintains that these people either speak too much or not at all. If the theme is of particular interest, conversation gives way to an authentic verbiage and incessant questions about the topic. In this process of authentic verbiage, it is common that people with AS do not interpret signs that are telling them to stop talking. On the other hand, there are also people with AS that appear mute for periods of time (Gillberg & Billstedt, 2000). This seems to be due to anxiety, which affects verbal fluidity. Sometimes, during a conversation with a person with AS, there are moments when it seems that there has been a malfunction in the communication transmission. The person turns quiet; thinking about what to say next and, in order to get concentrated, avoids looking at the face of the other person. Such behaviour can confound the interlocutor, who is waiting for an immediate answer and begins to wonder if they should interrupt the thoughts of the person with AS in order to re-establish the dialogue (Attwood, 2009).

Normally, people with AS do not like to be interrupted when they are talking, yet they usually interrupt others or continue talking when they should not do so (Grandin, 1995). This normally happens because they are not able to interpret the signs that indicate that they should not interrupt or continue talking. During a conversation between people with typical development, it is expected that the person listening shows signs of paying attention to what is being said and communicates this with gestures and other elements of nonverbal communication. These behaviours confirm the sensation of communication and being in tune with the speaker. These signs of nonverbal communication are less evident when one of the interlocutors is a person with AS. The signs that demonstrate agreement and the sensation of listening with attention and empathising are not present in the communication process of a person with AS (Attwood, 2009). It is also common that, during a conversation, the person with AS frequently changes the topic of conversation, unaware of the fact that the logical connection between themes is not evident to her interlocutor. These conversations, or rather monologues, seem to be unstructured and are perceived by the interlocutor as an offloading of thoughts and experiences without any coherence or relevance to the particular situation. The person with AS is unable to perceive the perspective of an interlocutor who is trying to follow the logic of the conversation while at the same time wondering about the purpose of what is being said. In conversations with people with AS, comments engaging the interlocutor, such as "what do you think about this?" or "have you ever had any similar experience?" are always missing.

Furthermore, people with AS do not follow conventional norms of initiating, maintaining and finishing a conversation. They may start an interaction with a comment that does not fit in that particular situation. For example, a child with AS may come across an unknown person at the supermarket and initiate a conversation saying "do you have a telescope?" then continue with a monologue that shows an encyclopaedic knowledge of astronomy. Once the conversation is initiated, it seems that there is no way of stopping until the child gets to the end of what seems to be a well rehearsed talk about that specific topic. The

person with AS is not conscious of the effect produced by her monologue on the interlocutor and does not perceive the signs of confusion and desire to finish the conversation that are emitted by the other person. It looks as if the person with AS just talks, does not listen and is oblivious to the non verbal signs regulating the flux of communication. During the conversation, the person with AS does not appreciate the context or the social norms. Another difficulty felt by the person with AS arises when the conversation needs to be re-established. When a conversation becomes confuse, the natural reaction of people with typical development is to ask for clarification in order to keep the conversation on the topic. However, a person with AS has doubts about what to say, and does not have the courage to admit this or that she is confused. She remains silent for a long time thinking about what she should say or changes the subject for another one that is more familiar and of interest to her (Adams et al., 2002). Contrary to what happens in their monologues, when people with AS participate in a conversation that is of no interest to them or that has not been initiated by them, they become resistant and do not take part in the conversation, because they consider that they do not have anything to learn with it. Hence, they do not even waste time speaking or hearing what others have to say (Paul & Sutherland, 2003). This is why they appear to have no appreciation of chatting, which does not have a defined goal, because they do not understand its utility (Sicile-Kiran, 2008).

3.4 Communication skills

Communication skills are a set of capabilities that we use to exchange information, thoughts, attitudes, ideas and feelings clearly and accurately. It is through communication that we get the information we need to survive (Patrick, 2008). Communication is made up of the words we use, how we say the words, and our nonverbal communication. The words we use come from our language, how we say the words is determined by the paralinguistic rules of our language, and nonverbal communication is made up of the wordless messages we send through our body language (Windle & Warren, 1999). The speaker to emphasize communication, with the purpose of providing clarity for the listener, uses paralinguistic cues. Communication requires a speaker and a listener. It is the role of the speaker to send a clear and concise message. On the other hand, it is the role of the listener to receive and correctly interpret the message sent by the speaker. In order to become effective communicators, we must develop the skills required by both the speaker and the listener (Patrick, 2008). The speaker must be able to convey a clear and concise message. In order to do this the speaker must have a good command of our language, the paralinguistic cues that support our spoken language, and knowledge of nonverbal communication. She must also be concerned that her message is heard and understood by the listener. It is the responsibility of the speaker to construct the message so that the listener can understand it. This means the speaker must have the capacity to see the perspective of the listener and be able to address his point of view. On the other hand, listening is the key to receiving messages and the listener is the person responsible for receiving the message. Therefore, listening is a combination of hearing what another person says and psychological involvement with the person who is speaking (Windle & Warren, 1999). Listening requires more than hearing just words. It requires a desire to understand another human being, an attitude of respect and acceptance, and a willingness to try to see things from another person's point of view (Patrick, 2008). Listening to understand is a difficult task, which requires specific skills like giving full attention to the other person, observing the other person, and then thinking about what the other person is trying to communicate (Bolton,

1979). Giving full attention to the speaker means that the listener must pay attention to both the verbal and nonverbal message and must attempt to take the perspective of the speaker and try to see the communication from the speaker's point of view. According to Patrick (2008), it is through the language (what is conveyed by words), paralinguistic cues (how we say it), and nonverbal communication (corporal language that accompanies what is being said) that we can understand what the speaker is trying to communicate and that is why we must pay special attention to each one of these aspects.

Firstly, our language is the socially shared and agreed upon system of communication made up of symbols that we use with other people to express and exchange ideas, thoughts, attitudes, facts and feelings.

Paralinguistic cues are the features of our speech that are used to emphasize communication for the purpose of providing clarity for the listener. These features include pitch, loudness, rhythm, stress and intonation of the voice. Paralinguistic cues involve how something is said, not the content of what is said. Pitch refers to the sound of the voice, that can be high or low; loudness refers to the volume of the voice, which can be loud or soft; rhythm refers to the metric pattern of speech which differs within each language, and stress refers to the emphasis placed upon which word is stressed. Paralinguistic cues increase the clarity of the intended message; therefore they are essential for understanding and being understood by others.

Nonverbal communication is the process of communicating by sending and receiving wordless messages. These messages are sent through facial expressions, eye contact, gestures, body language, and posture.

In a study about communication of feelings and attitudes, Mehrabian (1972) discovered that verbal language, i.e. the words that we use, account for 7 percent of all meaning in communication that involves feelings and attitudes, attributing up to 93 percent of meaning to other variables. Paralinguistic cues are one of these variables and account for as much as 38 percent of meaning and nonverbal communication accounts for 55 percent of all meaning when discussing feelings and attitudes. In other words, it is the nonverbal communication that transmits the most meaning.

People communicate through nonverbal communication even when they might not want to communicate. The human body when awake will communicate even without permission. As one of Watzlawick's five axioms of communication states, „One cannot not communicate“ (Watzlawick et al., 1967), because we are constantly communicating, since our body is always sending messages, verbal or nonverbal. Since it is impossible not to communicate, the question that we have to put is: „how should we communicate?“. And we can choose to communicate effectively. To accomplish that, a person must be able to listen as well as to speak, but that is not the end of the story. A person can have the most highly developed language, but unless he or she is able to apply that language to social settings, the effectiveness of communication will be impeded (Patrick, 2008). This is what seems to happen in AS and that is why it is important to analyse which communication skills they have developed and which ones pose more difficulties.

The only communication skill that seems to be well developed in AS is the one that is related to verbal language or to the use of the words, not only with the purpose of transmitting messages, but also in the reception of verbal messages. This communication ability seems to be intact in AS (Tager-Flusberg et al., 2005), because, as mentioned earlier, these people have well developed language and that is why they are able to adequately transmit and receive verbal messages. This being the case, the problem lies with the other

two components of communication that are supposed to accompany verbal messages (Klin & Volkmar, 1997; Paul & Landa, 2008; Tager-Flusberg et al., 2005). People with AS have difficulties in interpreting paralinguistic cues and are unable to pay attention to all nonverbal messages that are transmitted through facial expressions, gestures, and corporal posture. This explains the difficulties felt by a person with AS when assuming the role of listener. Nonetheless, when such a person assumes the role of speaker there are also difficulties, such as being unable to accompany the verbal message with paralinguistic cues and signs of nonverbal communication that can support it. Until now we have seen which communication skills people with AS have difficulty with, nonetheless it is important to offer an explanation to better understand why they have these difficulties. As far as paralinguistic cues are concerned, a person with AS pays no attention to these subtleties of the language, and consequently cannot interpret their meaning. On the other hand, when a person with AS assumes the speaker's role, she does not use paralinguistic cues, because she does not recognize their importance and is unaware that they are useful to emphasize what she is saying in words. The inability to adequately use paralinguistic cues can also be related to typical linguistic problems in AS which have been mentioned earlier, like prosody and lack of rhythm in speech (speaking always with the same voice tone), which makes it difficult to add paralinguistic cues to the speech of these persons.

With regard to nonverbal communication, people with AS present difficulties in interpreting the signs of the nonverbal communication (Sicile-Kira, 2008) that support the verbal message. Conscious of the fact that these signs have a social nature, and taking into account what has been referred to in the previous topic on social perception, we can say that people with AS do not pay attention to socially relevant information, so it is only natural that they do not take notice of facial expressions or the body language utilized by the speaker.

Considering that people with AS do not attend to either paralinguistic cues or nonverbal communication signs, and remembering the Mehrabian (1972) data, the person with AS only understands 7 percent of the meaning of the whole message, because she only interprets correctly what is said by words and does not care about paralinguistic cues and nonverbal communication elements, that together account for 93 percent of the meaning of the message being conveyed.

In the light of these values, we can say that people with AS present difficulties in communication skills, because they cannot correctly interpret a large part of the message that is transmitted in the communication process. Furthermore, these limitations also apply when they are in the role of speaker, but in a different way. If they do not interpret the signs of non-verbal communication in others, it is because they do not value them and maybe do not even notice that they are important in the communication process. Consequently, if their importance is not recognized, emitting signs of nonverbal communication will not be a concern for these people when they are transmitting a message.

To conclude, the messages of people with AS are not accompanied by either paralinguistic cues or nonverbal communication signs. Hence these messages that are transmitted will always be poor in informative terms because they will depend only on the verbal message, i.e. the person only says what she wants to say without emphasizing it either with paralinguistic cues or nonverbal communication elements, such as an adequate facial expression, gestures or a corporal posture depending on what is being said.

In summary, we can say that in the communication process, messages are always misinterpreted by people with AS, as are the messages that are transmitted by these people (poor in informative terms).

Further to the above-mentioned difficulties in communication skills, there is another aspect that is extremely affected in AS, either as the speaker or as the listener in the communication process. This is the ability to ensure that the message is correctly heard and understood by the listener, assuming the person with AS takes on the role of speaker, and the ability to show a speaker that what is being said, is being heard and understood, when the person with AS is the listener.

Both abilities are deficient in people with AS, because they require the ability to take on the perspective of the others and to see things from their point of view. Such skills are blatantly missing in people with AS and are related to the component of social cognition known as theory of mind.

3.5 Relation between communication skills and social skills

Social and communication skills are related through pragmatics. According to Marcondes (2000), pragmatics is the area of linguistics that studies language in the context of its use in communication, studying the existing relations between the signs and the speakers, describing the use that these make of the linguistic in different communication situations. Frith (2006) maintains that pragmatics includes rules for conversations and communication acts. The conversational rules include turn-taking, levels of formality, and topic maintenance. With regard to the communication act, it includes the appropriate rate of speech, pitch, stress, intonation, loudness, quantity of information, quality of information, and directness of the information.

It is pragmatics that sets the rules for the social use of linguistics and it is only when the speaker and listener both have a command of these rules that clear, effective and meaningful communication can occur. All this reverberates at a social level, because when communication is made effectively, social interactions turn out well. Nonetheless, people with AS seem to have difficulties in understanding and following these rules, and this may result in deficient communication and, consequently, affect their social interactions.

As mentioned previously regarding communication and social skills, we could say that, although these two are united by pragmatics, communication skills could be seen as an integrated and necessary element in good development of social skills, inasmuch as the latter seems to be a wide domain of skills which could include the former.

However, although social skills are a wider field than communication skills, this does not mean that communication skills are less important, because they are a necessary and vital element in the good development of social skills. This means that in order to acquire and develop social skills, the person has to first develop communication skills, because if we can not communicate adequately and effectively with others, we will never be able to interact adequately at a social level.

If we follow this logic and apply it to AS, we can say that if a person fails in communication she will also fail in socialization, i.e. if a person presents a deficit at the level of communication skills, her social skills will probably also be deficient. An example of this can be seen in the words of Attwood (2009), when he remarks that problems identified at a communicational level with children with AS inhibit their integration in the schoolyard. On the other hand, having an unusual command of linguistic characteristics can produce other social consequences to children with AS. Other children avoid playing with them and when they do, the child with AS is an easy butt of jokes and ridiculed by others due to her particular way of talking.

4. Relation between social cognition and social functioning

So far three main issues have been addressed. Firstly we have explained how AS fits within the spectrum of autism disorders. Secondly, we have analysed the concept of social cognition having explored in detail the most affected components in AS. Finally, social functioning has been examined focusing on social and communication skills that are affected in AS. So far we have AS, social cognition and social functioning as three isolated concepts. What we need to examine now is how the last two (social cognition and social functioning) can be related in AS.

In actual fact, this has been done when the different components of social cognition were examined, since according to Couture et al. (2006) the relation between social functioning and social cognition depends on the specific area of each one of the analyzed constructs. Generally, we can say that there is strong evidence that there is a consistent and clear relation between social cognition and social functioning. Hence, as each of the social cognition components was analysed and deficits identified, the potential implications of those deficits on the life of a person with AS were also mentioned and those implications always have repercussions on a social level.

Therefore, at this point, where the goal is to establish a connection between social cognition and social functioning, it seems relevant to synthesize the information presented thus far in order to present an explanatory model of social functioning impairment in AS that can be caused by the deficits associated with social cognition.

Beginning with the central coherence theory presented in the section dedicated to social perception in AS, we can see that this central coherence is typically weak in AS which means that these people do not pay attention to information as a whole but to detail.

Furthermore, they focus on non-social more than on social information. For example, a person with AS is capable of paying more attention to a living room lamp [non social information] than to all the social information conveyed by the non verbal behaviour of the person she is interacting with, such as facial expression, voice tone, body posture, and more non verbal communication elements.

