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Child and Adolescent Mental Health

Edited by Martin H. Maurer

CHILD AND ADOLESCENT MENTAL HEALTH

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Notice

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Meet the editor

Martin H. Maurer graduated from medical school at the University of Heidelberg, Germany, and McGill University, Montréal, Canada, in 1999, receiving his MD degree in 1999. As a postdoctoral fellow in 2003 at the Johns Hopkins University, Baltimore, MD, USA, he concentrated on neuropsychiatric diseases and was appointed as an assistant professor of Physiology in 2005 and associate professor of Physiology in 2007 at the University of Heidelberg, Germany. From 2007 to 2008, he was a research group leader in the biotech industry. In 2009–2010, he did clinical work in pediatrics and since 2011 in child and adolescent psychiatry and psychotherapy, where he received his board license in 2015. His research interests include play, projection, and psychotherapy.

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Preface

Section 1: The Diligence of Diagnosis

In his chapter “Draw, Write, Speak, and Play: The Role of Projection in Diagnosis and Therapy of Children and Adolescents," Martin H. Maurer reviews the concept and function of projective mechanisms on a psychodynamic basis. He outlines the relation of projection to the unconscious, its use in inner psychic dynamics, and the underlying mechanisms for its use in psychotherapy like creativity, imagination, and symbolization. In the second part of the chapter, the author provides an overview over the use of projective methods for testing and diagnosis in the psychological sciences and exemplifies the use of projective methods in the diagnostics and psychotherapy of children and adolescents. He presents current methods based on drawing, verbally describing and imagining, and playing arts, focusing on sand play therapy and miniature figure play. As a special aspect, he addresses cultural aspects of the apprehension of projective testing.

In the chapter “A Qualitative Tool for Detecting and Approaching Psychological Trauma in Children Victims of the 2009 Italian Earthquake," Francesca Giordano introduces the specifics of art therapy approaches in major natural disasters. In the following section, the author provides original data of 14 patients surviving the 2009 earthquake in Italy. She evaluates the drawing test “Test de trois dessins: Avant, pendant et avenir" with regard to its diagnostic and therapeutic use and brings the results into context with the psychodynamic theory.

In the chapter “Can Frames Make Change? Using Communications Science to Translate the Science of Child Mental Health," Nat Kendall-Taylor and Allison Stevens introduce the framing technique to communicate child and adolescent mental health issues. They discuss data of a study on how to educate the public and disseminate child and adolescent mental health information. After an “ask-the-experts" approach, randomly selected people are interviewed to address the influence of cultural models, a term originating from anthropology. In a third approach, they refer to data of a newspaper and media survey on how information on child mental health is presented. In the next section, the authors recommend a framing system based on values and metaphors, resulting in a “core story" or a master narrative, which proved useful when approaching the public.

The chapter of Seungpil Jung “Integrative Approach to Child and Adolescent Mental Health" aims at reviewing recent developments in the pathogenesis and treatment of mental disorders in children and in adolescents. The author introduces the neurobiological basis of neurodevelopmental disorders and describes the Research Domain Criteria (RdoC). He comments on recent studies of early life programming as well as the role of inflammation and nutrition. Finally, novel aspects of e-mental health are discussed in the light of its clinical application in therapy.

Section 2: Changing Tides: New Trends and Cultural Contexts of Adolescent Mental Health

In her chapter “Parenting Adolescents in India: A Cultural Perspective," Roshni Sondhi reviews current concepts of parenting and provides the theoretical background of different attitudes and styles of parenting. She discusses the specific needs in parenting adolescents with regard to attachment and the need for autonomy. In the next section of the chapter, Ms. Sondhi provides data on cultural factors of parenting adolescents, for example, control vs. sensitivity and individualism vs. collectiveness. She then introduces the concepts of mindfulness-based approaches and closes with specific aspects of parenting in the Indian context. Finally, she makes recommendations on successful parental-adolescent communications, for example, in a nonjudgmental way.

Blanca E. Barcelata-Eguiarte and María Elena Márquez-Caraveo provide the chapter “Poverty and Mental Health Outcomes in Mexican Adolescents" and introduce the terms risk and resilience as framework for the understanding of adolescent behavior. With regard to developmental psychopathology, they point out that besides the risk contained in growing older, there are also protective factors. They provide data on mental health disorders and mental health problems with the emphasis of Mexican adolescents and correlate them to the socioeconomic status. Disappointingly, low income and poverty constitute the everyday reality of Mexican adolescents. In the next section of their chapter, they discuss stress life events and coping in disadvantaged communities and elucidate the important role of supportive family ties.

Anneliese Dörr, Sandra Viani, and María Elena Gorostegui contribute the chapter “Marijuana, Experience of Temporality, and School Performance from a Qualitative and Quantitative Approach" in which they address the effects of marijuana on cognitive ability in postprimary students. In the first part of the chapter, the authors provide quantitative data of neuropsychological and neuro-SPECT studies comparing schoolchildren who smoked marijuana to controls, finding impaired cerebral function in brain areas involved in learning. In the second part of the chapter, the authors investigated the experience of time in high school students who regularly smoked marijuana, bringing these data in context with philosophical considerations with regard to a phenomenological access. The results showed an impaired ability of the adolescents consuming marijuana in past and future dimensions, compared to the state of presence. The lost ability to integrate past events in the conception of a future self seems to be an appalling development with regard to maturation and the process of individuation as well as an increased vulnerability to psychic “stress."

In the chapter “Internet Addiction Disorder," Pabasari Ginige introduces the concept of nonsubstance addiction with regard to the use of the Internet. After describing the background and current controversies of Internet addiction, the author reviews the terminology and classification of Internet addiction, also providing epidemiological data. She also covers neurobiological aspects of Internet addiction and identifies high-risk users. In the next section, the author provides clinical features and describes diagnostic tools for the assessment of Internet addiction. The following subsections describe a multimodal treatment of Internet addiction, including pharmacological and behavioral therapy aspect. Special emphasis is laid on preventive aspects.

Section 3: Treatment in Transition: Giving what is needed

In the chapter “Peer Bullying in Schools: A Cognitive Behavioral Intervention Program," Füsun Gökkaya accesses the problematic side of peer contacts among adolescents. Bullying is

defined and described, and studies are presented that aim at interventions. The author describes the different approaches of interventions: first, whole-school interventions may raise attention toward the problem, and they will strengthen the inner-school coherence. Second, in group-specific approaches, the dynamics of bullying in a student group, for example, in the classroom, are highlighted, and intervention programs are presented. Third, individual programs applying methods from cognitive behavioral therapy are introduced. In this main section, the author describes the session protocol and gives information about the application of the program.

Isabel Hernández-Otero, Carlos Gómez Sánchez-Lafuente, and Cecilia Hernández González review the "The Use of Antidepressants in Children and Adolescents." For each of the substances fluoxetine, sertraline, citalopram, escitalopram, venlafaxine, desvenlafaxine, duloxetine, mirtazapine, amitriptyline, clomipramine, vortioxetine, and reboxetine, they provide data on pharmacodynamics, pharmacokinetics, drug and food interactions, side effects, and toxicology and refer to special aspects on the use in children and adolescents. The authors point out that appropriate safety considerations must be taken into account when considering the treatment of children and adolescents with antidepressants.

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Section 1

The Diligence of Diagnosis

Chapter 1

Draw, Write, Speak, Play: The Role of Projection in Diagnosis and Therapy of Children and Adolescents

Martin H. Maurer

Additional information is available at the end of the chapter

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Abstract

In this chapter, I will (1) review the concept and function of projective mechanisms on a psychodynamic basis. In this section, I will outline the relation of projection to the unconscious, its use in innerpsychic dynamics, and the underlying mechanisms for its use in psychotherapy like creativity, imagination, and symbolization; (2) give an overview over the use of projective methods for testing and diagnosis in the psychological sciences; and (3) exemplify the use of projective methods in diagnostics and psychotherapy of children and adolescents. I will present current methods based on drawing, verbally describing and imaginating, and playing arts, focusing on sand play therapy and miniature figure play.

Keywords: projective methodology, object relation theory, sandplay therapy, figure play, operationalized psychodynamic diagnostics in children and adolescents (OPD-CA-2), thematic apperception tests, narrative

1. Concept and function of projective mechanisms

1.1. The relation of projections to the unconscious

The Latin word "proiectus" means "to throw forth," or "to cast forward," and with regard to psychological sciences, several definitions have been provided. First of all, Sigmund Freud [1] described the "classical" projection as defense mechanism when the *ego* is threatened and refuses to acknowledge the trait, it attributes the trait to the outside world [2]. Later on, Freud broadened his view of projective mechanisms and refers the term projection to a general primitive mechanism, not only a defense mechanism, implying that projection may also be present when there is no conflict [3].

In this sense, the attributive projection can be understood as "ascribing one's own motivations, feelings, and behavior to other persons" [2]. This definition seems to be the most common, but

also the most (over-)simplified one. There seem to be no relations to psychoanalytical concepts of the self, or the unconscious. Most authors use this term to describe "any kind of externalization" [2] with a correlation between characteristics of the proband and predictions or statements issued. The attributive projection is mostly similar what Horney called the "naïve" projection, which means that the subject assumes that others think, feel and behave in the same way as oneself [4]. Today, this view can be integrated into the concept of mentalization.

In a third view, Murstein introduced the autistic projection as "perceived aspects of another person which are modified to accomplish own needs [2]."

In the fourth mode of rationalized projection, the process of projection lies in the unconscious, but the projector is conscious of his/her behavior. In this context, the rationalized projection can be understood as "defence against guilt [2]," and is a special subtype of the classical projection.

In a critique of projective methods, Lilienfeld et al. describe the aim of projective testing as a method to "circumvent the conscious defenses of respondents" and to "gain privileged access to … psychological information … of which respondents are not consciously aware [5]." This caused a discussion about the mechanisms and function of projection and projective testing [6]. This seems to be a misconception of what projective mechanisms are capable of, since it is not an aim to circumvent defense mechanisms but to elucidate them and to work on them in a clinical setting. Freud lists the free association and the interpretation of dreams as two possible ways to access the unconscious, or at least, processes of the unconscious [7]. Later, parapraxis [8], hypnosis [9], and play [10] added additional access ways.

Thus, in the present chapter, the term projection is used to describe a transfer mechanism of intrapsychic elements called "representations of objects" either to other intrapsychic elements, or external elements (**Figure 1**). Of note, here only the mechanism is connoted, its presumable function is regarded as a secondary aspect.