Given that people with AS prefer to processes details instead of the big picture and that they also prefer non-social rather than socially-relevant information, when she processes the human face, she does not process it in its totality, focusing more on the region of the mouth and paying little attention to the eye region which is the part of the face that transmits the richest information in terms of emotional expression. Through this, we can again see the difficulty felt by these persons in emotional processing, namely on recognizing emotions. In its turn, this influences theory of mind, i.e., if the person with AS cannot recognize emotions in others, this will also present difficulties in attributing mental states to others.

This happens because if the person with AS does not attend to socially relevant information that is transmitting emotional states, she will not be able to perceive what the other person is feeling or thinking. When this occurs, the person with AS feels „lost“, because she cannot understand or interpret what is being transmitted, and does not know how to respond or react in a world that is unknown and difficult to understanding. Feeling ‘lost in the social world’, it is more than natural that the person with AS presents difficulties on a communicational level. She can use verbal language, but fails in other aspects of communication. Taking an example, if the person with AS cannot infer and attribute mental states to others, she will not be able to maintain adequate communication with other people,

because she has difficulty in knowing what she should say or do in front of her interlocutors. This leads to communication that is either inadequate or undesirable. In turn, these difficulties in communication will reverberate in social maladjustment. This means that the person with AS, conscious of their difficulties in understanding people and social situations and aware of their inability to communicate and to appropriately interact with others, avoids social contact and social relations, preferring to be in their own world, where everything is always the same, where change and unpredictability do not occur and where everything always seems to be easy. When disconnecting from the world that involves them and shutting themselves into their world, people with AS have more time to focus on their themes of interest and feel better because in their world there are predictable patterns and routines to follow that help in their daily routines.

5. Relationship between Asperger syndrome and alexithymia

The term "alexithymia" was coined by Sifneos in 1972. It is derived from the Greek, with *alexi* meaning "no words" and *thymia* meaning "mood or emotion." Patients with alexithymia have great difficulty or are unable to describe their feelings and can have problems making sophisticated differentiation of one feeling from another. Their communicative style shows markedly reduced or absent symbolic thinking (Taylor, 1984, as cited in Fitzgerald & Molyneux, 2004). As pointed out by Warnes (1986, as cited in Fitzgerald & Molyneux, 2004), these persons "lack the capacity for introspection", they are preoccupied with the "minute detail of external events (...) and are unable to make connections between events, affective arousal and somatic response". Nonverbally, they are "stiff and wooden". They are "mechanical in their object relations". All of these features also fit descriptions of AS, in which the main difficulties are understanding one's own and others' emotions, having problems expressing oneself with nonverbal behavior and in reading that of others. They also have difficulty with "theory of mind" and in predicting the cognitions of others. Their imagination is limited. They tend to have a preoccupation with factual information and are strong in areas such as mathematics, engineering, and computers but can have significant problems with interpersonal relationships. Based on the features of patients with alexithymia and of those with AS, Fitzgerald & Molyneux (2004) defend that, from a clinical perspective, a diagnosis of AS should be considered in patients with alexithymia. According to Fitzgerald & Belgrove (2006) there is significant overlap between alexithymia and AS in various aspects, like cognitive problems, problems with social relationships, speech and language problems, and non-verbal behavior, that is why they emphasise the importance of considering AS in differential diagnosis when psychiatrists are making a diagnosis of Alexithymia.

On the other hand, Hill & Berthoz (2006) suggest that people with AS are likely to show symptoms of alexithymia. This position is sustain by some studies made by these investigators, that report that not all of the persons with AS can be categorised as alexithymic according to their responses to the TAS-20 - Toronto Alexithymia Scale (Bagby, Parker, & Taylor, 1994), that is one the most utilized instruments to measure Alexithymia. Defending this same position, Paula-Pérez et al. (2010) says that clinical experience and research have confirmed that Alexithymia can be recognized in the skills and profile of people with AS.

Silani et al. (2008) examined the inability to identify and distinguish one's own feelings through the use of alexithymia and empathy questionnaires in individuals with AS,

compared with matched controls. They have found that the groups differed significantly on both alexithymia and empathy questionnaires, what means that people with AS have higher levels of Alexithymia as well as a lack of empathy. This study also shows that Alexithymia and lack of empathy were correlated, indicating a link between understanding one's own and others' emotions.

Although being two different disorders, AS and Alexithymia present similarities, especially at social cognition levels, with huge impairments in emotional processing and in theory of mind. In our opinion, both diagnoses should exist, because AS is a more complex disorder than Alexithymia. Alexithymia can be present in cases of AS, but not all cases of Alexithymia can be diagnosed with AS. So, it is important to have a profound knowledge about these two clinical conditions when clinicians are about to make a diagnoses.

As mentioned by Fitzgerald & Molyneux (2004), there are two important aspects to future studies in this area. One is to investigate directly the relationship between symptoms of alexithymia and autism spectrum disorders, where Asperger syndrome is included, at the behavioural and cognitive levels. The second is to compare directly individuals with ASD who are/are not alexithymic on their behavioural performance on emotion processing tasks as well as in terms of their neural activity.

6. Conclusion

The main conclusions of this work are the following: AS is a developmental disorder characterized by impairments both in social cognition and in social functioning. Social cognition is a complex construct and includes various components. Three of them have been widely studied in AS, namely emotional processing, theory of mind and social perception and the majority of studies reach the same conclusion: people with AS present deficits in all three areas. These deficits seem to have repercussions on a social level, affecting the social functioning of these persons. Hence these people are unable to interpret the emotions of others, infer mental states, consider other people's perspectives and pay attention to relevant social information. Furthermore, they feel lost in the social world because so impaired they are unable to react in social situations and to establish adequate social interactions in a complex world, that is dictated by social rules, that are hard for them to learn. Given this difficulty in learning social rules, it is very difficult for people with AS to learn and acquire social and communication skills, and this is why these skills are so impaired. Social cognition can be a mediator between non social cognition and social functioning, i.e. we believe that people with AS that present good cognitive capabilities but show difficulties in social cognition, can be functioning in a maladjusted way due to their deficit in social cognition components. If we follow this line of thought, we can predict that if we intervene in social cognition for persons with good cognitive abilities, i.e. in persons with AS, we can be contributing to improving social cognition, and expect to see improvements reverberating in the social functioning of these persons. Since interventions aiming to train social skills are not easily suited to persons with AS, our suggestion for future research is to create programs to work and develop social cognition skills, because if social cognition deficits are the basis of social functioning deficits, we think that if we train and develop social cognition skills, this will have repercussions on the social functioning of these persons and improve their social skills. There is one program that has been developed to this end and that has proven feasible in a pilot study with adults with high functioning autism. This is, the Social Cognition and Interaction Training for Adults with high

functioning autism [SCIT-A] (Turner-Brown et al., 2008). Therefore, in future studies, this program and other programs targeting social cognition components should be created and administered to test their feasibility and efficacy in improving social cognition deficits in persons with AS, and to test if improvements in social cognition have repercussions on social functioning improving social and communication skills as well.

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8. References

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Bibliotherapy for Chinese Patients with Depression in Rehabilitation

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1. Introduction

This work was aimed to explore the efficacy of bibliotherapy to the coping method and social support of patients with depression in rehabilitation, to explore influencing factors on efficacy of bibliotherapy for patients with depression in rehabilitation. A total of 362 patients with depression were randomly assigned to study group with bibliotherapy (n=184) and control group without bibliotherapy (n=178) for 4 weeks. Our results as following, at the end of study, the differences of decreased scores were significant in the two groups on retardance factors, hopeless factors and total score of HAMD. There were significant differences on some factor scores of CMI and SSRS between after and before study in study group. In study group, there were 138 patients in efficacy group and 46 patients in inefficacy group. Stepwise regression analysis showed that the main factors that influenced the efficacy of bibliotherapy were high compliance, low age, good family economic status, high education, high using-support degree factor scores in SSRS, high recourse factor scores in CMI, without somatic disorders. In conclusion, the bibliotherapy is an effective adjunct method of rehabilitation which could improve social functions of patients with depression. The efficacy of bibliotherapy is associated with bio-psycho-social factors.

Bibliotherapy is therapy in which patients read under the guidance of professionals to cure diseases such as morbus internus and mental disorders [1]. As a novel interventional therapy for patients with depression during the rehabilitation period, the efficacy of bibliotherapy has been confirmed [2-5]. In this study, we modified the style, content, and implementation mode of traditional bibliotherapy to match Chinese depressive patients and investigated the efficacy of bibliotherapy as well as the factors that influence depressive symptoms, coping style, and social support.

2. Subjects and methods

2.1 Subjects

Subjects included patients admitted to our hospital between January, 2005, and January, 2008, who were diagnosed as having psycholepsy of mood disorder in accordance with the following inclusion criteria: (1) International Statistical Classification of Diseases and Related Health Problems (ICD-10) distributed by World Health Organization; (2) 18-35 points on the 24-item Hamilton Depression Scale (HAMD) [2], namely, these patients were

in the state of slight to moderate depression; (3) attending junior middle school or over; (4) gave informed consent to subjects and their family members, or legal guardians or agents.

The exclusion criteria included the following: (1) alcohol and substance abuse or dependence; (2) obvious risks of impulsivity, self-inflicted wounds, and suicide; (3) undergoing MECT (modified electroconvulsive therapy) 6 months before inclusion; (4) myocardial infarction, angina, heart failure, severe hepatocirrhosis, renal failure, severe diabetes, aplastic anemia, angle-closure glaucoma, severe somatic diseases, organic diseases, and other diseases that may influence assessments in the trials; (5) a history of epilepsy and eclampsia; (6) participating in clinical trials for other drugs within the last month; (7) metabolic and/or other factors that may influence reading.

Discontinuation criteria included the following: (1) lack of efficacy; (2) withdrawal of informed consent; (3) noncompliance; (4) lost to follow up; (5) other harmful events that may influence the outcomes.

		Study group (n=184)	Control group (n=178)	T or X ²	P
Age (years)		36.22±10.7	37.45±9.61	-0.42	0.676
Sex	Male	62(33.70)	59(33.15)	0.01	0.912
	Female	122(66.30)	119(66.85)		
Age of diagnosis (years)		28.74±6.92	27.86±8.60	0.38	0.708
Length of illness (years)		7.48±6.05	9.59±8.02	-1.00	0.323
Times of hospitalization		3.83±2.04	4.18±2.20	-0.56	0.576
HAMD total scores		±	±		
Completed rate	Completed	184(91.09)	178(88.56)	0.71	0.401
	Uncompleted	18(9.91)	23(11.44)		
Reasons for discontinuation	Lack of efficacy	5(27.78)	6(26.09)	-	0.990
	Withdrawal of consent	4(22.22)	5(21.74)		
	Lost to follow-up	4(22.22)	4(17.39)		
	Noncompliance	2(11.11)	3(13.04)		
	Other	3(16.67)	5(21.74)		

Notes: (1) the numbers in the parenthesis are the constituent ratios (%); (2) “-”, χ^2 value indicates Fisher precise probability χ^2 -test.

Table 1. Demographic and clinical features as well as trial completion rate.

In total, 403 patients were included and randomized into trial and control groups. The trial group included 202 patients, with 18 cases discontinued, leaving 184 completed cases (91.09%) aged of 22-51 years old. The age of preliminary diagnosis for these patients was 20-44 years, the length of illness was 1-25 years, and patients were admitted 1-7 times. The

control group included 201 patients, with 23 cases discontinued leaving 178 completed cases (88.56%) aged 20-55 years. The age of preliminary diagnosis was 17-45 years, the length of illness was 1-26 years, and patients were admitted 1-8 times. Table 1 showed the detailed information for age, sex, age of diagnosis, length of illness, numbers of hospitalizations, demographic characteristics, such as HAMD scores, CMI scores, and SSRI scores, clinical features, and completion rates of trials.

3. Reading location

The reading room of our Mental Sanitary Center is well-suited for this study. The facility can accommodate 80 individuals and is equipped with internal facilities, many types of books, and multimedia facilities, such as cable television, a video recorder, and a VCD player.

4. Styles of bibliotherapy

Bibliotherapy utilized books, multimedia assisted lectures and television programs, and communications and symposia. Books consisted of (1) specialized books and popular science readings related to medical science, psychology, and mental science, such as *Common Psychological Issues Management*, *Control of Unhealthy Emotion*, *Smoking Harm*, *Dietary & Health*, and *magazine of Mental Medicine*, (2) readings related to current events and politics, such as *Guangming Daily*, *Health Paper*, *Qilu Evening Paper*, and *World Perspectives*, (3) scientific recreational readings related to science progress, interpersonal relationships, and human affections, such as *Reader Digest*, *Family Health*, and *Out of Eight Hours*, (4) relaxed readings related to mood adjustment and relaxation, such as celebrities biographies, interesting matters in life, short tales, novella, and cartoon and jokes.

Multimedia assisted lectures and television programs included video tapes, lectures, and internet images in which the contents consisted of hospital summaries, characteristic department introductions, common somatic diseases introduction, and pathogenesis, onset states, clinical symptoms, classification, disease course, and prognosis and treatment strategies of psychological and mental diseases. In addition, multimedia assisted lectures and television programs included television programs related to popular science, such as *Lectures Room*, *Probe and Discovery*, and *Household Doctor* in which the contents contained some professional knowledge of medical science related to somatic diseases, psychological problems, and mental disorders and also extended to life philosophy and manners of conducting oneself.

Communications and symposia were organized and convened regularly by professionals after the patients underwent a period of bibliotherapy. Through informal discussions and opinion exchanges, the patients shared relevant knowledge, senses, and viewpoints aroused by readings to dissolve misunderstandings.

5. Implementation mode

During the period of trials, drug treatment was conducted by clinicians and was not influenced by the trials. The subjects were randomized into groups with 9 to 12 individuals in each group. Members of each group underwent bibliotherapy every day. The length of time reading each day was 2 (or 1) hours and consisted of a free-reading

period for 40 minutes and a communication period (one group is one unit) for 20 minutes. Those who learned from the readings well and had profound and real senses after reading acquired certain appraisals and rewards. Groups exchanged styles of bibliotherapy, such as books, lectures, TV programs, and symposia. The total period of bibliotherapy lasted for 30 days.

Missionaries were responsible for keeping order and controlling the trial process. In addition, missionaries provided certain assistances to the patients. For example, when professional issues could not be solved through communication among the patients, missionaries could explain and guide in an appropriate way. Also, when there was no relevant materials to meet the needs of reading, missionaries could provide materials through internet searches.

The control group patients underwent simple healing therapy that did not restrict or control the books, style, time, place, and mode of readings. The total period of control therapy lasted for 30 days.

6. Research tools

The general information scale was used, which consisted of items such as sex, age, length of illness, level of education, family history of depression, number of depression onset occurrences, number of hospitalizations, family financial status, complications from psychotic symptoms, suicide history, complications from chronic somatic diseases, type of depression onset, and therapeutic compliance. In addition, we used the HAMD [6], compiled by Hamilton, which consisted of 24 items. A total HAMD score over 17 points indicated depressive symptoms with high reliability and validity. HAMD scores decreasing by $> 75\%$ indicated healing, scores decreasing by $\geq 50\%$ and $< 75\%$ indicated remarkable advance, scores decreasing by $\geq 25\%$ and $< 50\%$ indicated advance, scores decreasing by $> 25\%$ (containing healing, remarkable advance, and advance) indicated effectiveness, and scores decreasing by $< 25\%$ indicated ineffectiveness. The Coping Methods Inventory (CMI) [7] was used to assess the individual coping styles, which consisted of 66 items and 6 factors (problems-solving, self-reproach, recourse, delusion, wincing, and rationalization). We also used the Social Support Rating Scale (SSRS), compiled by Xiao [8], which consisted of 10 items and 3 factors (subjective support, objective support, and availability of support) and had the high reliability and validity.

7. Research methods

At baseline, the included patients were evaluated using the general information scale, HAMD, CMI, and SSRS. After bibliotherapy, they were evaluated again using HAMD, CMI, and SSRS. Decreasing HAMD scores were indicators for the efficacy assessment, based on which the patients were divided into effective and ineffective groups. The data underwent single factor analysis among groups and subsequent multivariate progressive regression analysis.

8. Statistics

Statistical analyses, such as t-test, chi-squared test, and multivariate progressive regression analyses, were conducted using the software Statistical Analysis System (SAS) 13.0.

9. Results

9.1 HAMD scores

To investigate the amelioration of depression, the baseline factor scores or HAMD total scores and scores after intervention in the trial and control groups were compared both within and between groups, as shown in Table 2. The results showed that the factor scores

Factors	Groups	Case No.	Baseline	After intervention	T value	P value
Somatization of anxiety disorder	Trial	184	3.57±1.53	1.26±0.96	7.13	0.000
	Control	178	3.86±1.67	2.05±1.40	6.40	0.000
	T value		-0.63	-2.20		
	P value		0.535	0.033		
Body weight	Trial	184	1.48±1.47	0.87±1.01	2.95	0.007
	Control	178	1.55±1.34	0.86±0.83	3.58	0.002
	T value		-0.16	0.02		
	P value		0.874	0.983		
Cognitive disorder	Trial	184	4.74±1.94	1.91±1.65	6.38	0.000
	Control	178	4.86±1.75	2.95±1.76	6.86	0.000
	T value		-0.23	-2.05		
	P value		0.822	0.046		
Diurnal change	Trial	184	1.74±1.01	0.57±0.59	5.72	0.000
	Control	178	1.86±1.39	0.59±0.80	6.06	0.000
	T value		-0.35	-0.12		
	P value		0.732	0.902		
Retardation	Trial	184	3.17±1.78	1.39±1.23	6.51	0.000
	Control	178	3.14±1.75	2.18±1.22	4.28	0.002
	T value		0.071	-2.16		
	P value		0.943	0.036		
Sleep disorder	Trial	184	1.57±1.12	0.57±0.73	4.59	0.000
	Control	178	1.73±0.99	1.09±0.75	3.52	0.000
	T value		-0.51	-2.39		
	P value		0.610	0.022		
Sense of desperation	Trial	184	4.61±1.53	1.65±1.07	9.71	0.000
	Control	178	4.73±1.45	3.45±1.26	4.97	0.000
	T value		-0.27	-5.17		
	P value		0.791	0.000		
Total scores	Trial	184	20.87±6.07	8.22±3.25	11.33	0.000
	Control	178	21.73±5.18	13.18±3.94	11.23	0.000
	T value		-0.51	-4.63		
	P value		0.614	0.000		

Table 2. HAMD scores in trial and control groups at baseline and after bibliotherapy (mean ± SD).

and HAMD total scores of anxiety somatization, body weight, cognitive disorder, diurnal change, retardation, sleep disorder, and sense of desperation in both the trial and control groups decreased significantly ($P < 0.05$ for all) after intervention compared with baseline. After intervention, factor scores and HAMD total scores of anxiety somatization, cognitive disorder, retardation, sleep disorder, and sense of desperation in the trial group were significantly lower than those in control group ($P < 0.05$ for all). These results indicate that the depressive symptoms of patients in both the trial and control groups were remarkably ameliorated after the corresponding bibliotherapy, although the patients in trial group improved significantly more.

9.2 Decreasing HAMD scores

Decreasing HAMD scores are equal to baseline scores minus scores after intervention. To further investigate the amelioration of depression, we compared decreasing factor scores or HAMD total scores between the trial and control groups, as shown in Table 3. The results showed that decreasing HAMD scores of retardation, sense of desperation, and total scores in trial groups were significantly higher than those in control group ($P < 0.05$ for all), indicating that the amelioration of depression in trial groups was superior to that in control groups.

Factors	Groups	Case No.	Mean \pm SD	T value	P value
Somatization of anxiety disorder	Trial	184	2.30 \pm 1.55	1.13	0.266
	Control	178	1.82 \pm 1.33		
Body weight	Trial	184	0.61 \pm 0.99	-0.26	0.796
	Control	178	0.68 \pm 0.89		
Cognitive disorder	Trial	184	2.83 \pm 2.13	1.74	0.090
	Control	178	1.91 \pm 1.31		
Diurnal change	Trial	184	1.17 \pm 0.98	-0.337	0.738
	Control	178	1.27 \pm 0.99		
Retardation	Trial	184	1.78 \pm 1.31	2.33	0.024
	Control	178	0.95 \pm 1.05		
Sleep disorder	Trial	184	1.00 \pm 1.04	1.28	0.208
	Control	178	0.64 \pm 0.85		
Sense of desperation	Trial	184	2.96 \pm 1.46	4.21	0.000
	Control	178	1.27 \pm 1.20		
Total scores	Trial	184	12.65 \pm 5.36	3.01	0.004
	Control	178	8.55 \pm 3.57		

Table 3. Decreasing HAMD scores in trial and control groups at baseline and after bibliotherapy (mean \pm SD).

10. CMI scores

To investigate the improvement of coping styles, CMI factor scores in both the trial and control groups were compared between before (baseline) and after intervention, as shown in

Table 4. The results showed that factor scores of problem-solving, self-reproach, and recourse in the trial group improved significantly ($P < 0.05$ for all) after intervention, while those scores in the control group showed no significant differences ($P > 0.05$ for all) between before and after intervention. These findings indicate that the improvement of coping styles in the trial group was superior to that in the control group.

Factors	Groups	Case No.	Baseline	After intervention	T value	P value
Problem-solving	Trial	184	0.52±0.51	0.87±0.55	-2.58	0.017
	Control	178	0.50±0.51	0.64±0.58	-1.82	0.083
	T value		0.14	1.39		
	P value		0.887	0.173		
Self-reproach	Trial	184	0.78±0.60	0.48±0.59	2.61	0.016
	Control	178	0.82±0.80	0.73±0.77	1.00	0.329
	T value		-0.17	-1.22		
	P value		0.866	0.229		
Recourse	Trial	184	0.48±0.59	0.78±0.60	-3.10	0.005
	Control	178	0.50±0.67	0.55±0.67	-0.30	0.771
	T value		-0.12	1.25		
	P value		0.909	0.218		
Delusion	Trial	184	0.57±0.66	0.48±0.59	1.45	0.162
	Control	178	0.59±0.73	0.50±0.60	1.45	0.162
	T value		-0.12	-0.12		
	P value		0.902	0.903		
Wincing	Trial	184	0.65±0.71	0.57±0.66	1.45	0.162
	Control	178	0.64±0.79	0.55±0.74	1.00	0.329
	T value		0.07	0.10		
	P value		0.944	0.925		
Rationalization	Trial	184	0.13±0.34	0.17±0.39	-1.00	0.328
	Control	178	0.18±0.50	0.23±0.43	-0.44	0.665
	T value		-0.40	-0.44		
	P value		0.689	0.663		

Table 4. CMI scores in trial and control groups at baseline and after bibliotherapy (mean ± SD).

11. SSRI scores

To investigate the improvement of social support, SSRI factor scores for both the trial and control groups were compared between before (baseline) and after intervention, as shown in Table 5. The results showed that factor scores of objective support, subjective support, and availability of support in the trial group improved significantly ($P < 0.05$ for all) after

intervention, while those scores in the control group showed no significant differences ($P > 0.05$ for all) between before and after intervention. These findings indicate that the improvement of social support in the trial group was superior to that in the control group.

Factors	Groups	Case No.	Baseline	After intervention	T value	P value
Objective support	Trial	184	8.13±1.91	10.09±1.81	-4.38	0.000
	Control	178	8.27±2.00	8.41±2.04	-1.82	0.083
	T value		-0.24	2.93		
	P value		0.809	0.005		
Subjective support	Trial	184	18.04±3.52	24.30±3.52	-9.24	0.000
	Control	178	18.41±3.66	19.59±3.54	-1.84	0.080
	T value		-0.34	4.48		
	P value		0.734	0.000		
Availability of support	Trial	184	7.04±1.67	10.04±1.85	-7.74	0.000
	Control	178	6.91±1.90	7.32±1.96	-1.90	0.071
	T value		0.25	4.80		
	P value		0.802	0.000		

Table 5. SSRI scores in trial and control groups at baseline and after bibliotherapy (mean ± SD)

12. Efficacy of bibliotherapy

The results showed that among 184 patients with depression during the rehabilitation period, 138 (75%) cases were effectively and 46 (25%) cases were ineffectively treated by bibliotherapy.

13. Single factor analysis of bibliotherapy efficacy

To analyze the factors that influence the efficacy of bibliotherapy in patients with depression during the rehabilitation stage, various pieces of data collected at baseline were compared between groups effectively and ineffectively treated. These data included sex, age, age at diagnosis, length of illness, degree of culture, family history of depression, number of depression onset occurrences, number of hospitalizations, family financial status, complications from psychotic symptoms, history of suicide, complications from chronic somatic diseases, type of disease onset, and therapeutic compliance. In addition, we compared CMI factor scores for problem-solving, self-reproach, recourse, delusion, wincing, and rationalization. SSRS factor scores of subjective support, objective support, and availability of support were also compared, as shown in Table 6. The results revealed significant differences ($P < 0.05$ for all) between effectively and ineffectively treated groups with respect to sex, age, degree of culture, family history of depression, number of depression onset occurrences, family financial status, complications from chronic somatic diseases, type of disease onset, therapeutic compliance, CMI factor scores for problem-solving, self-reproach, and recourse. We also found significant differences between effectively and ineffectively treated groups with respect to SSRS factor scores of subjective support, objective support, and availability of support.

Factors	Items	Effective group (n = 138)	Ineffective group (n = 46)	X ² or T value	P value
Sex	Male	26(18.84)	35(76.09)	X ² =51.02	0.000
	Female	112(81.16)	11(23.91)		
Age		31.32±9.51	38.09±8.80	T=2.48	0.017
Age of diagnosis		27.65±6.77	28.45±6.34	T=-0.41	0.684
Length of illness		6.96±4.63	8.14±5.44	T=-0.79	0.437
Degree of cultures	Junior and senior middle schools	43(31.16)	27(58.70)	X ² =11.10	0.001
	Higher school or over	95(68.84)	19(41.30)		
Family history of depression	Positive	37(26.81)	27(58.70)	X ² =15.46	0.000
	Negative	101(73.19)	19(41.30)		
Times of depression onset		4.52±2.19	6.14±1.78	T=-2.71	0.010
Times of hospitalization		4.30±2.29	3.68±1.89	T=0.99	0.326
Family financial status	Better	89(64.49)	13(28.26)	X ² =18.33	0.000
	Worse	49(35.51)	33(71.74)		
Complications of psychotic symptom	Yes	46(33.33)	20(43.48)	X ² =1.54	0.214
	No	92(66.67)	26(56.52)		
Suicide history	Yes	54(39.13)	17(36.96)	X ² =0.07	0.793
	No	84(60.87)	29(63.04)		
Complications of chronic somatic disease	Yes	16(11.59)	22(47.83)	X ² =27.64	0.000
	No	122(88.41)	24(52.17)		
Type of disease onset	Acute	39(28.26)	31(67.39)	X ² =22.41	0.000
	Chronic	99(71.74)	15(32.61)		
Therapeutic compliance	Good	127(92.03)	25(54.35)	X ² =34.10	0.000
	Bad	11(7.97)	21(45.65)		

Factors	Items	Effective group (n = 138)	Ineffective group (n = 46)	X ² or T value	P value
CMI	Problem-solving	0.60±0.49	0.22±0.42	T=4.76	0.000
	Self-reproach	0.92±0.68	0.54±0.69	T=3.23	0.001
	Recourse	0.57±0.65	0.22±0.42	T=3.47	0.001
	Delusion	0.58±0.68	0.54±0.69	T=0.31	0.756
	Wincing	0.64±0.72	0.63±0.77	T=0.06	0.954
	Rationalization	0.14±0.39	0.17±0.49	T=-0.41	0.684
SSRS	Subjective support	8.17±1.92	7.41±2.21	T=2.22	0.028
	Objective support	18.20±3.52	16.79±3.75	T=2.30	0.023
	Availability of support	6.98±1.72	6.15±2.01	T=2.70	0.008

Note: the percentage is placed in the parenthesis.

Table 6. Single factor analysis on efficacy of bibliotherapy in the patients with depression during the rehabilitation stage

14. Multiple factor analysis of bibliotherapy efficacy

To analyze the role of bibliotherapy in factors that influence the efficacy of treatment of patients with depression in the rehabilitation stage, we conducted multivariate progressive regression analysis in which decreasing HAMD scores were dependent variables and the factors described above were independent variables. Data were evaluated according to the statistics shown in Table 7. Regression analysis revealed a total of 7 factors included in the regression formula at the significant level $\alpha = 0.05$, with the factor order based on absolute values of standard regression coefficients (namely, degree of contribution). The factor order was compliance > age > family financial status > degree of culture > SSRS factor scores of availability of support > CMI factor scores of recourse > complications from chronic somatic diseases. We obtained an R^2 value of 0.713 for the formula, which indicated that the goodness of fit by the 7 factors included into the regression formula could account for 71.3% of dependent variable variances.