1.2. The function of projections in innerpsychic dynamics

For diagnostic purposes and the planning of therapy, an elaborated system for operationalized psychodynamic diagnostics in children and adolescents (OPD-CA-2) has been established [11]. This system is a multiaxial diagnostic and classification system, including psychodynamic, developmental, and clinical aspects. The axes comprehend interpersonal relations, conflicts, structure, prerequisites for treatment, and the ICD-10 classification. The axes have been aligned to the DSM-5 system [12].

Currently, no studies have been published evaluating the usefulness of projective techniques with regard to the OPD-CA-2. On the other hand, the psychoanalytic theoretical background of projective techniques proposes a close relationship of the both [13–15].

What can be the functions of projections in intrapsychic dynamics? Besides the above-mentioned functions as defense mechanism, and developmental characteristic, projections may be used as a translator and connector of distinct and separate representation of objects. With regard to the object-relations theory [16–18], aspects the self and its conceptualization

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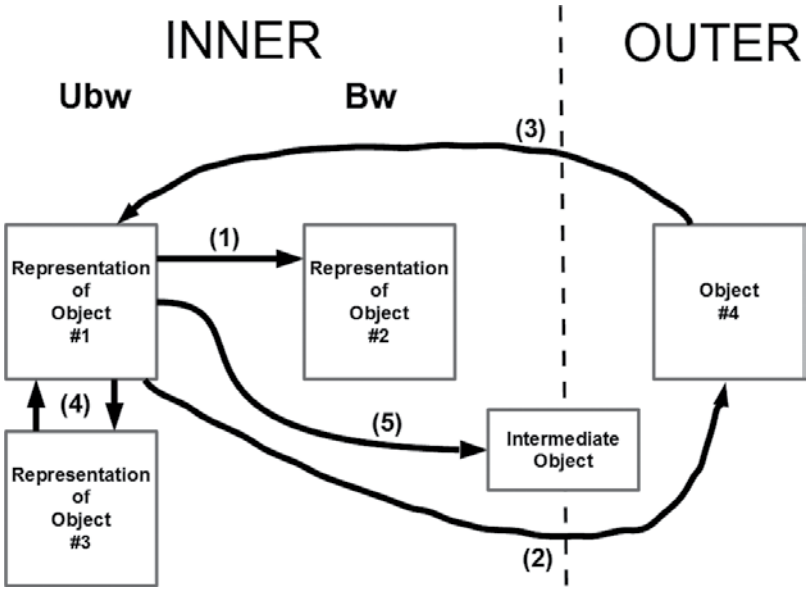

Figure 1. Depiction of projective pathways of objects or their representations, respectively. Inner unconscious objects can either project onto objects in the conscious which are also intrapsychic objects (1) or they can project onto objects in the outer world (2). In reverse, outer objects can project onto inner objects via internatization (3). Moreover, intrapsychic unconscious objects can project onto other intrapsychic onconscious objects (4). Finally, objects can project onto intermediate objects (5), a preferential way in children. (Ubw = the unconscious, Bw = the conscious).

contributed largely to an expanded understanding of projective mechanisms. A translating function of projections may be that characteristics of objects, for example, moral attributions such as "good", "bad," or "angry" can be transferred to another object, which seems to be less dangerous for the stability of the psychic system. Moreover, the connector function might be a possibility to link not closely related objects, or objects of diametrical attributes without generating internal psychological conflicts.

The main prerequisites for the application of projective techniques seem to be creativity, imagination, and the capability of symbolization [19, p. 27]. Of note, these prerequisites depend on the respective developmental level and are influenced by other steps in development, such as speech, conceptualization, abstractive ability, fine and gross motor skills, as well as the level of intelligence. Moreover, the influence of culture, descent and origin, religious belief, moral values, and educational history may strongly contribute to the usefulness of the application of projective techniques in children and adolescents. For example, in the author's clinical experience with children and adolescents with an Islamic background originating from Syria, Iraq, and Afghanistan, these children do not easily use drawing or graphic techniques as means of expression. Thus, projective techniques such as human figure drawings may not be valid tools of assessment.

Another field of special care compromises the child's cultural experiences with magic. For example, in cultures where witchcraft and magical forces are present in every-day life, for example in West-African or indigenous cultures of the Americas, deliberate use of the

respective test which is to be applied should be made, since these tests may be threatening to the child, or nonprojective mechanisms come into the foreground, diminishing the validity of the test result.

A third aspect is, for example, the connotation of specific animals, such as pigs, as impure. Then the application of the Patte Noire test [20] may be difficult for children with Islamic or Jewish background. Thus the child cannot identify with the hero of the story, and the validity of the test is severely restricted. On the other hand, the connotation of specific animals, for example, snakes or rats, in the occidental world is strongly different from the oriental connotations.

2. Projective methods for testing, diagnosis, and therapy

A wealth of projective methods has been developed for clinical and nonclinical use, for diagnostics, therapy and personality assessment, and for decision processes in human resource management. Several approaches to classify projective methods have been proposed, and in this chapter, I will follow the taxonomy of Lindzey [21], suggesting five groups of projective techniques based on the handling of the material. This classification is also reflected in the title of the present chapter.

First, *construction techniques* provide the material for creative processes such as drawing or writing, for example, pencil and paper for the various drawing tasks.

Second, *association techniques* involve the presentation of a stimulus, may it be verbal (like the wordlist in the C. G. Jung experiment of 1908 [22]) or nonverbal (such as an inkblot). The proband is then asked to provide verbal associations, or a narrative.

Third, *completion methods* provide stimulus material containing blanks, for example incomplete sentences such as in the Washington University Sentence Completion Test (SCT) [23], or incomplete stories [24–26]. Additionally, combined material such as comic-like pictures with an empty speech bubble has been used [27].

Fourth, *arrangement or selection methods* are based on picture material or building bricks and block, such as the Lowenfeld Mosaic Test [28].

Fifth, *expression techniques* involve playful arts material, such as miniature figures as in doll or figurine play [29, 30], or expressive sandplay [31–33].

There is no strict separation of these fields, and mostly combined methodologies seem to be in use in the clinical practice.

A similar classification has been proposed by Frank [34, 35], with constitutive, constructive, interpretive, carthartic, and refractive techniques. A discussion of both classifications is provided by Semeonoff [36]. Of note, there is a certain overlap between the different categories as well as the different categorization systems. In general, a three-dimensional model of classification systems has been proposed, containing the various aspects of stimulus, response, and intention (**Figure 2**).

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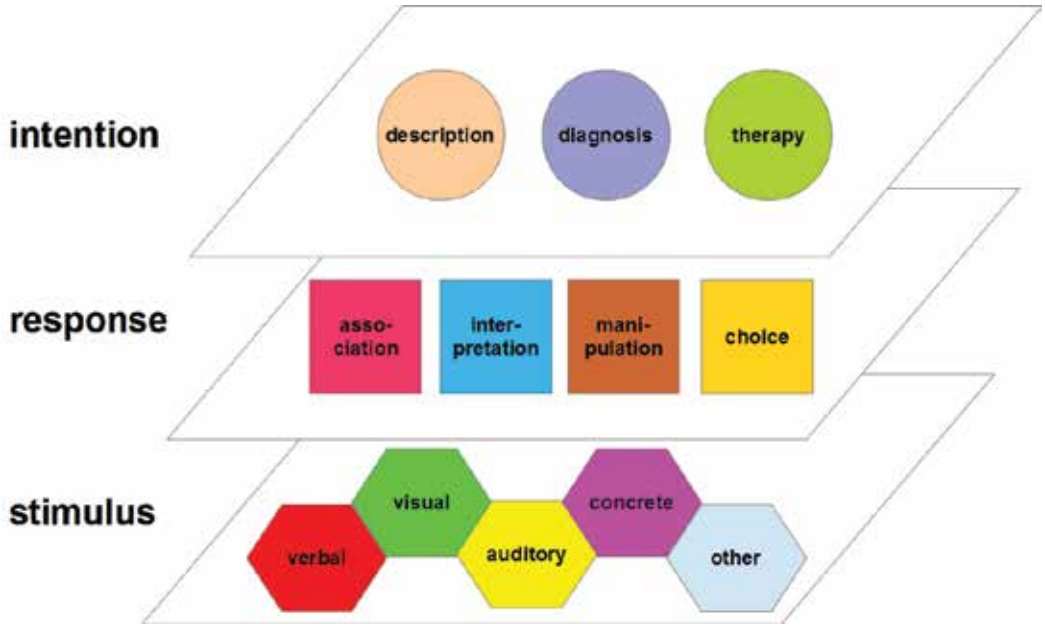

Figure 2. Multidimensional classification system of projective methods. Projective techniques can be classified according to the sensual quality of the stimulus (verbal, visual, auditory, etc.), the category of response (e.g., association, interpretation, manipulation as in play or construction, or choice and ordering), and the intention or purpose, may it be diagnostic, may it be therapeutic, or may it be for the description of personality traits.

With regard to the nomenclature, the term "apperceptive" means that the proband is asked for a projective response to visual stimuli, for example in the TAT [37] and the variants derived from this test. The term "thematic" means in this context that a narrative, or a story is created, not only short response, or value on a rating scale.

The term "semiprojective" means that a test provides operant, or projective, stimuli and records the answers in a respondent way, such as with a questionnaire [38]. Another definition of "semiprojective" describes the creation of a real-world scene by symbolic, or transformed, means, such as figurines, drawings etc. [39].

There has been a debate on the psychometric properties of diagnostic tests, criteria including norms, reliability, objectivity, validity and incremental validity, and its utility for treatment purposes [5, 6], but in the current chapter, I will not add to this debate. In the literature review for this chapter, there has been numerous doubtful and dubious "tests," which seem to be based on individual ideology, not scientific scholarship. Moreover, the terms "test," "technique," and "method" are often used interchangeably, but in the light of the current literature, a "test" is related to a clinical diagnostic purpose, and it can be judged and challenged by the above-mentioned psychometric criteria. For a "technique" or "method" lesser demands are necessary with regard to the latter, and it seems that "techniques" / "methods" mainly serve the therapeutic objectives. In this case, their clinical use can be assessed by means of the methods of evidence-based medicine, which for example include the evaluation of clinical studies with regard to randomization, blinding, and the description of withdrawals or drop-outs [40, 41].