15. Discussion

The therapeutic effect of bibliotherapy has long been explored by researchers. The general opinion [9] is that the choice of books reflects a channel to self-seeking of the patients and all the revealed information such as the personality characteristics, conflict in the

Influencing factors	Regression coefficient	Standard error	Normalized regression coefficient	T value	P value
Therapeutic compliance	-0.22	0.04	-0.38	-5.41	0.000
Age	-0.20	0.04	-0.36	-4.95	0.000
Family financial status	-1.05	0.35	-0.44	-3.02	0.003
Degree of culture	2.09	0.77	0.20	2.72	0.007
Scores of availability of support in SSRS	1.88	0.74	0.18	2.52	0.013
CMI factor					
Scores of recourse	0.21	0.10	0.14	2.02	0.045
Complication of chronic somatic disease	0.71	0.35	0.30	2.02	0.045
constant term	10.77	2.35			

($R^2=0.713$, $F=23.55$, $P=0.000$ in the regression formula)

Table 7. Multivariate progressive regression analyses on the role of bibliotherapy in factors that influence treatment efficacy of patients with depression during the rehabilitation period.

subconsciousness, and other psychological information unknown to medical care personnel can help the evidence-based diagnosis. Clinical research issues focus on the relevant psychological problems that exist in mental patients and in during childhood growth and development. Floyd [10] studied the role of bibliotherapy in the treatment of depression in old age through two individual cases (depression caused by sadness, loneliness, and sense of guilt after spouse bereft). Felder [11] studied the efficacy of bibliotherapy in the intervention of 24 children (2-10 years of age) and their mothers with perioperative angst due to children undergoing tonsillectomy and hyperplasia adenoidectomy. Kierfeld, et al. [12] used bibliotherapy to intervene in pediatric patients with attention deficit hyperactivity disorder and oppositional defiant disorder. They found that bibliotherapy not only ameliorated the externalizing acts of the pediatric patients greatly but also improved the educational techniques and degrees of satisfaction from the children's parents, indicating that bibliotherapy had clear efficacy in the intervention of externalizing problems of pediatric patients. Buwalda, et al. [13] revealed that bibliotherapy ameliorated the symptoms and physical distress of hypochondriacs effectively. Hodgins, et al. [14] revealed that bibliotherapy prevented the recurrence of pathological gambling effectively but did not show clear improvement in the prognosis. Billich, et al. [15] revealed that bibliotherapy treatment for one month ameliorated the depressive symptoms of patients more significantly than the control group. Hahlweq, et al. [16] applied bibliotherapy to the parents of preschoolers and improved their long-term educational ability. Floyd, et al. [17] applied bibliotherapy to patients with depression in old age and conducted follow-up for 2 years. The results showed that both scores of Hamilton Rating Scale for Depression (HRSD) and

Geriatric Depression Scale (GDS) did not change upon follow-up, indicating that bibliotherapy reduced the recurrence of depression.

Coping is the cognitive and behavioral effort individuals use to manage stressful situations; it is behavior regulation corresponding to environmental variation. The main function of coping is to regulate stressful events, such as by changing the assessment of stressful events and regulating event-relevant somatic or emotional responses [18]. Some studies [19-21] indicated that coping styles regulated depression onset remarkably, and the poor coping styles were closely related to depressive mood. This current study showed clear improvement in aspects of problem solving, self-reproach, and recourse in the patients with depression during the rehabilitation period after undergoing bibliotherapy. The possible reasons for the improvement are two-fold. First, the patients acquired much professional knowledge and relevant information through contact with numerous books, TV programs, and lectures. Through these media the patients learned more ways to solve problems, learned how to manage and face negative stressors, such as adverse life events, and did not self-reproach and complain about oneself but analyzed and viewed problems in a relatively objective and comprehensive manner. Second, the patients revealed their own feelings of diseases and the misunderstanding on mental disorder to others as much as possible through communication with the wardmates and professionals, which facilitated the catharsis of inward negative mood and helped the patients learn how to ask for aids and get along with others normally. Therefore, bibliotherapy played an important role in preventing the recurrence of depression and restoring the social function of the patients, which is consistent with the results of other relevant studies [22].

Some studies [23, 24] indicated that the factor of social support was highly negatively correlated with depression. The current study showed that bibliotherapy improved the status of social support in the patients with depression during the rehabilitation period. Two possible reasons may explain the improved social supports. First, the patients with depression were characterized by wincing, loneliness, anhedonia, poor interpersonal communication, feeling of poor social support, and apparent senses of helplessness, desperation, worthlessness, and incompetence. The combination of drug therapy and intervention of bibliotherapy treated the patients with depression by pairing a pharmacological approach with helping them to acquire knowledge through reading books and watching series of videos and TV programs related to life philosophy and living experience. The bibliotherapy component relieved the anxiety disorder due to misunderstandings of mental diseases and helped the patients obtain support, restore confidence in the future, recognize their own diseases correctly, and eliminate discrimination of their own diseases. Second, during intervention, the patients had more time to communicate with wardmates and professionals on an equal platform, which helped to improve the patients' self-confidence, reacquire the sense of safety, obtain the support and aid from others, and enhance confidence and ability to study and communicate with the outside world, thus improving the status of social support.

This study followed the strong points of traditional bibliotherapy but made four specific modifications to match Chinese patients with depression during the rehabilitation period including. One modification was that in addition to professional books and popular science readings, we provided materials related to medical common sense and introduction materials related to common somatic diseases, psychological problems, and mental disorder with respect to pathogenesis, status of onset, clinical manifestation, classification, length of illness, prognosis, and treatment strategies, which could eliminate the misunderstanding of

patients with mental diseases and realized their right to be informed. A second modification was that in addition to books, the contents for use in intervention were supplemented by videos, VCD, and popular science TV programs, which helped the patients to obtain the desired knowledge via visual and auditory modalities. Third, during intervention, frequency and duration of symposia and communication sessions were increased substantially, which increased the opportunity of the patients to solve their own psychological problems via communication and helped the patients practice their communication and contact abilities. Fourth, missionaries were not simply organizers and spectators but also helped the patients, such as through assisted reading, explanation and guidance of professional knowledge, and search and provision of extensive materials. This modification helped the patients to acquire knowledge and also represented the humanized management.

Single factor analysis in this study showed that good efficacy of bibliotherapy was positively correlated with individual factors, such as female, younger age, high degree of education, negative family history of depression, fewer occurrences of depression, better conditions of income, no complications from severe somatic diseases, chronic onset, high therapeutic compliance, high CMI factor scores for problem-solving, self-reproach, and recourse, as well as high SSRS factor scores for subjective support, objective support, and availability of support. However, the efficacy of bibliotherapy showed no correlation with single factors, such as length of illness, age of diagnosis, number of hospitalizations, complications from psychotic symptoms, history of suicide, CMI factor scores of delusions, wincing, and rationalization. Single factor analysis can only indicate the relationship between a single factor and efficacy of bibliotherapy in the intervention of depression, while multivariate progressive regression analysis can differentiate the main factors that have strong independent impact. In this study, the results of multivariate regression showed the following order of factors that improved the efficacy of bibliotherapy in the intervention of patients with depression during rehabilitation period: good compliance > younger age > good condition of income > high degree of cultures > high SSRS factor scores for availability of support > high CMI factor scores for recourse > no complications from severe somatic diseases. This finding was consistent with other relevant reports [25].

High therapeutic compliance was the most important factor in the efficacy of bibliotherapy. The patients with good compliance had the will to follow the intervention, studied well, and thought of and raised questions in a conscious and active manner to solve problems that they met. In these patients, unhealthy cognition was effectively treated; therefore, prognosis was improved and the risk of recurrence was reduced. This finding was consistent with other relevant reports [26, 27]. Age was the next important factor. Being influenced by degree of cultures, social and life experiences, Chinese middle-aged depressive patients did not tend to accept new things, especially those that might change their long-formed habits of mind. In contrast, younger patients had received new-style education for many years, were accustomed to contact with the external world, tended to absorb new knowledge to change and improve themselves, and tended to accept the bibliotherapy intervention, thus improving the efficacy of bibliotherapy.

This study showed that income directly influenced the efficacy of bibliotherapy in depression. The gap between the rich and the poor was large because economic development and income allocation are imbalanced in China today. In addition, the depressive patients lost some social function due to morbid or abnormal states, such as

decreased volitional activity; therefore, depressive patients tended to have very low incomes. Furthermore, increasing medical-related costs have become the major economic expenditures for some families, and depression as a chronic severe mental disorder requires high medical cost. This increased cost becomes a heavy burden for some families, thus influencing the clinical symptoms and rehabilitation process of Chinese depressive patients to some extent. Therefore, in this study depressive patients may have paid more attention to economy-related issues and neglected their own depressive symptoms, coping styles, and social support, which reduced the efficacy of bibliotherapy in the intervention of depression. Degree of cultures also directly influenced the efficacy of bibliotherapy. The patients with high education backgrounds did not restrict themselves to certain reading materials but chose intended readings freely based on their preferences, tended to comprehend the implication in readings, and tended to think and summarize, which optimized bibliotherapy. Some studies [28, 29] indicated that social support and coping styles were also important factors that influenced depression. This study showed that depressive patients achieved good efficacy with bibliotherapy when they tended to use the coping style of recourse and make the best use of social support. These sorts of patients tended to take reading objectives as a style of recourse and support and combined the obtained information with their own state to correct unhealthy cognition in themselves, which improved the efficacy in the intervention of depression in an aided manner. This study also showed that the depressive patients without chronic somatic diseases were more effectively treated with bibliotherapy, likely because chronic somatic diseases as sustained stressors interact with the depressive symptoms [30]. Bibliotherapy was an aided measure of rehabilitation acting merely to improve the cognitive status of the patient with depression but could not relieve or eliminate the sustained somatic diseases; therefore, the depressive symptoms due to the worsened bodily state could not be eliminated. As readings progressed, the patients with chronic somatic diseases paid most attention to materials related to their own somatic diseases. However, the patients themselves lacked the necessary medical knowledge, so they tended to generate misunderstanding and hopelessness and form the depressive negative mood, which reduced the efficacy of bibliotherapy in the intervention of depression.

In general, this study indicated that bibliotherapy effectively improved depressive symptoms, coping styles, and social support of Chinese patients with depression during the rehabilitation period. The efficacy of bibliotherapy in the treatment of depression was influenced by many physiological, psychological, and societal factors. The contributing factors to improved efficacy of intervention included high therapeutic compliance, younger age, better family financial status, high degree of cultures, high availability of social support, use of positive coping styles such as recourse, and no chronic somatic diseases.

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17. Abbreviation

HAMD: Hamilton Depression Scale;
MECT: Modified electroconvulsive therapy;
CMI: Coping Methods Inventory;
SSRS: Social Support Rating Scale.

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Suicidal Cut Throat Injuries: Management Modalities

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1. Introduction

Suicide is defined as the act of taking one's life. This self destructive act constitutes an individual intentionally or ambivalently taking his or her own life.

Suicidal behavior is any deliberate action with potentially life-threatening consequences, such as taking a drug overdose or deliberately crashing a car.

Oftentimes suicide is committed by individuals suffering from a mental illness; therefore, it can be used as an index of mental ill health in a community.

Several forms of suicidal behavior exists which fall within the self destructive spectrum.

These include;

Suicide attempt: This involves a serious act, such as inflicting self injury and some other person accidentally intervening. Without the accidental discovery, death of the individual would occur.

Suicide gesture: This is when an individual undertakes an unusual but not fatal behavior as a cry for help or to get attention.

Suicide gamble: This is inflicting self injury knowing that family members or other persons will be home in time to discover and save them.

Suicide equivalent: In this situation an individual does not attempt suicide. Instead, he or she uses behavior to get some of the reactions their suicide would have caused. For example, an adolescent boy runs away from home. He wants to see how his parents respond to his absence from home. He wants to know if they care, if they are sorry for the way that they have been treating him. This can be seen as an indirect cry for help.

There are various ways of executing suicide ranging from ingestion of fatal drug dosages to slitting one's wrists, hanging by the neck to cutting of the throat. Cut throat injuries may be homicidal or suicidal and they are potentially life threatening injuries because of the many vital structures in the neck which may be affected leading to sever hemorrhage, air embolism or respiratory obstruction and death. Therefore, prompt and adequate intervention is required following a cut throat injury from an attempted suicide to save a patient. This chapter aims to discuss the management modalities available for cut throat injuries with suicide as the motivating factor.

2. Epidemiology

Suicide is one of the ten leading causes of death in the world with about one million deaths recorded annually ¹. The incidence and pattern of suicide varies from one geographical location to the other because religious, cultural and social values play an important role in its occurrence.

In the United States it is the eleventh leading cause of death². An alarming estimated 700,000 people worldwide attempt suicide annually ³.

Overall, 2.9 percent of the adult population attempts suicide and the suicide rate in the general population over a lifetime period of 70 years is about 1 percent ^{4, 5}. Studies of suicide attempters suggest that one percent to two percent complete suicide within a year after the initial attempt, with another one percent committing suicide in each following year⁶.

Suicides in Ife, western Nigeria were found to be 0.4 per 100,000 population in 2001 with a higher incidence in males with a male to female ratio of 3.6 to 1. The majority of the victims were in the third decade of life⁷.

Men commit suicide far more frequently than women. In a study in the United States in 2004, the suicide rate for men was 18.0 per 100,000 population and 4.5 per 100,000 populations for women ⁸. However, women make far more suicidal attempts than men.

The rate increases with age with a major peak in adolescents and young infants. Interestingly however, geriatric suicide is becoming prevalent with individuals older than 65 years having the highest rate of suicide ².

Suicides occurring from cut throat injuries are rarely reported in the medical literature but they do occur. They may occur either in isolation or as part of multiple injuries in a poly-traumatized patient.

3. Risk factors

The risk factors for suicide are classified as proximal or distal and within these broad groups as either;

1. Mental illness
2. Socio-demographic
3. Familial
4. Biological
5. Situational (life experiences) risk factors.

Mental illnesses are the strongest predictors of suicide ¹. Suicide occurs 20.4 times more frequently in individuals with major depression than the general population ⁹. Older people who are depressed are also more at risk of committing suicide than younger depressed individuals ⁴.

The prevalence of major depressive disorder in western industrialized nations is 2.3 percent to 3.2 percent for men and 4.5 percent to 9.3 percent for women. The lifetime risk of depression ranges from 7 to 12 percent for men and 20 percent to 25 percent for women. Studies indicate that the risk of depression is not related to race, education, or income ⁵.

In a 5 year study in New Zealand, of 302 individuals making medically serious suicide attempts, 67 percent died by suicide and 37 percent made at least one fatal attempt. Hence, there is a need for enhanced follow-up, treatment and surveillance of any individual making suicide attempts ¹⁰.

Other mental illnesses linked with suicide are schizophrenia, anxiety disorders, post-traumatic stress disorder, delirium, dementia and substance abuse.

A positive family history is also regarded as a predictive factor therefore careful assessment of family history of mental illnesses and suicide should also be a routine aspect of patient evaluation.