Standardized psychological diagnostics relying on clinical interviews, questionnaires, rating scales, etc., which are based on normalization of samples, will result in the relative position of an individual within a given distribution. For example, the standard normal distribution is characterized by its mean value and the standard deviation. Thus, all values obtained smaller or larger than two standard deviations are out of the normal range. An individual taking the test can hence be grouped in categories like "meeting the criteria" or "not meeting the criteria" or will result in the position of the individual in a percentile rank (PR).

On the other hand, projective techniques aim at describing an individual not relatively to others, but individually. With regard to developing a personalized medicine, this will become more and more important. Psychometric data like standardization, objectivity, validity, and reliability can be obtained using adequate measures, for example, the OPD-CA. Normalization of data may not be sensible, since most of the projective methods do not aim at placing an individual in a relative order compared to others (such as percentile ranks).

Projective techniques have also been used in anthropology for cross-cultural studies [15], with the background that verbal aspects could be eliminated. In summary, the use of projective techniques strongly depended on cultural conceptualization, and surprising results for example with regard to drawing methods have been observed. For example, in the past, human figure drawings like the Machover Draw-a-Person test [42] have been applied for the intelligence and developmental measures. Administered in field studies in Inuit and Cree children, it revealed that the Western conceptualization of intelligence cannot be measured using this task [15, p. 294]. In conclusion, a projective test should test projective mechanisms, and not be used for other variables, such as intelligence measures, motor skills, speech development, or questions of child custody, since the validity of this approach is not guaranteed.

3. Clinically used projective tests, methods, and techniques: an overview

In the following section, I will give an overview over the most commonly used projective tests, methods, and techniques applied to children and adolescents. The following descriptions are neither complete nor representative, but they may give a fast first glance on the available techniques.

Table 1 gives an overview of available projective tests, methods, and techniques. (Data and tests compiled from [15, 19, 36, 43–48].)

3.1. Drawing

3.1.1. Human figure drawings: Machover Draw-A-Person Test (DAP); Goodenough-Harris Drawing Test; Goodenough Draw-a-Man (DAM) Test

Description: In the original version of Goodenough [49] and also later by Ziler [50], the child is instructed to draw a man (today: person), "as good as you can." Later, the instruction was extended to "draw a man, a woman, and yourself." Additional modifications involve the drawing of "a man, a woman, and yourself [42]."

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1. Association

1.1. Verbal

Word Association Technique (Jung 1910)

Brook Reaction Test (Brook & Heim 1960)

Adjective Generation Technique (AGT) (Allen & Potkay 1973)

Kent-Rosanoff Free Association Test (Kent & Rosanoff 1910)

Composite Free Association (Wells 1928)

Polygraph Test (Larson 1921)

1.2. Visual

Rorschach Inkblot Technique [Psychodiagnostics Plates] (Rorschach 1921)

(Derivatives:)

Behn-Rorschach Test (Bero) (Zulliger 1941)

Fuchs-Rorschach-Test (Fu-Ro-Test) (Drey-Fuchs 1958)

Zullinger Test (originally Z Test) (Zulliger 1951)

Harrower Blots (Harrower-Erickson 1945)

Kataguchi-Rorschach Test (Ka-Ro) (Kataguchi & Shobo 1970)

Structured-Objective Rorschach Test (SORT) (Stone 1958)

Baughman's New Method of Rorschach Inquiry (Baughman 1958)

Barron's Movement Blots (Barron 1955)

(Non-Rorschach inkblot techniques:)

Holtzman Inkblot Technique (HIT) (Holtzman 1958)

Howard Ink Blot Test (Howard 1953)

Helsingfors Test (Bruhns c1963)

Somatic Inkblot Series (SIS) (Cassell 1980)

Cloud Picture Method (Stern 1937)

Hand Test (HT) (Wagner 1962; revision 1983)

Paired Hands Test (PHT) (Zucker 1968)

[Apperceptive Situations Test] (A-S-T) [German version only] (Laufs 1990)

Columbus Test (Langeveld 1969)

1.3. Auditory

Verbal Summator (=Recorded Auditory Apperception Test) (Skinner 1936)

Tautophone Technique (Rosenzweig 1942)

Auditory Projective Technique (=Azzageddi Test) (Davids & Murray 1955)

Auditory Apperception Test (AAT) (Stone 1953)

2. Construction

2.1. Pictorial stimulus

Thematic Apperception Test (TAT) (Murray 1935)

Children's Apperception Test (C.A.T.) (Bellak & Bellak 1949)

Thompson Modification of the Thematic Apperception Test (T-TAT) (Thompson 1949)

Picture Impressions Test (Libo 1957)

South African Picture Analysis Test (SAPAT) (Nel & Pelser 1960)

Bender Visual Motor Gestalt Test (Bender 1938)

Blacky Pictures (Blum 1947)

Patte Noire (PN) Test (Corman 1961)

Object Relations Technique (ORT) (Phillipson 1955)

Children's Object Relations Technique (CORT) (Wilkinson 1975)

Pickford Projective Pictures (Pickford 1963)

Jackson's Test of Family Attitudes (TFA) (Jackson 1952)

Family Relations Indicator (FRI) (Howells & Lickorish 1962)

Family Story Technique (FST) (Kadushina, Cutlera, Waxenberga & Sagera 1969)

Interpersonal Perception Method (IPM) (Laing, Phillipson & Lee 1966)

Children's Apperceptive Story-Telling Test (CAST) (Schneider 1989)

Children's Hospital Apperception Test (no reference found)

Tell-Me-A-Story (TEMAS) (Costantino Malgady & Rogler 1988)

Make-A-Picture Story Test (MAPS) (Shneidman 1948)

Themes Concerning Blacks (TCB) (Williams 1972)

Visual Apperception Test (VAT) (Khan 1960)

Roberts Apperception Test for Children Test (RATC) (Roberts 1982; revised 2001)

School Apperception Method (S.A.M.) (Solomon & Starr 1968)

School Apperception Story Procedure (SASP) (Jones 2001)

Senior Apperception Technique (S.A.T.) (Bellak & Abrams 1998)

Educational Apperception Test (EAT) (Thompson & Sones 1975)

Pediatric Pain Inventory (Lollar, Smits & Patterson 1982)

Indian Modification of the Thematic Apperception Test (Chowdhury 1967)

Social-Situation Pictures (Schwarz 1932)

Family Apperception Test (FAT) (Sotile, Julian, Henry & Sotile 1988)

Adolescent Apperception Cards (AAC) (Silverton 1993)

Waechter Picture Test (Waechter 1982)

Fairy Tale Test (FTT) (Coulacoglou 1995)

Homosexual Apperception Test (HAT) (Rosenzweig 1940)

Symonds Picture-Story Test (PST) (Symonds 1948)

Tasks of Emotional Development Test (TED Test) (Cohen & Weil 1971)

Michigan Picture Test (MPT) (Andrew, Hartwell, Hutt & Walton 1953; revised 1980)

Adolescent Separation Anxiety Test (Hansburg 1972; modified by Klagsbrun & Bowlby 1976; modified by Main, Kaplan & Cassidy 1985)

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Test Filmique Thématique (Cohen-Séat & Rébeillard 1955)

Adoption Story Cards (Gardner 1978)

Projective Story Telling Cards (Caruso 1993)

[Geschichten-Erzähl-Test projektiv (GETp)] (German adaptation of the Projective Story Telling Cards) (Preuß & Landsberg 1996)

Four Picture Test (FPT) (van Lennep 1930)

Symbol Elaboration Test (S.E.T.) (Krout 1950)

Thurston-Cradock Test of Shame (TCTS) (Thurston & Cradock 2009)

Children's Self-Report and Projective Inventory (CSRPI) (Ziffer & Shapiro 1992)

IES (Id, Ego, Super-Ego) Test (Dombrose & Slobin 1958)

Group Personality Projective Test (GPPT) (Cassell & Kahn 1958)

Adult Attachment Projective (AAP) (George, West & Pattem 1997)

2.2. Verbal stimulus

The Insight Test (Sargent 1953)

Schulangst-Test (SAT) (Husslein 1978)

[Fairy Tale Dialogs with Children] (Available in German as: Märchendialoge mit Kindern) (Simon-Wundt 2004)

[Wish Test] (Wilde 1950)

[Ten Wishes Phantasy Game] (available in German as: 10-Wünsche-Phanstasie-Spiel) (Klosinski 1988)

2.3. Computer-based

Self-Administered Global Apperception Scales (SAGAS) (Volcani 2000)

Parent Administered Child Test (PACT) (Volcani 2000)

Multi-person Administered Child Test (M-PACT) (Volcani 2000)

3. Completion

3.1. Verbal or Narrative

Sentence Completion Test (Sachs & Levy 1950)

Washington University Sentence Completion Test (WUSCT) (Loevinger 1948)

Rotter Incomplete Sentences Blank (RISB) (Rotter & Rafferty 1950)

Düss Fable Method (Despert Fables) (Düss 1940; English version Despert 1946; revised and enlarged by Fine 1948)

Madeleine Thomas Completion Stories Test (Thomas 1937; English version Mills 1953)

Munsterburg Incomplete Stories (Munsterberg-Koppitz 1955)

MacArthur Story Stem Battery (MSSB) (Bretherton, Oppenheim, Buchsbaum, Emde & the MacArthur Narrative Work Group 1990)

Rosenzweig Picture Frustration Test (P-F Study) (Rosenzweig 1948)

Punishment Situation Index (PSI) (Morgan & Geier 1957)

Rock-a-bye-Baby (Haworth 1957) [Film]

3.2. Graphic or Drawing

Incomplete Man Test (Gesell 1925)

Drawing Completion Test (Kinget 1952)

Healy Pictorial Completion Test (Healy 1918)

4. Choice or Ordering

4.1. Pictures

Szondi Test (Szondi 1935)

Radke Projective Pictures (Radke 1946)

Iowa Picture Interpretation Test (IPIT) (Hurley 1955)

Tomkins-Horn Picture Arrangement Test (Tomkins 1952)

Welsh Figure Preference Test (WFPT) (=Barron-Welsh Art Scales (BWAS)) (Welsh 1949)

MARI Card Test (Kellogg 1980)

Arrington Visual Preference Test (AVPT) (Arrington 1986)

Full-Range Picture Vocabulary Test (Ammons 1948)

4.2. Human Figures

Family Relations Test (FRT) (Bene-Anthony 1957)

4.3. Symbols

Lüscher Color Test (Lüscher 1947)

Color Pyramid Test (CPT) (Pfister 1950)

Kahn Test of Symbol Arrangement (KTSA) (Kahn 1949)

Design Judgment Test (Graves 1948)

Meier Art Tests I, Art Jugdement (Meier 1942)

Meier Art Tests II, Aesthetic Perception (Meier 1963)

5. Expression

5.1. Drawing

5.1.1. Individual tasks

Draw-a-Man Test (D-A-M) (Goodenough-Harris Drawing Test) (Goodenough 1926)

Draw-A-Person Test (D-A-P) (Machover 1949)

[Man Drawing Test] (German version available as: Mann-Zeichen-Test) (MZT) (Ziler 1949)

House-Tree-Person Projective Drawing Technique (H-T-P) (Buck 1948)

Chromatic House-Tree-Person Drawing Test (Payne 1948)

Kinetic House-Tree-Person Test (Burns 1967)

Kinetic Family Drawing (K-F-D) (Burns & Kaufman 1970)

Kinetic School Drawing (KSD) (Prout and Phillips 1974)

Kinetic Kindergarten Drawing (KKD)

Kinetic Nursery Drawing (KND)

Kinetic Hospital Drawing (KHD) (Dóra 2010)

Kinetic Business Drawing (KBD) (Burns 1987)

Kinetic Political Drawing (KPD) (Burns 1987)

Kinetic Religious Drawing (KRD) (Burn 1987)

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Kinetic House-Tree-Person Drawings (K-H-T-P) (Burns 1986)

Family Centered Circle Drawings (F-C-C-D) (Burns 1991)

Kinetic Shop Window Drawing (Burns 1991)

Parent's Self-Centered Circle Drawing (Burns 1990)

Mother-and-Child Drawing (Dewdney & Dewdney 1970)

Family Circles Method (Geddes & Medqay 1977)

Five Step Intervention Method (Vass 2011)

Prospective Kinetic Family Drawing (Kymissis 1992)

Draw-a-Classroom (DAC) (Kutnick 1978)

Draw-a-Group Test (Hare & Hare 1956)

Teacher, Doctor, Policeman (Klepsch 1980)

Human Figure Drawings (HFD) (Klepsch & Logie 1982)

Draw-a-Dog Scale (Levinson & Mezei 1973)

Draw-a-Family (DAF) Test (Hulse 1951)

Corman's Family Drawing (Corman 1964)

Sun Family Drawing (Iten 1980)

Draw-a-Member of a Minority Test (Hammer 1958)

Draw-a-Person in the Rain Test (DAPR) (Abrams in: Hammer 1958)

Most Unpleasant Concept Test (Harrower 1950)

Family Drawing (Appel 1931; Hulse 1952)

Draw-a-Story (DAS) (Silver 1983)

Silver Drawing Test (SDT) (Silver 1983)

Childhood Hand That Disturbs Test (CHaD) (Davido 1994)

Dot-to-Dot (Hays 1979)

Eight card redrawing test (8CRT) (Caligor 1957)

Two Houses Technique (2HT) (Szyrynski 1949)

Star Wave Test (SWT) (Avé-Lallament 1979; English 1984)

Enchanted Family Drawing Test (Kos & Biermann 1973)

Animal Family Drawing (AFD) (Brem-Gräser 1957)

Animal Kinetic Family Drawing (AKFD) (Niesenbaum Jones 1985)

Bird's Nest Drawing (BND) (Kaiser 1996)

Regressed Kinetic Family Drawing (RKFD) (Fürth 1988)

Tree Test (Koch 1952)

Bolander's Tree Drawing Test (Bolander 1977)

Stora's Tree Drawing Test (Stora 1963)

Four Trees Test (undocumented: in Vass 2011)

Three Trees Test (Corboz, Gygax& Helfenstein 1962; Waser 1986)

Tree Family Drawing (Feuer 2005)

Projective Tree Drawing before, during and after a Storm (Miller 1997)

Wartegg Drawing Test (WZT) (Wartegg 1939)

Eight Frame Colored Squiggle Technique (McKim & Steinhardt 1983)

Social Atom (Moreno 1921)

Sociogram (Moreno 1921)

Draw-a-Group Test (Hares 1956)

Dynamic Examination of Drawings (Hárdy 1956)

Rosenberg's Draw-a-Person Technique (Levy 1950)

Projective Road Drawing (Hanes 1995)

Multi-Dimensional Drawing Task (MDDT) (Bloch 1968)

Personal Sphere Model (Schmiedek 1973)

Finger Painting (Kadis 1950)

5.1.2. Squiggles

Squiggle Technique / Game (Winnicott 1971)

Scribble Test (Winnicott 1971; Cane 1983)

Meurisse Scribble Test (Meurisse 1948)

Grätz Scribble Test (Grätz 1978)

Vass Scribble Test (Vass 2008)

Kutasch and Gehl Scribble Test (Graphomotor Projection Technique) (

5.1.3. Group drawings

Collaborative Drawing Technique (CDT) (Smith 1985)

Joint Family Holiday Drawing Technique (Jordan 2001)

Drawing Together Method (DTM) (Nagy 2007)

5.2. Blocks and bricks

Lowenfeld Mosaic Test (LMT) (Lowenfeld 1951)

Manikin Construction Task (Cox & Parkin 1986)

5.3. Theater/Play/Psychodrama

Psychodrama (Moreno 1930s)

5.4. Figurine Positioning

World Technique (Lowenfeld 1929)

World Test (=Toy World Test) (Bühler 1936)

Picture World Test (PWT) (Bühler & Manson 1956)

Bolgar-Fischer Little World Test (Bolgar & Fischer 1940)

Village Test (Arthus 1949)

Imaginary Village (Mucchielli 1960)

Dramatic Productions Test (DPT) (Homberger [=Erikson] 1938)

Erica Method (Harding & Danielson c1934)

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Sandplay Therapy (Kalff 1950s, published 1966)
Expressive Sandwork (Pattis Zoja, Lan, Shen & Thom 2002)
Sceno Test (von Staabs 1938, published 1964)
5.5. Playing arts
Floor Games (Wells 1911)
Little Wars (Wells 1913)
[Children's World Test] (German version only available as: Kinder-Welt-Test) (KWT) (Baulig & Baulig 2006)
Miniature figure play with the PlaymoCase (Plämokasten) (Ärztliche Akademie für Psychotherapie von Kindern und Jugendlichen, Munich, 2013; revision 2015)
Structured Doll Play Test (SDT) (Lynn 1957)

Table 1. Overview of projective methods.

Aim: The test aims at detecting the level of intellectual abilities, and was intended as test for school entry qualification. It gives information about the developmental status and the self-esteem of a child. The DAP depends on visual perception, the spatial organization of apperception and the coordination of visual and motor skills.

Age: not limited, best from 3 to 14, but it is advisable not to use the test on children 11+.

Time: not specified, but 10–15 min seem to be sufficient

Scores/norms: 1651 drawings from children [50], in the revised edition, 1125 children aged 3–14 [51].

Only a poor correlation has been found to intelligence tests [52, 53], thus the DAP should *not* be used instead of an intelligence test.

Publication date: 1926 (revised 1963).

References: [42, 49, 51, 54].

3.1.2. House-Tree-Person projective drawing technique (H-T-P)

Description: The child is instructed to draw "a house, a tree, and a person" without further specification which house, which tree, or which person is meant. Then the child is invited to explain the drawings.

Aim: The test aims at measuring personality traits, brain damage and general mental functioning, and developmental psychopathology.

Age: 3+.

Time: Not specified, but 10–15 min should be sufficient.

Scores/norms: N/A.

Publication date: 1970.

References: [55].

3.1.3. Kinetic Family Drawing (K-F-D)

Description: The child is asked to draw a picture of its family, including themselves, "doing something," which is meant to give the kinetic aspect.

Aim: The test intends to describe the child's attitudes toward the family members and the family dynamics.

Ages: Not specified.

Time: Not specified, but mostly, 15 min seem sufficient.

Scores/norms: N/A.

Publication date: 1987.

References: [56].

3.1.4. Star Wave Test (SWT)

Description: The child is instructed to "draw a starry sky above sea waves."

Aim: The test aims at detecting developmental retardation and psychopathology. It can be applied in children with various cultural backgrounds.

Age: 3+.

Time: Not specified, but 10–15 min seem to be sufficient.

Scores/norms: N/A.

Publication date: 1994.

References: [57].

3.1.5. Enchanted family drawing test

Description: The child is asked "to put the members of a family under the spell of a magician, without any limits being set on the child's imagination in the choice of objects to be drawn [58]." Then the child is invited to tell a story about the spell and its casting.

Aim: The test aims at describing the family system and revealing psychic conflicts of the child.

Age: 3+.

Time: Not specified, but 15–20 min should be sufficient.

Scores/norms: Statistical data are available on 4000 drawings from children and adolescents, of which 1562 had behavioral, neurotic, or psychosomatic issues [58].

Publication date: 1973.

References: [58, 59].

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Note: Care should be taken with regard to the cultural background of the child with regard to magical experiences (see Section 1).

3.1.6. Tree test

Description: The child is instructed to "draw a tree" without further specifications.

Aim: The test aims at detecting personality traits. It is linked to intelligence and developmental status.

Age: 6+.

Time: 5–10 min.

Scores/norms: Formal aspects of the tree like root, trunk, branches, and treetop. Additional features like fruit, leaves, or fauna (bird, squirrels) are noted.

There are quantitative and qualitative valid data available, based on 1800 tree drawings [60].

Publication date: 1952.

References: [61, 62].

3.1.7. Wartegg drawing test (WZT)

Description: The proband is given a standardized sheet containing eight square fields with a stimulus in each of the squares (lines, dots). The proband is instructed to complete the stimuli to drawings. The proband is asked to describe each drawing and give a title to each square.

Aim: The test aims at discovering "innerpsychic layers," which are thought to constitute a person's character and to describe the proband's personality structure.

Age: Not specified.

Time: 20–30 min.

Scores/norms: Sequence of drawings and time used, "profile of [innerpsychic] layers," "profile of qualities," "quantitative dominant feature," "qualitative relation of poles," "structure of the picture," "characterologic projection."

Publication date: 1939.

References: [63–65].

Note: The test is not based on a common theoretical basis and does show several critical issues [66, 67].