Unemployment can act as a stressor leading to suicide¹¹ with studies suggesting an increase in the parasuicide and suicide rates among unemployed individuals than in the general population¹². This is more so for the male who is the breadwinner of the family in many societies. He can get frustrated when not able to meet family needs and want to take his own life¹³. It is a known fact that the suicide rate among non-waged workers is significantly higher than that of waged workers¹⁴.

Socio-demographic factors linked to suicide are sex, type of occupation, alcohol consumption and the availability of a weapon such as a rope, knife or gun. Others are religion, ethnicity, and even seasons. The regions of the world with long, dark winter seasons such as Scandinavia and parts of Alaska like Nome are known to have higher suicide rates.

Some life events are also linked with the act of committing suicide for example a child who witnesses a family member committing suicide may later make similar attempts and kill himself or herself.

Scientists believe that the interplay of several factors which lead to depression is very complex. Family studies have shown that 20 to 50 percent of children and adolescents who experience depression have a positive family history of depression^{15, 16, 17, 18} and children of depressed parents are three times more likely to experience a depressive disorder¹⁹. They are also more vulnerable to other mental and somatic disorders²⁰. It is however not clear if depressed parents create an environment that increases the chances of a mental disorder developing in their children. Like other mental illnesses, depression is probably caused by a combination of biological, environmental and social factors as mentioned above. The exact causes are however not yet known. Scientists have thought for a long time that low brain levels of neurotransmitters like serotonin, dopamine and norepinephrine was responsible for depression.

There can be underlying physical reasons for severe depression in certain individuals. For example, individuals diagnosed with a terminal illness, or those living with a long term physical disability, especially if accompanied by pain that is never likely to go away. It can be much harder to treat depression for individuals in this category, as the underlying causes are physical issues that cannot be cured. That is not to say though that even individuals such as this cannot find a motivating reason for living. Table 1 below shows some medical conditions associated with an increased risk of suicide. Suicide attempters are noted to have higher rates of comorbid mental illnesses and individuals who have attempted suicide in the past also have an increased chance of future suicidal behavior.

The incidence and pattern of suicide varies from country to country. Hanging, poisoning and drowning are the commonest methods of committing suicide in some regions of the world. Other not so common methods of committing suicide documented in the literature include;

1. Suffocation.
2. Electrocutation.
3. Jumping from a height.
4. Vehicular impact.
5. Immolation.
6. Hypothermia.

7. Starvation (apocarteresis).
8. Dehydration.
9. Firearms.
10. 'belly slitting' a rather interesting method also referred to as *Seppuku*.

Cancer	Chronic pain	Hypertension
HIV/AIDS	Chronic renal failure	Epilepsy
Multiple sclerosis	Spinal cord injuries	Peptic ulcer disease
Cardiopulmonary disease	Huntington's chorea	Rheumatoid arthritis
Organic brain syndromes	Head injury	Cushing's syndrome

Table 1. Medical conditions associated with increased risk of suicide

Suicide by means of cut throat is either rare as reported by some or common as reported by other researchers. The paucity of reports from some parts of the world like Nigeria may be because these injuries are rare or underreported¹³. Throat-cutting is not indigenous to Nigeria or any other country for that matter. The mode of committing or attempting suicide depends on the type of weapon available to the individual. From various reports in Nigeria, the commonest method of committing suicide seems to be the ingestion of poisonous materials followed by the use of weapons like the knife and the Dane gun^{7, 21, 22}.

The scope of this chapter does not include discussions on the other methods of suicide mentioned above but it is important to note them.

4. Management

Suicide is preventable therefore in many cases swift decisive intervention can prevent an individual from committing it. Intervention is based on the application of risk factors with adequate clinical inquiry.

When suicidal cut throat injuries occur, a multidisciplinary approach is required in the effective management of victims. This requires the close collaboration of the Otorhinolaryngologist, the anesthesiologist and the psychiatrist²³.

The diagnosis is based on anamnestic data, clinical check-up and inspection of the pharynx, larynx, esophagus and contiguous structures to determine the extent of injury.

The neck contains vital structures- neurovascular bundles, larynx, trachea, esophagus and spinal cord etc in a small compartment, therefore these injuries are life threatening and present as emergencies. The injuries are varied and depend on the pattern, site and depth of the cut on the neck.

The severity of the injury is assessed by assigning the injury to areas or zones of the neck. This way, the vital structures affected in the course of injury can be determined. Injuries of the neck are divided into three anatomic zones for the purpose of ease of assessment;

1. Zone I injuries occur at the thoracic inlet. This zone extends from the level of the cricoid cartilage to the clavicles.

2. Zone II injuries are those occurring in the region between the cricoid cartilage and the angle of the mandible. Injuries in this zone are the easiest to expose and evaluate.
3. Zone III injuries occur between the angle of the mandible and the base of the skull. Unlike zone II, zones I and III are protected by bony structures making zone II more vulnerable to injuries.

Assessment of these patients begins with the ABCs of resuscitation i.e checking the airway, evaluating the patient's breathing and circulation. Resuscitation of individuals is commenced immediately. When the victims present;

1. The anesthesiologist secures an uncompromised airway and makes sure the patient is breathing.
2. The otorhinolaryngologist assesses the injury and surgically repairs the severed tissues with the aim of restoration of breathing, swallowing and phonation.
3. The psychiatrist provides adequate care and supervision during and after surgical repair of severed tissues.

If the victims present without airway compromise, an assessment of the severed tissues is made and meticulous surgical repair effected in the shortest possible time.

Securing the airway is the first priority in the management of these patients if the airway is unstable or in the presence of edema. The ideal way to establish airway is orotracheal intubation in the awake patient which is followed by the insertion of a tracheostomy tube through the transected portion of the trachea if a transection is present. Some authors have described this approach to be dangerous because it can produce a further damage to the larynx or increasing the chances of inhaling vomitus, blood or secretions ²⁴. However, a formal tracheostomy can be done in the early phases of presentation to secure the airway and anesthetic gases can be administered via this in order to carry out repair under general anaesthesia. Although, in severe airway compromise reports have been made of airway maintenance with endotracheal intubation alone and there have been reports of the effective use of a fiberoptic laryngoscope to intubate the trachea following a cut throat injury ²⁵. This has reduced the need for tracheostomy and its attendant complications. In the event that the trachea is completely transected, a re-anastomosis of the transected ends of the trachea is done. Most practitioners advocate the use of absorbable suture in achieving this. One or two stainless steel wires can be used in addition to the absorbable sutures to provide strength to the anastomosed tracheal ends. Bryce demonstrates this in his work and to relieve the tension on the anastomosis, he keeps the patient's neck flexed postoperatively for seven to ten days by suturing the chin to the sternum ²⁶. Sometimes, a segment of the trachea may be badly damaged requiring resection. It is generally agreed that the maximal length of trachea resectable is 7cm and the cut ends of the trachea would require mobilization in the neck in order to achieve anastomosis by a laryngeal release procedure or in addition by splitting the sternum and mobilizing the main stem bronchi ²⁷. The combination of these three procedures can achieve a mobilization of the trachea for a distance of 7cm. In achieving mobilization of the cervical trachea, the surgeon needs to bear in mind the fact that the blood supply of the trachea is placed laterally from the inferior thyroid artery and the right bronchial artery. Therefore, mobilization should be only in an antero-posterior plane leaving the lateral fibrous attachment untouched.

Once the airway is secured, the treatment option is timely surgical repair of the severed tissues in order to restore structure and functions. These injuries will involve the soft tissues, neurovascular bundles, cartilage and bones all or in part depending on the magnitude of

impact of the cutting agent used. The extent of repair is therefore determined by the extent of injury.

Blood tests (urgent packed cell volume, urea and electrolyte levels), angiography, endoscopy (esophagoscopy, microlaryngoscopy and bronchoscopy) and computerized tomographic (CT) scan helps to determine the extent of injury. Individuals are transfused with whole blood depending on the extent of blood loss. Plain radiography alone is not sufficient to diagnose airway trauma and the additional use of dynamic CT scan of the trachea and larynx and magnetic resonance imaging (MRI) can be very helpful in discovering previously undetected injuries, showing that some of these injuries may not even require surgical intervention. However, adequate airway management should not be delayed by radiologic studies because an apparently stable airway can rapidly progress into an acute airway obstruction^{28, 29}.

In some environment, late presentation is a common feature due to factors like ignorance and of course poverty which may also invariably be the triggering factor for the suicidal attempt. In the event of late presentation, debridement of infected tissues is also done prior to suturing (Figure 1). Debridement may also mean loss of substantial amounts of tissue to effect simple and proper closure. Ideally, pharyngeal, hypopharyngeal and laryngeal mucosal lacerations should be repaired early because the time elapsed before repair of laryngeal mucosal lacerations has an effect on both airway stenosis and on voice restoration³⁰. Soft laryngeal stent may be needed for severely macerated mucosa.



Fig. 1. Infected suicidal cut throat injury at presentation.

A pharyngo-cutaneous fistula must be prevented as much as possible while carrying out pharyngo-hypopharyngeal repair. This requires meticulous approximation of the tissues,

use of a nasogastric (NG) tube and avoidance of oral feeding for a period of 7 -10 days. If a pharyngo- cutaneous fistula occurs, NG tube feeding must continue until the fistula closes. If the fistula persists for more than 6 weeks, it may indicate either the presence of a foreign body, wrong surgical technique, malnutrition or a concomitant underlying malignancy especially in the elderly. Such extreme cases may need flap closure using local, regional or distant flaps after excision of the fistula. To avoid the discomfort of inserting an NG tube, the risks of aspiration and the effect of an impinging foreign body at the injury site, Darlong et al have advocated the creation of a feeding jejunostomy which is used to maintain enteral feeding³¹. This involves passing a catheter through the anterior abdominal wall into the jejunal lumen via an intramural tunnel. The catheter is advanced distally to prevent reflux and it is then secured using purse-string suture. Any excess catheter length is removed from the peritoneal cavity until the jejunum lies adjacent to the parietal peritoneum. Interrupted stitches are then used to secure the jejunum in place.

Complications may follow a feeding jejunostomy and should be noted and addressed appropriately. These complications are;

1. Nausea.
2. Diarrhea.
3. Constipation.
4. Abdominal distention.
5. Abdominal cramps.
6. Reflux.
7. Catheter blockage.
8. Pericatheter leakage.
9. Catheter dislodgement.
10. Jejunal perforation.

Tissue injury may be as extensive such as severe laryngeal injuries as to warrant a total laryngectomy.

Careful handling and suturing of the severed tissues usually gives a reasonably good outcome with the restoration of breathing, swallowing and phonation (Figure 2).

Individuals are then weaned off their endotracheal tubes, tracheostomy or NG tubes before discharge.

Mental health intervention is one of the most important parts of managing suicidal cut throat attempts. After suicidal behavior is addressed, any underlying disorders should be treated. Mental disorders like depression, schizophrenia, substance abuse, alcohol dependence should be sought from proper clinical assessment of individuals and treated. Even following discharge from otorhinolaryngological care, individuals should be closely followed and supervised in order to prevent another suicidal attempt that may actually lead to the death of these individuals. Those who try to commit suicide should be assessed and treated to reduce the risk of future attempts. All suicide attempts and expressions of suicidal intent should be taken seriously regardless of whether the individual has made multiple past attempts of low lethality, regardless of the presence of a suspected personality disorder and even if it has been suggested that the attempt was with the aim to manipulate other people. Sometimes a patient's suicidal gesture will be described as 'attention-seeking'. This term is often used in a derogatory term and is best to avoid this as it is likely to negatively influence an otherwise objective risk assessment.



Fig. 2. Repaired cut throat injury.

Some authors are of the opinion that self-harm attempts can be grouped into 'serious suicide attempts' and more impulsive forms of deliberate self-harm. The former is typically associated with severe mental illness, high intended lethality and attempts by the suicide attempter to avoid rescue. The latter is considered a manifestation of personality disorder or acute crisis, where there are impulsive, poorly planned attempts at self harm. This rule of thumb may be misleading, regardless of the potential for death or serious injury in the deliberate self harm category, the rates of completed suicide years after a seemingly minor episode of so called 'deliberate self harm' are significant. This fact is highlighted in a study done in Australia in which 223 patients were followed from 1975 onwards. Of those who had made an attempt at deliberate self harm in the mid 1970's, 4% had completed suicide at 4 years, 4.5% at ten years and 6-7% by 18 years.

The following are important in the assessment of suicide attempters;

1. Building a rapport- These patients may be depressed, embarrassed or guarded; therefore they may be reluctant in volunteering a history. They are relieved and corporative by the unburdening of their troubles rather than being annoyed and offended at them.
2. Taking a psychiatric history- Information regarding the attempt or intent of suicide should be obtained in an open and direct manner without any form of ambiguity. It is helpful to introduce questions regarding the suicide in a sequential manner. It is often

useful to run through the chronological events leading up to, during and after the suicide attempt to assess the level of risk.

Risk assessment is the process of estimating the degree of dangerousness to self and to others and it should be known that the strongest predictor of future dangerousness is past dangerousness³². There are two approaches to risk assessment;

- The actuarial assessment.
- The standardized clinical assessment.

The actuarial approach to risk assessment is inferior to a standardized clinical assessment³³ because it provides little more than passive prediction³⁴. The apparent superiority of clinical judgment appears to relate to its emphasis upon prevention, rather than prediction. The approach to the acute assessment of dangerousness requires consideration of both "static" and "dynamic" risk factors. Static risk factors are the components of a particular patient's presentation, which are not amenable to intervention, such as age, gender or aspects of a patient's previous history, such as a past history of violent offending. By contrast, dynamic risk factors are those which are potentially changeable to clinical intervention, such as active psychotic symptoms, problematic living circumstances or substance abuse. The value of such an approach is that certain factors amenable to clinical intervention can be identified and implemented, thus potentially reducing risk.

Other factors to consider when taking a psychiatric history are;

- a. Events prior to suicide attempt: ask about the following;
 - exposure to significant acute psychosocial stressors or medical problems which may be the precipitating or motivating factors.
 - presence of low mood or symptoms of major illness.
 - feelings of hopelessness.
 - substance abuse.
 - conscious efforts at a preparation for death e.g. finalization of will.
 - onset of suicidal ideation.
 - degree of planning versus impulsivity.
 - the patients perception of the degree of harm to be inflicted on self by the chosen method of suicide.
- b. Events at the time of the act of suicide: ask about;
 - the setting at the time of suicide attempt.
 - the presence of stressors.
- c. Events following the suicidal attempt:
 - is the patient sad or glad that he is alive following suicide attempt?
 - any exhibition of remorse about the attempt?
 - did the patient call for help after the attempt?
 - is the patient still in possession of the object used in the attempted suicide?
 - is the patient willing to accept treatment?
 - presence of ongoing intents.
 - patients ongoing plans for the future.
 - availability of support in the community for the patient.
 - has the attempt at suicide helped the patient in the release of his/her frustrations?
- d. Past psychiatric history:

- previous suicide attempts and all the events that occurred at the time.
- presence or absence of a diagnosed mental illness or personality disorders.

e. Collateral history:

This is obtained from the past medical files, family members and friends. In this case issues of privacy and confidentiality must be weighed against the level of risk.