3.1.8. Winnicott's squiggle technique

Description: The therapist begins with drawing a squiggle (any abstract figure, line, scheme, or pictorial element) on a sheet of paper. Then the child is asked to "make a picture out of it." The picture should be a drawing and should not contain numbers or letters, but there is no strict

interdiction. Then roles are reversed and the child starts with a squiggle, which the therapist completes. Both can give verbal comments about the drawing.

It is useful to use two different colors for the child and the therapist, respectively, to discriminate between the contributions.

Aim: The test aims at enhancing in-depth communication between the child and therapist and access unconscious parts of the proband.

Age: 7+ (or earlier).

Time: not limited.

Scores/norms: None.

Publication date: 1971.

References: [68, 69].

3.2. Verbal description and imagination

3.2.1. Thematic Apperception Test (TAT)

Description: The proband is presented 8–12 black-and-white picture cards out of a set of 32 cards, 31 of these showing various persons in ambiguous situations, one card is completely blank. The cards are numbered and some contain letters for presenting these cards only to specific subgroups: B for boys, G for girls, M for male (14+), and F for female (14+). The proband is asked to create "dramatic" story for the pictures shown with regard to the story shown, the depicted persons' feelings and thoughts, and the possible solution of the story.

Aim: This test aims at describing personality traits and neurotic personalities.

Age: 4+.

Time: Not specified.

Scores/norms: There are several scoring systems available for the TAT, including the analysis of defense mechanisms [70, 71].

Scoring systems have been proposed like SCORs [72] and SCORS-Q [73].

Murray [37] suggested the following six aspects: Who is the main person of the story? What are the motives, aspirations, and emotions of the main person ("needs" in the original)? What is the influence of the social environment on the main person ("presses" in the original)? What is the solution, or the ending, of the story? What is the theme with regard of the "needs," "presses," and the ending of the story? Which interests and emotions are expressed by the narrator?

Publication date: 1943.

References: [37].

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3.2.2. Children's Apperception Test (CAT)

Description: Based on the Thematic Apperception Test (TAT), the CAT adapts the pictures presented. The child is presented 10 pictures of social scenes, where the figures are represented as animals. The child is asked to create a narrative out of each picture.

Aim: The test aims at assessing personality, the level of maturity, and mental health.

Age: 3–10.

Time: 20–45 min.

Scores/norms: Several scoring systems have been proposed [see overview in 74].

Publication date: 1949.

References: [75].

3.2.3. Tell-Me-A-Story Test (TEMAS)

Description: The TEMAS (the Spanish word for themes) is a multicultural narrative test based on 23 colored picture test cards presenting social situations. Eleven of the cards are gender specific. The minority cards show predominantly Hispanic and Black individuals, while the nonminority cards depict mostly nonminority people. The child is presented the set of cards and asked to create a narrative of the situation depicted.

Aim: The test aims at screening both minority and nonminority children for emotional and behavior problems.

Age: 5–18.

Time: Not specified.

Scores/norms: The test scores 9 personality aspects: interpersonal relations, aggression, anxiety and depression, achievement and motivation, delay of gratification, self-concept, sexual identity, moral judgment, reality testing, and functions not pulled; 7 affects: Happy, sad, angry, fearful, neutral, ambivalent, inappropriate affect; and 18 cognitive functions including reaction time, total time, inquiries, fluency, omissions, sequencing, imagination, relationships, transformations, and conflicts.

Normative tables for white, black, Puerto Rican, and other Hispanic children and adolescents are available. Data are based on 600 children (aged 5–13 years).

Publication date: 1982.

References: [76, 77].

3.2.4. Fairy Tale Test (FTT)

Description: The test material contains 21 cards in 7 sets of 3 cards each. The child is presented the 3 cards of the set and asked questions specified in the manual.

The 7 sets of cards show Little Red Riding Hood (2 sets), Snow White and the Seven Dwarfs, and characters of witches, dwarfs, wolves, and giants.

Aim: The FTT can be used to assess the child's personality dynamics, including personality traits, and their interrelations. "The FTT can be effectively employed for: (1) personality assessment for research purposes (developmental, cross cultural and longitudinal studies), (2) diagnostic evaluation of clinical studies (severe psychopathology or disturbance as an outcome of ephemeral traumatic or stressful events, and (3) evaluation of psychotherapeutic treatment [78]."

Age: 6–12.

Time: about 45 min.

Scores/norms: Quantitative interpretation of 30 variables in six categories: impulses (9 items), desires (3), needs (5), ego functions (8), emotional states (3), and object relations (2). These comprehend: adaptation of content, unusual measures, relation to the mother, relation to the father, fear of aggressions, fears, desire for superiority, dominant aggression, oral needs, oral aggression, sense of property, desire of material wealth, desire for affection, aggression type A (exploiting, nonemotional, nonaroused), defensive aggression, envious aggression, retaliative aggression, sense of belonging, altruism, ambivalence, depression, self-esteem, moral, need for protection, sexuality, and repetitions.

Qualitative interpretation evaluates defense mechanisms, family dynamics, anxiety, and Ego functioning with synthetic-integrative functioning, regulation and control of impulses, mastery, and judgment and the quality of thought process.

Standardization is available for the FTT from data of 760 children aged 7–12 in a first study, and 873 children aged 6–7 in a second study.

Publication date: 1995.

References: [79].

3.2.5. Rorschach inkblot technique

Description: The proband is presented 10 inkblot tables in a standardized order. At the first sight, all tables seem to be symmetrical. Some of the tables are colored, some are depicted in grayscale. The proband is asked to describe what is seen on the plates. There is no limit in the answers with regard to number, or time.

Aim: Originally, Rorschach envisioned the use of plates as a diagnostic tool for schizophrenia. Later, the Rorschach inkblot technique aimed at describing and classifying personality traits of the proband.

Age: 5+.

Time: Not specified.

Scores/norms: There are several scoring systems available, which are all based on the same categories, including location (whole responses, detail responses with tiny details, edge details,

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interior details, and rare details, and space responses), determinants (responses relying to form, movement, color, shading, achromatic color, texture, chiaroscuro [=distribution of light and shade], "X-ray," variations of shading, reflection, pair) and content (human, animal, anatomy, human, and animal objects, "objects," "pathognomonic," and disturbing, popular and original) [36, p. 24–51, 80, 81]. One of the most elaborated scoring systems is the "Exner system" aka "Comprehensive System [82–84]."

Publication date: 1921.

References: [13, 85].

3.2.6. Holtzman inkblot test/technique (HIT)

Description: The proband is presented 45 plates containing inkblots after 2 trial blots, and asked to produce a single response per blot. There are two independent forms (A, B) available.

Aim: The HIT aims at describing and classifying the personality of the proband.

Age: 5+.

Time: Not specified.

Scores/norms: The scoring system is based on 22 variables in 6 clusters (or "dimensions), including "movement, integration, human, barrier, popular, color, shading, form definiteness (reversed), pathognomonic verbalization, anxiety, hostility, movement, form appropriateness, location, reaction time, rejection, animal (reversed), penetration, anatomy, and sex [86]." Norms are available from 1400 individuals without psychopathology, schizophrenia, depression, and mental retardation.

Publication date: 1961.

References: [87].

3.2.7. Rotter incomplete sentences blank (RISB)

Description: The proband is presented a list of 40 incomplete short sentences, consisting of 1–2 word sentences. The proband is asked to complete the respective sentence.

Aim: The RISB is described as a screening instrument for adolescents and adults and aims at measuring adjustment.

Age: There are three different forms available, one for school children, one for college students, and one for adults.

Time: 20–40 min.

Scores/norms: A scoring system has been developed on a scale from 0 to 6 for each answer according to empirically derived answers for males and females. Norms have been provided for college students [88].

Publication date: 1950 (revised 1992).

References: [89, 90].

3.2.8. Hand test

Description: The proband is shown 10 picture cards showing line drawings of a hand in various positions. The cards are administered one after another and the proband is asked to explain what each hand is doing.

Aim: measure action tendencies, especially acting-out and aggressive behavior in children and adults.

Age: 5+.

Time: 10 min.

Scores/norms: Means, cut-off scores, and typical score ranges for normal and various diagnostic groups are provided. Quantitative scores comprise aggression, exhibition, communication, dependence, acquisition, tension, and withdrawal, whereas qualitative scores aim at discovering underlying feelings and motivations. Six summary scores, including an index of overall pathology and an acting-out ratio, are provided. The latter is used to predict aggressive behavior.

Publication date: 1962.

References: [91, 92].

3.2.9. Family Relations Test (FRT)

Description: The test material consists of 20 stereotypic figure shapes made out of paper/cardboard. These figures represent persons of different age and function, e.g. child, parent(s), grandparent(s), and most importantly, the "Nobody" figure. There is a small container attached to the figures, in which the child can place tokens, or the small question cards.

The child is first asked to pick the relevant figures of his/her family, and is then asked questions about family members, for example, questions like "This person in the family is very nice to me." Then the child is asked to place the card with the question into the box attached to the figure shape.

Aim: The FRT has been used in questions of child welfare, child protection, and family placement.

Age: 3–7, 7–15 (2 versions).

Time: 30 min.

Scores/norms: For scoring, the number(s) of each card is noted with regard to the respective figure chosen. The interpretation is based on "incoming" (*from* the person) and "outgoing" (*towards* the person) attitudes, or feelings.

Normalization is available for British [93] and German children, aged 4.0–5.11 [94] and 6.0–11.11 [95].

Publication date: 1957.

References: [96, 97].

3.2.10. Patte Noire (PN) test [Schweinchen-Schwarzfuß-Test (SFT)]

Description: The test material consists of 16 pictures of a piglet, named "Patte Noire" (French for black foot), which serves as identification figure. Members of the pig family (mother, father, and siblings), other animals, and humans are shown.

The child is shown all picture cards, asked to pick some, or all, pictures, and to create a story out of these pictures. Preferred and rejected pictures are noted.

Special care should be taken with regard to cultural and religious attributions to pigs. For example, using this test with Moslem or Jewish children may not give valid results.

Aim: The test aims at detecting drive tendencies and defense mechanisms in a psychoanalytical interpretation.

Age: 7–13.

Time: 60–90 min.

Scores/norms: Psychoanalytic themes can be identified due to developmental stages, typical conflicts such as sibling rivalry.

Publication date: 1969.

References: [20, 98].

Note: Deliberate care should be taken applying this test to children with Islamic or Jewish background, where pigs are regarded as impure.

3.2.11. Madeleine Thomas completion stories test

Description: The proband is presented with 15 story stems, and is asked to complete the story.