5. Medical and physical assessment

Thorough physical assessment of the patient is done by the medical staff. Assessment of the patient's cognitive functions may be important here. Sedatives may be given to reduce the patient's distress or risk of harmful behavior.

It is important that the patient is medically stable before being transferred to the psychiatric ward.

The aim of psychiatric management is to treat the condition that may have led to suicide attempt. Irrespective of the condition acting as trigger for suicide, psychosocial interventions play an important role in the management of these patients. Table 2 below shows some pharmacological agents used in the treatment of these conditions.

Risk factors	Pharmacological agents
Schizophrenia	Clozapine
Bipolar disorder	Sodium valproate, Carbamazepine, Lamotrigine, Gabapetin, Lithium, (these are used as mood stabilizers)
Psychosis	Haloperidol, Risperidone, Flupenthixol
Major depression	Tricyclic antidepressants (TCAs), Selective serotonin reuptake inhibitors (SSRIs)

Table 2. Pharmacological agents used in the treatment of conditions associated with suicide.

6. Management of complications

Surgical repair can be complicated by the long term morbidity of laryngo-tracheal stenosis and pharyngocutaneous fistula^{35, 36}. These follow grossly damaged and infected laryngotracheal structures in a cut throat injury especially when poorly managed ab initio. Proper initial management and early repair of the cut throat injury will prevent the development of these complications. Two methods of treatment can be employed for laryngotracheal stenosis- endoscopic and open surgery. Open surgery is the treatment of choice because in the long term it provides a better success rate and functional results.

However, if a contraindication exists to an external approach, laser assisted endoscopy with stenting can also provide good palliative results ³⁷.

7. Prevention

Suicide attempts and threats should always be taken seriously. About one-third of people who attempt suicide will repeat the attempt within 1 year, and about 10% of those who threaten or attempt suicide eventually do kill themselves.

Individuals who are suicidal have a number of characteristics, including the following:

- A preoccupation with death or even stating the desire to harm themselves.
- A sense of isolation and withdrawal from friends and family.
- Anhedonia: distraction and lacking the sense of humor.
- Performing self-destructive behaviors, such as drinking alcohol or substance abuse.
- Focusing on the past: dwelling in past losses and defeats and anticipate no future. They voice the notion that others and the world would be better off without them.
- They are haunted and dominated by hopelessness and helplessness.

When an individual is noted with these symptoms mental health care should be sought immediately. Dismissing the person's behavior as attention-seeking can have devastating consequences.

It is important to note that not all individuals who are exposed to risk factors develop suicidal behaviors. It therefore means that there are certain protective factors that act to mitigate the effects of exposure of individuals to risk factors. These protective factors act to counter the adverse effects or moderate the impact of risk factors and they are classed as follows;

1. Individual attributes: These include

- a. Cognitive abilities such as Intelligence Quotient (IQ) scores and executive functioning skills.
- b. Temperament control.
- c. Personality e.g. adaptability.
- d. Self regulation skills such as the control of impulsive behavior.
- e. Self perceptions of competence/Self esteem.
- f. A positive outlook on life.

2. Relationships:

- a. Relationships with competent adults e.g. parents, mentors and other family members.
- b. Interaction with members of a social peer group.

3. Community resources and societal opportunities:

- a. Good and proper schools.
- b. Connections with social and societal organizations such as religious groups.
- c. A good and qualitative neighborhood.
- d. Proper health care and social amenities.

8. Summary/Conclusion

Suicide is preventable and identifying the risk factors with rapid and decisive interventions can save lives.

Even as screening and the treatment of mental disorders is important, ways must also be found to identify the many people without mental disorders who are at risk of suicidal behaviors.

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Part 5

Conclusion – An Attempt at Integrating Understanding, Predicting, and Controlling

Selfhood: A Theory-Derived Relational Model for Mental Illness and Its Applications

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1. Introduction

The purpose of this chapter is to introduce a theory-derived relational model for Mental Illness and its applications in self-help, health-promotion, sickness prevention, and psychotherapy. Consequently, most of this chapter will be concerned with explaining and expanding on; (1) the basic theoretical derivation of this model, (2) its relational qualities and (3) views of mental health and mental illness, (4) research to validate its construct, convergent, and predictive validities; and (5) its clinical and preventive applications in mental health.

2. Theoretical origins of the Selfhood Model¹¹

Selfhood Model¹¹ is one of the most important models in Relational Competence Theory (RCT). It is also one of the most validated models of RCT, even though all the models of RCT are just as important but perhaps not as important and as validated as Selfhood, as summarized in Figure 1. Furthermore, not all models lead to direct clinical, promotional, preventive, and psychotherapeutic applications as the model Selfhood. To fully explain this Model¹¹ it will not be necessary to spend as much space and time on the whole RCT. There are plenty of sources where this theory has been explained in greater detail (Cusinato & L'Abate, 2012; L'Abate, 2005; 2008a; 2009c; L'Abate & Cusinato, 2007; L'Abate, Cusinato, Maino, Colesso, & Scilletta, 2010).

It is important to underscore that the 16 model of RCT were created to encompass as many qualities as possible of relational competence relevant to both intimate and non-intimate relationships. The overall scheme is a hierarchical pyramidal flowchart or organizational chart because it needs to differentiate among meta-theoretical (Models¹⁻³) from theoretical (Model⁴⁻⁶) assumptions as well as between developmentally normative (Models⁷⁻¹²) from non-normative Models¹³⁻¹⁵. Summary Model¹⁶ about Negotiation includes both normative and non-normative characteristics that are present in all models (1-15) of RCT.

The historical origins of RCT in general and of the Selfhood Model¹¹ in particular go back to half a century ago, when behaviorism, psychoanalysis, and eventually humanism were in full force. Less known and less popular was systems theory and information processing formulations. The latter were very influential in starting to think about the family as the

major system in existence. Influenced by the discipline of family sociology, that existence raised the question about why in psychology we did not have a specialty in “family psychology”. Furthermore, why was there no theory to trying to understand behavior and relationships within the family system, except for empirically untestable psychoanalytic formulations?

At the beginning, influenced by the individual, intrapsychic paradigm, understanding and helping the individual in the family was the principal focus of the theory. From there, various revisions of the theory focused on popular terms, such as “Self”, “Personality,” and eventually “Family”. However, even that latter term was not satisfactory because in USA only 25% of all domiciles are composed by the traditional, sociological notion of the intact marital couples and two children of opposite gender. The other 75% include various combinations and permutation of people living under the same roof linked by emotional, ethnic, financial, and practical ties.

Since the notion of family-qua-family was no longer tenable, the notion of “intimate” relationships was introduced as a substitute for the notion of “family”. Intimate, communal relationships are characterized by close, committed, interdependent, and durable bonds. Non-intimate, agentic relationships are characterized by inadequacy and lack of closeness, commitment, interdependence, and duration. Furthermore, most psychological models about personality, marriage, and the family have produced a plethora of highly validated measures that are, however, specific only to either personalities, or couples, or families. Measures to evaluate individuals in a non-relational *vacuum* produced a veritable theoretical and empirical Tower of Babel in personality science. This Tower of Babel essentially considered personality in a relational vacuum, without any intimate or non-intimate relationships while marriages and families were viewed without personalities. There were essentially three different theoretical and empirical tracks without any connection among them. We needed a theory of human relationships that would go above and beyond personalities, couples, and families, a very ambitious but exciting undertaking that has been going on for the last half century.

Consequently, collaborators at the University of Padova, lead by the co-author of this chapter, Mario Cusinato and his students (Cusinato & L’Abate, 2012; L’Abate et al., 2010) agreed that we were interested in expanding and evaluating the validity a theory about human, relational competence that could and should be empirically evaluated and possibly validated. Eventually (L’Abate & Cusinato, 2007), we realized that in order to make sense of all the models that encompassed the undeniable complexity of RCT, we had to fall back and resort on Max Weber’s century-old notion of hierarchy, as present in most charitable, educational, industrial, military, and religious organizations. Hence, we arrived at the hierarchy presented in Figure 1 below.

2.1 Requirements for RCT

These four requirements are necessary to understand the nature of RCT as: (1) *verifiable* model by model, like in any human organization, each model has to be accountable and has to be verified from the top down; (2) *applicable* to individuals, couples, and families as well as functional and dysfunctional conditions and relationships in different Settings (Model³); (3) *redundant* in linking models together to describe and explain one particular construct, all models are interrelated to support each other by expanding the meaning of a construct from the different viewpoints represented by each model; and (4) *fruitful* in producing research and applications to validate or invalidate its models, a requirement that implies also *longevity*.

The requirement of redundancy eventually will be useful to understand the inevitable and necessary overlap among dimensions of functionality-dysfunctionality, as shown at the conclusion of this chapter. Since this requirement is relatively new in psychological theory-construction, it might be relevant to expand on its meaning and function within a hierarchical, pyramidal theoretical framework. Redundancy, within the context of RCT, means that human relationships are too complex to be described, explained, or even understood by one single, solitary model. Those relationships can and should be evaluated, described, and perhaps even explained and eventually understood, from multiple but overlapping viewpoints or models. Each model, in and of itself, represents one different way to look at the same construct in relation with different viewpoints.

For instance, Model⁴, deals with the ability to love, a multidimensional construct, described first according to a dimension of distance: who and what we approach or avoid, how often and for how long we approach someone or something we love or like and avoid someone or something we do not like. Second, an overlapping construct of love (Figure 1) is also found in Model⁷, using a different set of dimensions in the Triangle of Life. This Triangle was derived from resource exchange theory (Foa, Converse, Tornblom, & Foa, 1993) composed of: (1) emotional and instrumental Being or Presence that includes Importance or Status (Model¹¹) and Love or Intimacy (Model¹⁵); (2) Doing or Performance, composed of Information and Services; and (3) Having or Production, composed of Goods or Possessions and Money. In this model, Love is defined by Being Present and available reciprocally to those we love and who love us emotionally and instrumentally. Third, additionally, different meanings of love are visible in the Selfhood Model¹¹ described in this chapter, on how Importance is bestowed on self and intimates. Fourth, another meaning of love is found in Model¹² about Priorities: what kind of Priorities determine our behavior toward intimates and non-intimates? Fifth, another meaning is found in the Intimacy Model¹⁵, defined as the sharing of joys and hurts and fears of being hurt. This sharing usually occurs at home and intimate relationships found there, not at work, in the office, or in bars or gyms.

The same kind of redundant analysis could be performed with Model⁵ about the ability to control self is described by a dimension of speed, how fast or how slow we respond in approaching or avoiding people, responsibilities, or tasks. This Model⁵ can be seen from the viewpoint of Model⁷, according to whoever controls Doing and Having has the power to control others, as seen in most despots around the world. Control of self is also relevant to Model¹⁶ about negotiation. One cannot negotiate adequately with others if one is not in full control of oneself.

2.2 Requirements for models of RCT

In addition to being verifiable and verified and being defined by the same requirements for RCT in general, RCT models can vary along a dimension of functionality/dysfunctionality, developmentally and normatively. Some models, such as Models^{4, 5, 6, 7, 8, 9, 10, & 11} are definitively linked to Axis I and II of the DSM-IV, while Models^{13, 14, & 15} in and of themselves unrelated to the DSM-IV evaluate and are linked directly to dysfunctional relationships and roles.

Furthermore, some models have been supported by *independent* evidence (face validity), such as secondary references completely unrelated to RCT but with sufficient similarity to RCT models to warrant their presume or suggestive validity (L'Abate, 2009a). Some models are supported by *indirect* evidence about the validity of the model. This would be the case,

Requirements					
Verifiability	Applicability	Redundancy	Fruitfulness		
Meta-theoretical Assumptions about Relationships					
	Width ¹	Depth ²	Settings ³		
<i>Models</i>	ERAAwC ¹	Levels of Interpretation ²	Settings ³		
	Emotionality	Description	Home		
	Rationality	Presentation	School/ work		
	Activity	Phenotype	Transit		
	Awareness	Explanation	Transitory		
	Context	Genotype			
		Generational- developmental			
Theoretical Assumptions about Relationships					
<i>Models</i>	Ability to Love ⁴	Ability to Control Self ⁵	Both Abilities ⁶	Contents ⁷	
<i>Dimensions</i>	Distance	Control	Functionality	Modalities	
	Approach/ Avoidance	Discharge/Delay	High/Middle/ Low	Being/Doing/ Having	
DSM-IV	Axis II, Cluster C	Axis II, Cluster B	GAF* (100 to 0)*	Sexual deviations Driven Personalities	
Normative Models of the Theory					
<i>Models</i>	Self-differentiation ⁸	Relational Styles ⁹	Interactions ¹⁰	Selfhood ¹¹	Priorities ¹²
<i>Dimensions</i>	Likeness Continuum	AA/RR/CC	Functionality	Importance	Survival/En- joyment
a.	Symbiosis/ Alienation	Abusive/ Apathetic	Divisive	No-self	Vertical: Self/ intimates
b.	Sameness/ Oppositeness	Reactive/ Repetitive	Subtractive/ Static	Selfless/ Selfish	Horizontal: Settings
c.	Similarity/ Differentness	Conductive/ Creative	Additive/ Multiplicative	Selffull	
DSM-IV	a. Axis I b. Axis II, Cluster B c. No diagnosis	a. Co-dependencies/ addictions b. Conflict high c. Conflict low	a. Below 39 on GAF* b. 69 to 40 on GAF c. 100 to 70 on GAF * GAF= Global Assessment of Functioning		
Clinical Applications of the Theory					
<i>Models</i>	Distance Regulation ¹³	Drama Triangle ¹⁴	Intimacy ¹⁵	Negotiation ¹⁶	
<i>Dimensions</i>	Pursuer/ Distancer/ Regulator	Victim/Persecut or/ Rescuer	Sharing Joys, Hurts, & Fears of Being hurt	Structure/Process (Ill, Skill, Will)	

Fig. 1. Summary of Relational Competence Theory

for instance, of Models 4, 5, & 6 where support is furnished from other sources or measures developed by researchers extraneous to RCT. Some models have produced specific, paper-and-pencil self-report measures that evaluate *directly* the psychometric robustness of each model (construct, concurrent, and predictive validities among others). This is especially the case for Models 1, 2, 3, 7, 11, 15, & 16. Model¹¹ was evaluated also with a visual-verbal test for couples that needs further applications (Cusinato & L'Abate, 2005a, 2005b).