Aim: The test aims at describing the child's attitude towards the presented fields, for example such as family and living conditions, school and learning situation, interaction with peers, and the fantasy life of an identification figure (presented as a boy or girl of the same age and sex as the proband).

Age: 3+.

Time: Not specified.

Scores/norms: Not available.

Publication date: 1937.

References: [24, 99].

3.2.12. Düss fable method (Despert fables)

Description: The proband is presented 10 story stems, some with animal characters (thus the test is called fable method). The proband is asked to complete the story.

Later the stories have been expanded to 20.

Aim: The method aims at presenting a psychoanalytic access to the child's main themes. The interpretation may give information about structure, conflicts, and relations.

In the later version, a categorization of themes including "dependency, hostility, identification, sibling rivalry, Oedipal issues, and fears" [45, p. 84] has been added.

Age: Not specified.

Time: Not specified.

Scores/norms: Not available.

Publication date: 1940 [French], 1946 [English].

References: [25, 100, 101].

3.2.13. Rosenzweig Picture Frustration test (PFT)

Description: The PFT consists of 24 sketches of a situation, in which one person tells another person a frustrating sentence in a speech bubble. The other speech bubble is empty, and the proband is instructed to fill out a suitable answer.

Aim: The PFT aims at describing a person's frustration tolerance.

Age: 6–14 (child version), 14–85 (adult version).

Time: 15–20 min.

Scores/norms: A frustrations profile can be depicted, containing aggressive reactions, self-incrimination, resignation, evasive manoeuvres, and personal initiative.

There are norms available from 320 probands containing quartiles and median values.

Publication date: 1957.

References: [27].

3.2.14. MacArthur Story Stem Battery (MSSB)

Description: The material in the MSSB consists of human miniature figures, for example, bendable dolls, or Playmobil® figures. The figures should include "mother, father, grandmother, older and younger siblings […], additional children […], and a family dog. It is important that the figures can stand up and that they match the child's racial background if human figures are used [26]." Additional material can be provided, such as furniture, dishes, etc.

Then the child is presented the beginning of one of 14 "story stems," all dealing with moral and relationship dilemmas. The child is asked to "show and tell what happens next." The answers are videotaped and rated later on.

Aim: The story stem techniques aims at creating a narrative of specific interpersonal situations. It has been used in attachment studies as well as in mood disorders, or aggressive behaviour.

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Age: 4–8 (but other ages may also be included).

Time: Not specified.

Scores/norms: Several approaches for rating scales have been developed with regard to "(1) story content or themes, (2) theme organization or coherence, (3) emotional expression, and (4) interaction with the interviewer," [26] for example the MacArthur Research Network on Early Childhood Transitions (1983–1992, www.macfound.org), published the MacArthur Narrative Coding System (MNCS) [102].

Publication date: 1992.

References: [103, 104].

3.3. Playing arts

3.3.1. Lowenfeld Mosaic Test (LMT)

Description: The test contains of five colored wooden shapes: square, isosceles triangle, equilateral triangle, scalene triangle, and rhomboid. Each shape is available in red, blue, yellow, black, green, and white and arranged in a box in this order. Then the box is presented to the child together with a tray containing white paper. Recently, templates have been provided with different patterns, which may be useful for younger children, or for standardization purposes.

Aim: The LMT has been used to assess mental ability and developmental state, school readiness, mental disorders like schizophrenia and traumatic brain injury. It can be applied for assessing the functional capability of patients or clients, or as a tool for the expression of an inner world. The LMT has been used for diagnostics and psychotherapy. Moreover, it has been used in anthropological studies, as a means on nonverbal communication.

Age: Not specified.

Time: Not specified.

Scores/norms: The picture can be seen under the aspects of the individuality of the answer [105]. The child is asked to describe the picture, for example, it representation, or abstract pattern, with regard to its meaning. Additionally, the way of choosing the material and composing the picture is of interest.

Publication date: 1950.

References: [28, 106, 107].

3.3.2. Structured doll play test (SDP)

Description: The test consists of pictures of backgrounds and furniture and cardboard figures of a doll family. The child is presented with 18 structured situations and asked to make behavioral choices.

Aim: The test aims at finding mature and immature behavioral responses as well as at identifying.

Age: 3–11.

Time: Not specified.

Scores/norms: Not available.

Publication date: 1959.

References: [30, 108].

3.3.3. Sceno test

Description: The Sceno test consists of 16 doll-like figurines of different sex and age (8 adults and 8 children), animals (chicken, crocodile, and a big cow), wooden bricks, small dishes, a train, a deck chair, a lavatory and several others.

The child is instructed to build "a scene, as on stage, or for a movie" on the tray provided.

Aim: The Sceno aims at depicting relations and conflicts of the child's inner and outer world. It can be used to assess mental ability, psychodynamics of relations, conflicts, and structure.

Age: 3+.

Time: Not specified.

Scores/norms: The Sceno Test can be evaluated with regard to the playing behavior (attitude, presentation, verbal accompaniment, attention and "flow," handling of the material), final scene (formal aspects like number of figures used, order of the tray, relation of the figures) and the following exploration of the child (reality, desire, and fears).

Data on several hundreds of patients are available [summarized in 109], mainly children with behavioral disorders, organic brain disease, or "neurotic" and psychosomatic disturbances [110]. There are data available on reliability, validity and objectivity of the test.

Publication date: 1951 [1938].

References: [109, 111–113].

3.3.4. Children's World test [Kinder-Welt-Test] (KWT)

Description: The Children's World test consists of nine themes (family, school, fairy tales, science fiction, warriors, wildlife animals, domestic animals, water world, and rescue and help). The material is mostly from Playmobil® (figures and animals), supplemented with wooden blocks and fence posts. (The manual describes 31 blocks, but this is not apodictic: 19 larger blocks, 8 blocks with holes, and 4 fencing posts.)

The theoretical basis of this test is the gestalt therapy, and systemic approaches.

Aim: The tests aims at describing the formal storyline, the choice of the theme in the context of actual and biographical data, formal aspects of the gestalt therapy with regard to a polarity profile [114].

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Age: 4–13.

Time: max. 30 min.

Scores/norms: Not available.

Publication date: 2006.

References: [115].

3.3.5. World technique/sandplay therapy/expressive sandwork

Description: In the 1920s, Margaret Lowenfeld developed a method later called the World technique, which uses sand trays, miniature figures, models, and toys to express feelings and thoughts without words.

In the 1950s, Dora M. Kalff transferred some aspects of the World technique into the Sandplay therapy. Now, the sand tray is standardized ($72 \times 57 \times 7$ cm^3), but the material used in the sand is not specified. Mostly, each therapist collects material on his / her own. Miniaturied figures of human and super-human beings, animals, plants and woods, inanimate nature like rocks and stones, fossils, or shells, can be found. The theoretical background is laid on the work of C. G. Jung.

In the 1990s, the term expressive sandwork was created.

Aim: The aim of these techniques is to create and activate an imaginal realm in which the unconscious can be expressed symbolically. In a nonverbal, nondirective approach, a sand image is created, containing archetypal, symbolic, and interpersonal elements of the inner and outer world.

Age: Not specified, but 3+ recommended.

Time: Not specified.

Scores/norms: Not applicable.

Publication date: 1929 (World Technique), 1980 (Sandplay Therapy); 2002 (Expressive Sandwork).

References: [31, 32, 116].

3.3.6. Miniature figure play with the PlaymoCase (Plämokasten)

Description: The PlaymoCase [Plämokasten] is composed of plastic figures from Playmobil® sets. The figures are sorted thematically in three levels in a metal case.

Level 1 contains humans, subdivided in men, women, adolescents, children, a royal family, knights, pirates, American Indians, fantasy figures like ghosts, a mummy, a fairy, goblins, and unicorns. Then there are wildlife and zoo animals, like deer, elephants, apes, giraffes, a camel, fish, a shark, lions and tigers, a crocodile, and farm and domestic animals like horses, cows, pigs, sheep, chicken, rabbits, hedgehogs, squirrels, dogs, and cats.

Level 2 contains boxes and baskets, trees, fences, material for a construction site, a garden, furniture from a living room, and objects from a household, like knives, spoons, forks, and

dishes. Then there is a treasure, weapons, carpets, flowers, and alimentary goods. Next, furniture from a kitchen and a bedroom is provided. Next a classroom and a room in a pediatric hospital.

Level 3 contains larger components like plastic bases for a fortress, the jungle, and the construction site.

In a nondirective play therapy approach, the child is free to choose any material required from the case.

Aim: The case can be used for diagnostic and therapeutic purposes. The technique aims at providing a projective space for the child to create a scene or sequence of its unconscious. Moreover, an interaction with the therapist is possible, enabling interpretation and dialogue.

Age: 3+.

Time: Not specified or restricted. An individual session can last the whole hour of therapy.

Scores/norms: Not available. Currently, an empirical clinical study is being initiated to address this question.

Publication date: 2013.

References: [19, 117].

4. Projective approaches in play therapy

In the previous section, we have seen the use of projective techniques for diagnostic purposes. Additionally, projection is an important means of therapy. Hence, specific therapeutic approaches have been developed making use of the mechanisms of projection. These approaches include psychoanalysis, imaginary therapies, and play therapy. Whereas play therapy is seldomly used in the counseling of adult patients, it seems to be a standard procedure in child therapy, often even implicitly, meaning that sometimes the therapist is not aware of the projective (and counter-projective) elements in the therapy. In the definition of the Association for Play Therapy (APT, www.a4pt.org), play therapy is "the systematic use of a theoretical model to establish an interpersonal process wherein trained play therapists use the therapeutic powers of play to help clients prevent or resolve psychosocial difficulties and achieve optimal growth and development [118]." In the following section, we will concentrate on play therapy and describe several projective techniques in play therapy.

4.1. Typical forms of children's play

Child's play has been grouped in to different subtypes [46] such as (i) toy and object-based play, for example using balls, dolls, or puppets, (ii) narrative plays, such as story-telling and reading / book-based approaches, (iii) role-playing, including costumes and masks, (iv) creative arts, which comprehends drawing, painting, sculpting, for example with clay, wood, or stone, dancing, or playing music instruments, (v) fantasy approaches using figurines and

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miniature world material, and (vi) game play techniques such as strategy and cooperative games, squiggles, or chance games involving boards and cards.

In our view, there is a certain overlap in play therapy approaches, since the before mentioned definition is based on objects or material, not methods. Despite the respective approaches chosen, projection can occur with all of these.