Some models have been expanded by revising original model-derived measures. For instance, the Relational Answers Questionnaire to evaluate Model¹ was revised and expanded from five (Emotionality, Rationality, Activity, Awareness, Context) to seven components of an information processing Model¹ (Cusinato, 2012). The importance of Emotionality as the basis of our humanity has led to an entire series of studies about alexithymia, that is: the inability to experience feelings and therefore express them as emotions (Cusinato & L'Abate, 2012). Model², composed of two levels of : (1) description, with sublevels of (a) self-presentation/impression management façade and (b) behavior in intimate prolonged relationships; and (2) explanation with two sublevels (a) genotypical and (b) developmental/generational influences, can be evaluated with a revised Self-presentation scale (Cusinato, 2012).

Model³ about various specific survival and enjoyment settings can be evaluated by a revised R-EcoMap that includes also evaluation of how the immediate relational contexts and intimates are perceived by participants (Colesso, 2012b). Model⁸ about identity-differentiation has been originally evaluated in a face-to-face verbal administration that limited its being available to more than one individual at a time (Cusinato & Colesso, 2008). However, it has been expanded into a written format that allows mass administration at one time (Colesso, 2012a). Model¹⁴ about the Deadly Drama Triangle (DDT) composed by the Victim, Perpetrator, and Rescuer has been expanded in a forthcoming volume that includes similar or related models, such as Parentification, when a child is assigned or assumes the parental role toward one's parents, the Parental Alienation Syndrome (PAS), when one parent demonizes the other, usually divorced parent with the children. Bullying, that has now reached epidemic proportions in the United States, and the Stockholm Syndrome, where one kidnapped individual assumes the role of the kidnappers (Hooper, L'Abate, Sweeney, Gianesini, & Jankoski, in press). Model¹⁵ about intimacy already defined as the sharing of joys and hurts and fears of being hurt has been expanded into a full-fledged volume (L'Abate, 2011a).

Additionally, certain models are applied and validated when administered as Programmed Interactive Practice Exercises (PIPEs; L'Abate, 2004a, 2011) or workbooks require distance writing, as discussed below (L'Abate & Sweeney, 2011). Some PIPEs are completely independent from sources or models of RCT. Some PIPEs are related indirectly to models of RCT. Some PIPEs are directly related to models of RCT, as discussed in greater detail below.

3. Relational qualities of Selfhood Model¹¹ and their connections with mental illness

This Selfhood Model¹¹ is based on the notion that a sense of importance is continuously exchanged between and among intimates and non-intimates. This exchange occurs through the bestowal of importance to Self and intimate Others. When this sense of importance is bestowed positively toward Self and Others, a relational propensity called *Selffulness* emerges, producing cooperative functionality in three major Settings (Model³), home

(family), school/work, and surplus time. When a sense of importance is bestowed positively on Self more than negatively on Others, a relational propensity called *Selfishness* emerges leading to competitive derogation and impulsive devaluation of others based on envy, anger, acting out, aggression, and in its extremes, murder, as exemplified by personality disorders of Axis II Cluster B from the DSM-IV (Fisher & Cox, 2011; Madden & Bickel, 2010). When a sense of importance is bestowed negatively on Self and positively on Others, a relational propensity called *Selflessness* emerges, leading to sadness, depression, anxiety, and in its extreme suicide, as exemplified by personality disorders of Axis II Cluster C of the DSM-IV. When a sense of importance is bestowed negatively on both Self and Others, a relational propensity called *No-self* emerges, leading to various psychopathological conditions, as exemplified by Axis I and Axis II Cluster A disorders of the DSM-IV.

Possible gender differences were predicted from the very outset of RCT (L'Abate, 1994), with men being trained relatively more than women to behave selfishly and women being trained relatively more than men to behave selflessly. Equal gender ratios are predicted for Selffulness as well as for No-Self.

This Selfhood Model¹¹, as shown in Figure 2, integrates various degrees of functionality (Selffulness) and different degrees and types of dysfunctions, providing a relational, dimensional version of static, non-dimensional psychiatric categories of the DSM-IV.

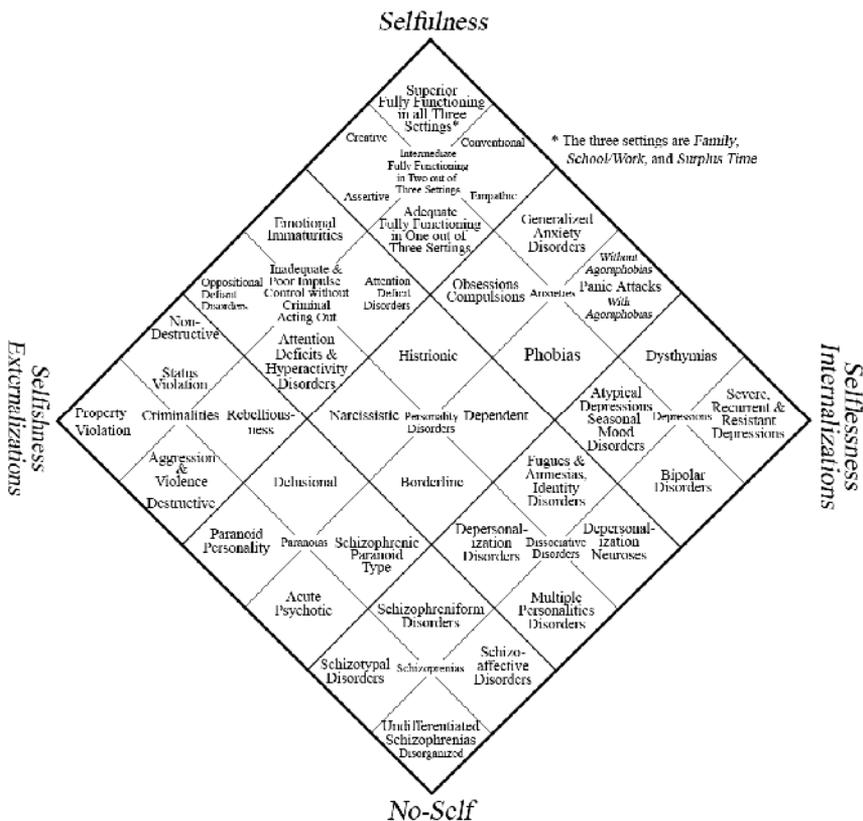


Fig. 2. Integration of Psychiatric Categories with Relational Dimensions and Expansion to Superior Functioning

4. Research to validate the Selfhood Model¹¹

Most of the research to evaluate the psychometric validities of this model has been conducted with various versions of the Self-Other-Profile Chart (SOPC). The latest version is shown in Figure 3. Most of the research to validate this SOPC has been conducted at the University of Padova under the leadership of the second author (Cusinato & L'Abate, 2012; L'Abate et al., 2010, pp. 163-188).

The convergent and construct validities of this model were evaluated with the SOPC in 19 different studies, using instruments already validated in English, mostly in USA. Seven studies evaluated the construct validity of the SOPC. Five studies supported the hypothesis of possible gender differences, with men appearing more selfish than women. Fourteen studies evaluated also the convergent/divergent validity of the SOPC. Results from these studies tend to confirm the convergent, criterion, and construct validities of this instrument and, therefore, of the Model¹¹ underlying it. Current research (Cusinato & L'Abate, 2012) is validating a newer and more complete version of this instrument, as shown in Figure 3.

In previous studies (L'Abate, 1997), this instrument was found to correlate significantly with much lengthier self-concept tests, like the Tennessee Self-Concept. In a sample of 100 parents of elementary school children (Salvo, 1998): (a) Selflessness correlates ($r = .12, p < .05$) with Dismissing style on the Adult Attachment Questionnaire; (b) Selfish propensity correlates significantly with all four attachment styles: $r = -.19, p < .01$ with Secure, $r = .15, p < .05$ with Preoccupied, $r = .27, p < .01$ with Dismissing, and $r = .18, p < .01$ for Fearful; (c) No-self shows significant correlations with the four attachment styles: $r = -.23, p < .01$ with Secure, $r = .27, p < .001$ with Preoccupied, $r = .25, p < .001$ with Dismissing, and $r = .29, p < .001$ with Fearful; (d) Selffulness correlates negatively with Selflessness ($r = -.29, p < .001$) but not with the other two propensities. Selflessness correlated positively with Selfishness ($r = .12, p < .05$) and with No-self ($r = .29, p < .001$). Selfishness and No-self correlated with each other ($r = .39, p < .01$).

A previous version of the SOPC was administered also to a group of primarily female (81.5%) adults ($n = 153$) with a mean age of 23 (Self Profile has $\alpha = .82$ and Other Profile has $\alpha = .83$; in test-retest Self Profile reliability is $r = .62$, Other Profile reliability is $r = .64$). Correlations with the Beck Depression Inventory (BDI) and with the Center for Epidemiological Studies Depression Scale (CES-D) are significant: Self Profile correlates negatively with BDI ($r = -.57, p < .001$) and CES-D ($r = -.55, p < .001$); Others Profile correlates significantly and negatively with BDI ($r = -.57, p < .001$) and CES-D ($r = -.49, p < .001$).

4.1 Validation of the Revised SOPC₂ (Cusinato, 2012)

The first SOPC₂ administration involved 376 participants living in North Italy, aged from 14 to 55 years ($M = 30.44, SD = 11.48$), 184 (48.8%) males and 193 (51.2%) female, with various levels of education, status, and profession: (a) education: 67 (17.7%) with primary school level, 31 (8.2%) with professional diploma, 163 (43.2%) with a high school diploma, 116 (30.7%) with an university degree; (b) status: 107 singles (28.4%), 112 (29.7%) engaged, 26 (6.9%) living together, 120 (31.8%) married, 8 (2.1%) divorced, 3 (.8%) remarried, 1 (.3%) widowed; (c) occupation: 40 (10.6%) managers or similar, 70 (18.6%) clerks or similar, 27 (7.2%) <http://it.dicios.com/iten/lavoratore-in-proprioself-employed> workers, 66 (17.5%) <http://it.dicios.com/iten/operaio-specializzatocraftsmen>, 14 (3.7%) unemployed, 145 (38.5%) students, 14 (3.7%) home crafts.

Second Part: The Other Profile

(SOPC-2, February 2011)

Here is a list of persons possible partners of close, committed, and prolonged relationships. You are asked two things in succession (before step 1 and then step 2):

Step 1: In A column, mark Yes if you believe that the relationship with this person is possible for one like you (considering sex, age, education and living conditions) and NO if it is not. Please evaluate one by one all people proposed.

Step 2: Please consider the persons signed with Yes and answer the following question (please use the scale beside):

How much these persons make me feel important?

→ continue

LIST OF PERSONS IN CLOSE, COMMITTED, AND PROLONGED RELATIONSHIPS		A	rating scale				LIST OF PERSONS IN CLOSE, COMMITTED, AND PROLONGED RELATIONSHIPS		A	rating scale			
			little	enough	a bit	very much				little	enough	a bit	very much
1	Father	YES NO	1	2	3	4	34	Teammate	YES NO	1	2	3	4
2	Mother	YES NO	1	2	3	4	35	Car Engineering	YES NO	1	2	3	4
3	Grandfather	YES NO	1	2	3	4	36	Nurse	YES NO	1	2	3	4
4	Grandmother	YES NO	1	2	3	4	37	Family Doctor	YES NO	1	2	3	4
5	Husband	YES NO	1	2	3	4	38	Doctor in Attendance	YES NO	1	2	3	4
6	Wife	YES NO	1	2	3	4	39	Dentist	YES NO	1	2	3	4
7	Son	YES NO	1	2	3	4	40	Medical Specialist	YES NO	1	2	3	4
8	Daughter	YES NO	1	2	3	4	41	Accountant	YES NO	1	2	3	4
9	Brother	YES NO	1	2	3	4	42	Banking Consultant	YES NO	1	2	3	4
10	Sister	YES NO	1	2	3	4	43	Pastor	YES NO	1	2	3	4
11	Nephew	YES NO	1	2	3	4	44	Curate	YES NO	1	2	3	4
12	Uncle	YES NO	1	2	3	4	45	Association President	YES NO	1	2	3	4
13	Aunt	YES NO	1	2	3	4	46	Member of the Association	YES NO	1	2	3	4
14	Cousin (male)	YES NO	1	2	3	4	47	Neighbor	YES NO	1	2	3	4
15	Cousin (female)	YES NO	1	2	3	4	48	Head of Condominium	YES NO	1	2	3	4
16	Father-in-law	YES NO	1	2	3	4	49	Servant	YES NO	1	2	3	4
17	Mother-in-law	YES NO	1	2	3	4	50	Barber / Hairdresser	YES NO	1	2	3	4
18	Son-in-law	YES NO	1	2	3	4	51	Baby-sitter	YES NO	1	2	3	4
19	Sister-in-law	YES NO	1	2	3	4	52	Greengrocer	YES NO	1	2	3	4
20	Boy/Girlfriend	YES NO	1	2	3	4	53	Social Worker	YES NO	1	2	3	4
21	Childhood friend	YES NO	1	2	3	4	54	Teacher	YES NO	1	2	3	4
22	Friend of family	YES NO	1	2	3	4	55	Clerk of the Usual Shop	YES NO	1	2	3	4
23	Personal friend	YES NO	1	2	3	4	56	Barman/maid of the Usual Bar	YES NO	1	2	3	4
24	Partner	YES NO	1	2	3	4	57	Counselor	YES NO	1	2	3	4
25	School Colleague	YES NO	1	2	3	4	58	Psychologist	YES NO	1	2	3	4
26	Professor	YES NO	1	2	3	4	59	Maid of the usual restaurant	YES NO	1	2	3	4
27	Work Colleague	YES NO	1	2	3	4	60	Another person to mention:	YES NO	1	2	3	4
28	Employer	YES NO	1	2	3	4	61	Another person to mention:	YES NO	1	2	3	4
29	Superior	YES NO	1	2	3	4	62	Another person to mention:	YES NO	1	2	3	4
30	Employee of the office usually attended	YES NO	1	2	3	4	63	Another person to mention:	YES NO	1	2	3	4
31	Inferior	YES NO	1	2	3	4	64	Another person to mention:	YES NO	1	2	3	4
32	Catechist	YES NO	1	2	3	4							
33	Coacher	YES NO	1	2	3	4							

continue →

* if you have to mention another brother, uncle, cousin, friend, colleague ... in addition to the already marked.