4.2. Projection in child play

In the early twentieth century, play therapy was developed by psychoanalysts in the context of psychoanalysis for children, since it has become obvious that a "talking cure" based on a highly developed system of speech to express-free associations was not suitable for the therapy of children.

In a main assumption of the psychodynamic theory, intrapsychic elements are projected onto outer objects such as play material, especially figurines [119]. This, for example, opens the way for identification and, thus, projective identification. Of note, there is a clear difference between identification processes and the interpretation of the therapist [120]. Even "obvious" scenes occurring during play may have a totally different origin and background. Therefore, it is wise for the therapist not to provide interpretation of the patient's creation, but to reveal its meaning for and with the patient. For example, the therapist's interpretation based on (counter-) projection and projective identification, in a technique making use of externalization in cases of domestic violence or sexual abuse, and anorexia nervosa, may trivialize and minimize the problem, and may lead to misinterpretation [121].

Children make use of figurines for example to describe the dynamics in their relationships to their parents, siblings, friends and classmates, teachers, and other people of their world. Moreover, figurines give the child the possibility to externalize different inner self-objects and attribute their properties to different characters.

Play is not only an ethological component of child development, but also a therapeutic tool. A number of therapeutic factors of play have been identified and described as the "Therapeutic Powers of Play [122]." These include play as a form of self-expression and nonverbal communication, a possibility of gaining access to the unconscious, a direct and indirect form of teaching, a possibility for stress inoculation, a method for counter-conditioning of negative effects, abreaction and catharsis, chance of the creation of positive effects, the enhancement of attachment and amelioration of relationships, the development of moral judgment, empathy, and sublimation, the exertion of power and control, mastery, the increase of competence and self-control, a growing sense of self, developmental acceleration, encouraging creative problem solving, fantasy compensation, reality testing, behavioral rehearsal, and rapport building [122, 123].

4.3. Special forms of play therapy using projective mechanisms

In general, two main approaches in play therapy can be distinguished. Directive play therapy describes interventions in which the therapist initiates and structures the

patients play activities, whereas nondirective play therapy approaches leaves the responsibility and direction of the play during each session to the patient [124]. Both approaches enable projection as a mechanism to address intrapsychic issues, but in general nondirective approaches makes the occurrence of projective mechanisms much easier. Moreover, in psychodynamic therapies, projection is necessary for the technique applied. A not exhaustive overview over current forms of play therapies is presented in **Table 2**.

In the following sections, two approaches are described in more detail, sandplay therapy, and a form of psychodynamic play therapy.

1. Psychodynamic Therapies
Psychoanalytic Play Therapy (A. Freud, M. Klein, D. W. Winnicott)
Adlerian Play Therapy (A. Adler)
Jungian Play Therapy (C. G. Jung)
Sandplay Therapy (D. Kalff)
2. Person-Centered (nondirective) Play Therapy
Child-Centered Play Therapy (V. Axline)
Relationship Play Therapy (C. Moustakas)
Experiential Play Therapy (B. Norton, C. Norton)
3. Other Forms
Gestalt Play Therapy (F. Perls, V. Oaklander)
Art Therapy
Ecosystemic Play Therapy (K. O'Connor)
Ericksonian Play Therapy (M. Erickson)
Solution-Focused Play Therapy (M. Selekman)
Animal-Assisted Play Therapy (AAPT)
4. Behavioral Play Therapy
Cognitive-Behavioral Play Therapy (CBPT) (S. M. Knell)
Parent-child Interaction Therapy (PCIT) (T. L. Hembree-Kigin, C. B. Mcneil)
5. Systemic (Family) Play Therapy
Dynamic Family Play Therapy (S. Harvey)
Strategic Family Play Therapy (S. Ariel)
Family Play Therapy for young children (T. G. Hardaway, L. Carey, E. F. Wachtel)
6. Preschool Children Play Therapy
Filial Therapy (FT) (B. Gurney, L. Gurney)
Developmental Play Therapy (DPT) (V. A. Brody)
Theraplay (A. M. Jernberg, P. B. Booth)

Table 2. Forms of play therapy (compiled from [10, 124, 125]).

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4.3.1. World technique/sandplay therapy/expressive sandwork

Description: In the 1920s, Margaret Lowenfeld developed a method later called the World Technique, which uses sand trays, miniature figures, models, and toys to express feelings and thoughts without words.

In the 1950s, Dora M. Kalff transferred some aspects of the World Technique into the Sandplay Therapy. Now, the sand tray is standardized ($72 \times 57 \times 7$ cm^3), but the material used in the sand is not specified. Mostly, each therapist collects material on his/her own. Miniaturized figures of human and super-human beings, animals, plants and woods, inanimate nature like rocks and stones, fossils, or shells, can be found. The theoretical background is laid on the work of C. G. Jung.

In the 1990s, the term expressive sandwork was created. It is based on the assumption that any sand tray creation is an expression of the client's inner world.

Aim: The aim of these techniques is to create and activate an imaginal realm in which the unconscious can be expressed symbolically. In a nonverbal, nondirective approach, a sand image is created, containing archetypal, symbolic, and interpersonal elements of the inner and outer world.

Age: Not specified, but 3+ recommended.

Time: Not specified.

Scores/norms: Not applicable.

Publication date: 1929 (World Technique), 1980 (Sandplay Therapy); 2002 (Expressive Sandwork).

References: [31, 32, 116].

4.3.2. Psychodynamic play therapy with miniature figures using the PlaymoCase (Plämokasten)

Description: The PlaymoCase [Plämokasten] is composed of plastic figures from Playmobil® sets. The figures are sorted thematically in three levels in a metal case.

Level 1 contains humans, subdivided in men, women, adolescents, children, a royal family, knights, pirates, American Indians, fantasy figures like ghosts, a mummy, a fairy, goblins, unicorns. Then there are wildlife and zoo animals, like deer, elephants, apes, giraffes, a camel, fish, a shark, lions and tigers, a crocodile, and farm and domestic animals like horses, cows, pigs, sheep, chicken, rabbits, hedgehogs, squirrels, dogs, and cats.

Level 2 contains boxes and baskets, trees, fences, material for a construction site, a garden, furniture from a living room, and objects from a household, like knives, spoons, forks, and dishes. Then there is a treasure, weapons, carpets, flowers, and alimentary goods. Next, furniture from a kitchen and a bedroom is provided. Next a classroom and a room in a pediatric hospital.

Level 3 contains larger components like plastic bases for a fortress, the jungle, and the construction site.

In a nondirective play therapy approach, the child is free to choose any material required from the case.

Aim: The case can be used for diagnostic and therapeutic purposes. The technique aims at providing a projective space for the child to create a scene or sequence of its unconscious. Moreover, an interaction with the therapist is possible, enabling interpretation and dialogue.

Age: 3+.

Time: Not specified or restricted. An individual session can last the whole hour of therapy.

Scores/norms: Not available. Currently, an empirical clinical study is being initiated to address this question.

Publication date: 2013.

References: [19, 117].

5. Discussion and conclusions

Projective methods are widely used tools in the assessment of child and adolescent mental health. Whereas in adult assessment, projective techniques lost their predominant position over the last decades [126–129], they are in second position in child and adolescent outpatient clinics after intelligence testing [130]. Moreover, the discussion about the psychometric properties of projective tests is unsolved. With regard to the literature, one must carefully address each test: there are tests with excellent validation parameters, large study samples, normalization data, and standardized evaluation, whereas others remain obscure in technique and interpretation and provide unsound results.

The classification of projective tests has been stable since more than 50 years, but there is a certain shift and extension towards the use of computers from the paper-and-pencil–based approaches. Surprisingly, the stimulus material did not change over the years, sometimes there is revised material (for example, modern plastic figurines instead of dolls, or updated pictorial material in thematic apperceptive tests), but in general, the basic principles associated with the material remains constant.

The theoretical background of projective methods has been enlarged by both the expansion of the psychoanalytic theories and neurobiological findings, such as mirror neurons as morphological basis of the mechanisms of mentalization [131]. Moreover, the field of affective neuroscience provided evidence for the neuroanatomical location of drives through emotional circuits, corresponding to Freud's concept of the dynamic unconscious [132].

With regard to therapy, projection is the main mechanism in play therapy approaches. Having introduced the concepts of play therapy, two forms of play therapy approaches are described in detail. In this sense, projection is also the main constitute of a therapeutic agent.

In conclusion, projective methods provide useful methods for the assessment of psychological questions when appropriately used. Novel standardization of psychodynamic processes can help to reevaluate the benefit of projective methods.

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Chapter 2

A Qualitative Tool for Detecting and Approaching Psychological Trauma in Children Victims of the 2009 Italian Earthquake

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Additional information is available at the end of the chapter

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Abstract

Expressive therapies are considered effective intervention modalities with children who have experienced traumatic events such as natural disasters. Particularly, drawing consent to trauma affected children to convey the complexity of traumatic feelings by giving them a shape and a sense. But the efficacy of art therapies with children exposed to natural disasters, has not been research proved. This chapter present an exploratory and pilot study on the use of the specific technique "Test de trois dessins: avant, pendant et avenir" (Three Pictures Test: Past, Present, and Future), which may accomplish the double function of diagnostic instrument, for detecting the presence of psychological trauma, and therapeutic technique, for facilitating recovery from psychological distress, with children exposed to natural disasters. The graphic tool has been employed with children victims of the Italian earthquake which affected the region of Abruzzi, on the 6th April 2009. The case studies analysis illustrates the efficacy of the test in both detecting the presence and the extent of the psychological trauma, and in enhancing the trauma recovery process. Further researches need to be done in order to validate the use of the "Three Pictures Test: Past, Present, and Future" as a validated technique with children experiencing disasters.

Keywords: trauma, child, earthquake, drawing test, test de trois dessins

1. Introduction

The Centre for Research on Epidemiology of Disasters (CRED) [1] defines disaster as "a situation or event which overwhelms local capacity, necessitating a request to a national or

international level for external assistance; an unforeseen and often sudden event that causes great damage, destruction and human suffering." Disasters can be caused by nature or by men's action. The transdisciplinary nature of disasters has given different perspectives to their study. In particular, engineers and physicians observe the structural proprieties, economists estimate the direct and indirect economic damages, sociologists investigate their impact on the social organization, doctors examine their consequences on the population health, and psychologists study the emotional, cognitive, and behavioral dynamics.