Self Profile: Quality Connection to the Areas

AREAS			AREAS				
A	Physical Qualities	1	Body Care	E	Moral Qualities	5	Consistency
		9	Sex-appeal			13	Commitment
		17	Good Looks			21	Green Think
		25	Qualities in Sport			29	Respect in Relationships
		33	Care of Health			37	Spirituality
		41	Physical Strength			45	Religiosity
		49	Resistance to fatigue			63	Sense for family
		57	Healthy Care			61	Generosity
B	Cognitive Qualities	2	Intelligence	F	Performance Qualities	6	Concreteness
		10	Memory			14	Common Sense
		18	Creativity			22	Methodicalness
		26	Problem Solution			30	Professionalism
		34	Inventiveness			38	Initiative
		42	Intuition			46	Sense of Business
		50	Curiosity			54	Crafts
		58	Interest in Science			62	Ability to Carry out
C	Affective Qualities	3	Affection	G	Aesthetic Qualities	7	Aesthetic Taste
		11	Kindness			15	Love for the Art
		19	Empathy			23	Love for the Music
		27	Warmth in Relationships			31	Love for Poetry
		35	Kindness			39	Love for Nature
		43	Joyfulness			47	Love for Dance
		51	Intimacy			55	Musical Ear
		59	Sharing Capacity			63	Taste for the Beautiful
D	Social Qualities	4	Friendliness	H	Reflective Qualities	8	Beware of the Consequences
		12	Expansiveness			16	Ability to Reflect on the Experiences
		20	Sense of humor			24	Consciousness of owns Abilities
		28	Leadership			32	Knowledge of the Capabilities of Others
		36	Capacity to Work Together			40	Awareness of owns Limits
		44	Ability to Give Consideration			48	Attention to Situations
		52	Sense of Friendship			56	Ability to Learn from the Experiences
		60	Opening for Social Life			64	Attention to how Others Are

Other Profile: People Connection to the 4 Settings (first tentative)

Home		Work		Survival		Enjoyment	
1	Father	25	School Colleague	35	Car Engineering	21	Childhood friend
2	Mother	26	Professor	36	Nurse	22	Friend of family
3	Grandfather	27	Work Colleague	37	Family Doctor	23	Personal friend
4	Grandmother	28	Employer	38	Doctor in Attendance	32	Catechist
5	Husband	29	Superior	39	Dentist	33	Coacher
6	Wife	30	Employee of the office usually attended	40	Medical Specialist	43	Pastor
7	Son	31	Inferior	41	Accountant	44	Curate
8	Daughter	34	Teammate	42	Banking Consultant	45	Association President
9	Brother	54	Teacher	48	Head of Condominium	46	Member of the Association
10	Sister			49	Servant??	47	Neighbor??
11	Nephew			50	Barber / Hairdresser		
12	Uncle			51	Baby-sitter	51	Baby-sitter
13	Aunt			52	Greengrocer		
14	Cousin (male)			53	Social Worker		
15	Cousin (female)			55	Clerk of the Usual Shop	55	Clerk of the Usual Shop
16	Father-in-law			56	Barman/maid of the Usual Bar	56	Barman/maid of the Usual Bar
17	Mother-in-law			57	Counselor	57	Counselor
18	Son-in-law			58	Psychologist		
19	Sister-in-law			59	Maid of the usual restaurant	59	Maid of the usual restaurant
24	Partner						

Fig. 3.

The questionnaire was administered during the months of April 2011. The correct procedure was observed with appropriate letters of invitation, informed consent, instructions to perform the answer-sheets and collect the fulfilled questionnaires. The collected data were processed in May 2011 with the check of sample distribution, the reliability of the scales, the correlation analyses between profiles and areas, the analysis of variance with independent variables, the translation of the two profiles Self on Other in the propensities selfhood.

4.2 Results of the study

After determining the existence of a normal distribution in the data (Self Profile: asym. -.08, Curt. .7; Other Profile: asym. -.27, Curt. .26), the analysis focused on the reliability of the profiles, the areas of personal qualities, and the people subdivided by settings. The results (Table 1) show coherent and consistent trends. The correlations between the profiles and the quality areas meet the expectations driving the construction of the instrument (Table 2 and Table 3). The correlation between the two profiles is positive and statistically significant ($r = .41^{**}$). Therefore, the new version of SOPC seems to be reliable, even though further tests of reliability and validity (concurrent and differentiating in particular) will be performed in the future. The time spent to compile the two profiles seems to be acceptable: mean = 17 min. (range 8-30 min).

	M	SD	α
Self Profile	202.10	32.94	.92
Physical qualities	22.65	5.40	.64
Cognitive qualities	26.31	5.34	.68
Affettive qualities	27.85	5.97	.79
Social qualities	27.86	5.02	.68
Moral qualities	26.22	5.96	.76
Performance qualities	24.51	6.35	.70
Esthetic qualities	20.21	6.12	.73
Riflexive qualities	26.51	6.28	.77
Other Profile	133.73	29.55	.85
People related to home	50.16	14.08	.85
People related to work	17.99	5.80	.73
People related to survival settings	31.37	10.75	.88
People related to enjoyment settings	26.09	6.54	.71

Table 1. Means, Standard Deviation, and Internal Consistency of Profiles and Areas/Settings

	Phys.	Cogn.	Affet.	Soc.	Moral	Perf.	Esth.	Riflex.
Self Profile	.59**	.78**	.77**	.69**	.76**	.72**	.61**	.73**
Other Profile	.21**	.30**	.31**	.28**	.30**	.25**	.32**	.31**

** = $p .01$

Table 2. Correlations between Profiles and Quality Areas

	Home	Work	Surv.S.	Enj.S.
Self Profile	.29**	.33**	.39**	.30**
Other Profile	.82**	.75**	.81**	.73**

** = p .01

Table 3. Correlations between Profiles and Quality Areas

4.3 The step from propensity to selfhood propensities

A particularly interesting aspect of these results deserves to be proposed for applications in training and clinical practices. On a formal level, the derivation of selfhood propensities of the two profiles has been chosen according to the criteria shown in Figure 4. At the operational level, percentiles 16th and 84th are identified (in theory correspondent to one SD less and more to mean in the standardized Gauss curve) as a cut-off point into three parts. This procedure can obtain 9 types of which 4 correspond to the earlier model of selfhood propensities and the others are intermediate positions, except for the central that could be considered as indecision.

		Self Profile		
		-		+
Other Profile	+	selfless	selfless-selfull	selfull
		nearly selfless	middle selfhood	selfull-selfish
	-	no-self	nearly selfish	selfish

Fig. 4. Derivation of selfhood propensities from the two Profiles

The intersection of the three levels of Self and Other Profiles with the significance calculated using log-linear analyses gave the results shown by Table 4.

selfless 0 -3.02**	selfless-selfull 31 (8.38%) -0.25	selfull 22 (5.95%) -0.13
nearly selfless 50 (13.51%) 4.56**	middle selfhood 173 (46.76%) 10.98**	selfull-selfish 31 (8.38%) 3.14**
no-self 16 (4.32%) 0.36	nearly selfish 46 (12.43) 5.22**	selfish 1 (.27%) -2.92**

** p = .01

Table 4. Derivation of extreme and intermediate propensities in Selfhood

As a consistent result with this procedure, data are distributed mainly in the intermediate range; the two propensities selfless and selfish appear somewhat extreme because 47% of the processed data is not oriented towards specific propensities. The orientation towards selfish, selfless, and selfull is significantly present.

The new version of the Self-Other-Profile Chart seems at first blush more complex and more complicated than the original version. On the other hand, it seems to cover many more relevant areas of Selfhood, including also relationships to Mode², where a distinction was made between survival and enjoyment settings. The acceptable psychometric properties of this revision allow an expansion of the original Model¹¹ that seems closer to the real-life realities of everyday living.

5. Clinical and preventive applications of the Selfhood Model¹¹ in mental health

Clinical and preventive applications of the Selfhood Model¹¹ are based on programmed distance writing occurring through computers and the Internet (L'Abate, 2011c, 2012; L'Abate & Sweeney, 2011) through replicable workbooks or programmed or interactive practice exercises (PIPEs). These exercises can be administered either as substitutes for or in addition to face-to-face talk in the promotion of mental and physical health, prevention of mental illness, or treatment and rehabilitation of mental illness. These PIPEs have been developed from a variety of sources, including research on anxiety, depression, Clusters B and C conditions, and from most dysfunctional conditions available in Axis I of the Diagnostic and Statistical Manual for Mental Illness-IV, including also factor analyses, single- and multiple score tests, such as the Beck Depression Inventory, and the Minnesota Multiphasic Personality Inventory, among many other tests and questionnaire

The transformation from inert paper-and-pencil self-report instruments and measures into active and interactive workbooks (L'Abate, 2011c) is obtained by asking participants to define items in any list of behaviors or symptoms, using the dictionary (L'Abate, 2007) if necessary, and then giving two examples from the definition, a nomothetic step. After completing this first step, participants are asked to rank-order items according to their importance to them, an idiographic step. This rank-order is used to administer following PIPEs according to a standard format that includes specific questions about the developmental origins, frequency, intensity, duration, rate and personal and relational outcomes of that particular behavior.

This transformation allows to change most evaluative instruments into active and interactive workbooks, thus linking and matching evaluation with intervention in ways that would be difficult if not impossible to achieve as long as face-to-face talk based on personal contact is the norm for most clinical, promotional, preventive, rehabilitative, and therapeutic practices. This transformation was specifically applied to a previous and simpler version of the SOPC thus linking directly a model of RCT to evaluation and to intervention (L'Abate, 2011c). This latest version could be transformed by any mental health professional into a interactive practice exercise using the guidelines given in the previous paragraph.

The usefulness of these PIPEs has been evaluated in various studies (L'Abate, 2004b) and in a meta-analysis by Smyth and L'Abate (2001), where the effect-size of these workbooks was found to be .44. In addition to clinical experience and case studies included in L'Abate (2011c), this effect size indicates that it is possible to change behavior for the better through programmed distance writing without ever seeing or talking with a participant face-to-face, provided that the interactive practice exercises match the condition in need of improvement (L'Abate, 2008b, 2008c).

6. Relationship of PIPEs to the Selfhood Model¹¹

The relationship between PIPEs and Selfhood Model¹¹ is shown in Figure 5. This figure integrates most normative and non-normative PIPEs, regardless of theoretical orientation, gender, and educational level.

		Self-Importance	
		High	Low
Importance of Others	High	Functionality Life-long learning exercises	Cluster C Disorders Depression Anxiety
	Low	Cluster B Disorders Acting-out Psychopathy Impulsivity	Severe Psychopathology Cluster A Disorders Axis I, Mood Swings Schizophrenias

Fig. 5. Relationships among Selfhood Relational Propensities, Functionality, Psychopathology (DSM-IV), and Sample Interactive Practice Excises (L'Abate, 2011c)

7. Conclusion

If just one Selfhood Model¹¹ from RCT can accomplish this much, one cannot help wondering what the other 15 models of RCT can be accomplish. As mentioned repeatedly during the course of this chapter, practically every model of RCT attempts to cover functional and dysfunctional conditions. For instance, Model⁸, about identity differentiation covers functional and dysfunctional conditions derived directly from the developmental notion of “same-different” (Figure 1). Using the requirement of redundancy introduced at the beginning of this chapter, the six ranges of the Likeness continuum in Model⁸ (symbiosis, sameness, similarity/differentness, oppositeness, and alienation), were expanded into three relational Styles in Model⁹, Conductive-Creative (CC), Reactive-Repetitive (RR), and Abusive-Apathetic (AA), and in six types of interactions in an arithmetical Model¹⁰: multiplicative, additive, static positive, static negative, subtractive, and divisive.

An interesting feature of Model¹⁰ relates to the ratio of these six interactions with the presence of hurt feelings and intimacy defined earlier in this chapter (Cusinato & L'Abate, 2012; L'Abate, 2011a; L'Abate et al., 2010). These ratios are relevant to both mental health and mental illness. For instance, in multiplicative interactions the ratio of joys to hurts would be 6 to 1, in additive interactions the ratio would be 5 to 2, in static positive interactions the ratio would be 4 to 3, in static negative 3 to 4, in subtractive 2 to 5, and in divisive interactions 1 or 0 to 6. This model, therefore, views mental illness as the outcome of hurts offsetting joys and mental health as the outcome of joys offsetting hurts. These models overlap redundantly with the Selfhood Model¹¹ in producing a classification of relationships, as shown in Figure 6.

Figure 6 shows how human relationships can be classified according to relational (rather than intrapsychic and non-relational), dimensions that cover and encompass the whole gamut of mental health and mental illness. This classification of relationships among human

<i>Model⁷: Continuum of Likeness</i>				
Symbiosis	Sameness	Similarity/Differentness	Oppositeness	Alienation
.....				
<i>Model⁸: Styles in Intimate Relationships</i>				
Abusive	Reactive	Conductive	Reactive	Abusive
Apathetic	Repetitive	Creative	Repetitive	Apathetic
.....				
<i>Model⁹: Interactions</i>				
Divisive/ Subtractive	Static/ Positive	Multiplicative/ Additive	Static/ Negative	Divisive/ Subtractive
.....				
<i>Model¹⁰: Selfhood</i>				
No-self	Selfish/Selfless	Selfful	Selfish/Selfless	No-self

<i>Psychiatric Categories (DSM-IV)</i>				
Axis I & Axis II/ Cluster A	Axis II Clusters B & C	No diagnoses	Axis II Clusters B & C	Axis I & Axis II/ Cluster A
=====				

*Adapted from L'Abate et al., (2010).

Fig. 6. Relationships among four Models of Identity Differentiation⁷, Styles⁸, Interactions⁹, and Selfhood¹⁰*

beings can be applied to individuals separate from couples, or to couples separate from families. We do not need separate and different tests or theories to understand separately individuals, couples, or families because in one way or another these relationships can be understood in terms of these and other dimensions of the RCT models. This classification, of course, implies learning a completely new vocabulary that is based on models evaluated empirically in many different ways and found valid and reliable in observing and understanding mental health and mental illness on various dynamic continua or dimensions rather static categories.

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In the book “Mental Illnesses - Understanding, Prediction and Control” attention is devoted to the many background factors that are present in understanding public attitudes, immigration, stigma, and competencies surrounding mental illness. Various etiological and pathogenic factors, starting with adhesion molecules at one level and ending with abuse and maltreatment in childhood and youth at another level that are related to mental illness, include personality disorders that sit between mental health and illness. If we really understand the nature of mental illness then we should be able to not only predict but perhaps even to control it irrespective of the type of mental illness in question but also the degree of severity of the illness in order to allow us to predict their long-term outcome and begin to reduce its influence and costs to society. How can we integrate theory, research evidence, and specific ways to deal with mental illness? An attempt will be made in the last conclusive chapter of this volume.

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