Through the psychological studies, a special attention has been given to the traumatic effects of disasters. Psychological trauma occurs as a response to a threatening event, such as natural disasters, in which the psyche surrenders to a situation of terror and of personal death perception [2]. In order to preserve a sense of safety, control, and gratification linked to the self, the parts of the self associated with the trauma are encapsulated and segregated out of the consciousness [2]. Emotions, feelings, and perceptions, which constitute the memory of the traumatic event, assume the form of a "corps étranger (…) qui menace le système dans son ensemble" [3], as they may suddenly break through the consciousness in the forms of nightmares, flashbacks, hallucinations, and unconscious trauma reenactments [4, 5]. The segregation of the traumatic memory out of the consciousness and its threatening nature block the process of symbolization, as cognition linking affects may lead to re-experiencing the trauma [2, 6]. Crocq [7] has defined the main effect of a psychological trauma as a "trou noir où un panne psychique par défaut de parole et de pensée."

Children exposed to disasters are considered a particularly vulnerable group for developing psychiatric disorders [8–11]. In particular, several studies have been reported in youth who have experienced natural disasters; negative outcomes, such as anxiety and depression [12, 13]; and posttraumatic stress disorder (PTSD) symptoms [14, 15], which include re-experiencing, avoidance, emotional numbing, and hyperarousal [16]. The reason is that the energy that is supposed to be used for accomplishing the developmental tasks is employed by the child for defending the self against recurring threatening thoughts [2, 17]. Therefore, it is important to develop appropriate and effective interventions aimed at helping children to recovery from trauma and preventing the development of posttraumatic pathologies.

1.1. The use of drawing technique following traumatic events

Following the rise of experimental psychology between the end of the nineteenth century and the beginning of the twentieth century, several psychologists and scholars in Europe and in North America started to explore the relationship between children's drawing and their own emotional, social and cognitive functioning, as a result of which children's drawings ended up to be used as a tool for projective testing. The first graphical tests were aimed to measure child's intelligence, assuming that the graphical acts develop in parallel with the cognitive development [18]. Gradually, authors started considering drawings as precious informants on the child's personality and his internal world [19].

House [20–22], family [23], and self [24–27] have been considered the main objects of analysis in projective drawing tests. They have been largely employed even in the specific kinetic

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drawing approaches, such as Burns and Kaufman's [28] research on the Kinetic Family Drawing, the Kinetic House-Tree-Person [29], the Kinetic School Drawings [30], House-Tree-Person-Test [31], and the Draw-a-Person-Test [32].

In scientific literature, drawing techniques appeared to be employed with children victims of traumatic experiences, in double functions: as therapeutic techniques that lead to overpass the defensive mechanisms and to promote the symbolization process and as diagnostic tools that provide traumatic contents with representations.

Projective tests are based on the idea of the presence of structural and symbolical elements that illustrate psychological sufferance [33]. Drawing gives a way to express needs, thoughts, and feelings that are hardly communicable because of their traumatic nature. Children victims of traumatic experiences often do not manage to express their internal feelings through verbal communication. Therefore, projective tests may represent a way to understand and diagnose childrens' internal world [34]. Drake et al. [35] affirm that through the information transmitted by the projective tool, it is possible to evaluate the anxiety not expressed and not elaborated, the child's coping style, and the presence of traumatic issue that influence on his/her self-image and on relations.

Concerning therapeutic value, several scholars affirm that art therapy is a successful technique for treating children who have experienced trauma [36–42]. In particular, expressive therapies:

- Provide a means of communication by which the child can express grief, loss, feelings, perceptions, thoughts, and memories linked to traumatic events and, as a result, succeed in bridging language barriers [6, 43, 44].

- Offer a "protected environment," within the external and internal chaos, where the child can take distance from the intense affect associated with the disaster, funnel his energy into the art by examining, exploring and giving meaning to threatening thoughts, and, consequently, interrupt the cycle of disruptive thinking, acting out, and symptoms [17];

- Present a way for children to become active participants in their own healing process and to see themselves as "survivors," rather than "victims" [6, 45]

- Bring to the surface, through the employing of drawings, issues relevant to treatment and accelerate, as a result, the capacity of helping professionals to intervene and assist traumatized children [26]. Furthermore, drawing is considered a useful tool in trauma debriefing as it provides sensory-based methods, which have been proved to be helpful in disclosure and crisis resolution [46–48].

- Stimulate the resilience process by promoting internal resources, such as creativity, self-reliance, and problem-solving, and external resources, such as the client-therapist relationship, which is one of the most important predictors of traumatized client outcomes [6, 43, 45, 49]

Even though art therapy is widely used as a treatment regimen for traumatized children, its efficacy has not been scientifically demonstrated. Researches that have been conducted on this theme turn out to have several limits [43]: lack of precision on the nature of the psychosocial symptoms and on the diagnosis of the sample who took part in the research; lack of methodological specificity of the type of art therapy employed; mostly limited on the qualitative outcome, which do not permit empirical inquiry. Notwithstanding these limitations, scholars [6, 43, 50] agree to encouraging further investigation that may establish and validate art therapy as an effective interventions modality in disaster situations.

The aim of this research is to present an exploratory and pilot study on the use of the specific technique "Three Pictures Test: Past, Present, and Future," which may accomplish the functions of *diagnostic instrument*, for detecting the presence of psychological trauma, and of *therapeutic technique*, for facilitating recovery from psychological distress, with children exposed to natural disasters.

2. Methods

The sample is composed of 14 children (seven boys and seven girls), aged between 8 and 12, who have experienced directly the earthquake, measuring 5.8 on the Richter scale, which took place on 6 April 2009, in the Italian Region of Abruzzi, and killed 300 civilians. All of them have been living most of their life in the affected area. Six of them were born in Macedonia, one comes from Morocco, and the other seven are Italians. Since the day after the earthquake, all of them had to leave their houses, which have been partly or completely destroyed by the seism, and they have been hosted in the two refugee camps "Monticchio1" and "Paganica5" set up by the Italian Civil Protection in the two provinces of L'Aquila: Monticchio and Paganica. None of the children suffered any family losses or serious injury after the earthquake.

Since the beginning of May 2009, the children have been attending the psycho-social intervention, conducted by a team of psychologists and educators from the Resilience Research Unit of the Catholic University of Milan. The objective of the intervention was to provide them with a temporary protection and structured setting, in contrast with the chaos and the fragility of the external environments, where resilience processes may be enhanced and stimulated by several actions, based on the use of creative-expressive languages. Consequently, creative expressive languages became familiar to children.

The test was administered on August 2009, after two months of psycho-social activities by the psychologists who have conducted most of the activities since the beginning of the project. There by, the interviewers have already built a trusting relation with each child. Furthermore, the test has been administered individually in the tent where all the other psychosocial activities took place.

The tool that has been used is a drawing test named "test de trois dessins: avant, pendant et avenir" (Three Pictures Test: Past, Present, and Future). It has been developed by the psychiatry Crocq [51], following the interventions conducted with child victims of war and natural catastrophes. The test is composed by three tasks:

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1. Draw your house, your family, and yourself before the earthquake.
2. Draw your house, your family, and yourself during the earthquake.
3. Draw your house, your family, and yourself how you would like them to be in the future.

The first drawing illustrates the representation of the child's life before the earthquake. The second drawing is aimed at tackling the block in the expression of traumatic thoughts and emotions by promoting the sense-making process of the experience lived. The third drawing invites the child to detach from the traumatic event and to project himself/herself in a desired future.

Each drawing is followed by an interview, where the interviewer encourages the child to talk about what he/she has drawn. The data analysis is based on a nonstatistical qualitative observation and takes into consideration both the graphical and the verbal levels. The test has not been standardized by the author.

This research is a study pilot, aimed at validating the two hypothesis speculated by Crocq [52], on the possible functions of the Three Pictures Test: Past, Present, and Future.

The first one considers it as a *diagnostic technique* for detecting the presence and the impact of the psychological trauma. Particularly, the administration of the test may permit to examine whether the traumatic event has distorted the mental representations of the three significant objects, house, family, and self, in the three temporal phases, before and during the traumatic event, and in the future, when it will be over.

The second hypothesis affirms that the tool may be employed as a *therapeutic technique*, with traumatized children. Drawing and talking about thoughts, perceptions, feelings, and emotions directly or indirectly linked to the traumatic event, with the guide and the support of the interviewer, may contrast the expressive block, caused by the absence of symbolic representations referred to the event, and, at the same time, it may facilitate the sense-making process.

3. Results and discussion

In order to answer the first hypothesis on the tool efficacy in detecting the presence and the level of psychological trauma, we tried to identify any traumatic mark in each one of the three tasks. No case study has been diagnosed with PTSD, as the test has been administered only few (two to three) months after the earthquake. But some children exhibited symptoms linked to the posttraumatic stress disorder (PTSD) or comorbidity, as described in the following case study presentations.

3.1. Draw your family, your house, and yourself before the earthquake

Case study No.1: Francesco is a 9-year-old boy. He has been hosted in the camp since the day after the earthquake, with his family: mother, father, and elder sister. His academic performance used to be good, but since the earthquake, he has shown difficulties in listening, concentrating, and a low motivation in accomplishing any task. He often exhibits hyperactive behaviors, attitudes of defiance, and difficulties in respecting rules.

In **Figure 1**, Francesco draws as house details, the door and the window, which are very much related to the traumatic event: both of them are the ways out that lead to run away from a house during the earthquake. After having drawn the door, he affirms that it was made by iron, and that during the earthquake it was blocked, therefore, they did not manage to open it. The door occupies a lot of space in the drawing; it is seen from the front and has iron bars, which manages to transmit the idea of closure and imprisonment.

Case study No. 2: Alessio is a 12-year-old boy. He often shows a hyperactive and exuberant behavior. But at the same time, he takes part in the activities proposed by educators and collaborates well in team works. He is very much engaged in the tasks that stimulate his fantasy and creativity such as artistic workshops. His family consists of father, mother, and little four-year-old brother. He lives with his mother, brother, and paternal grandmother since the day of the earthquake (6 April 2009).

In Alessio's drawing (**Figure 2**), the house becomes the only protagonist of the past before the earthquake. The empty space at the right side of the house was probably supposed to be used by the family members, but in the end, he did not draw them. The boy decided to reformulate the task in "My house before the earthquake" and wrote it on the top of the sheet.

Case study No. 3: Giada is an ethnic Macedonian 9-year-old girl. She lived through a very hard experience during the earthquake night: she was exposed to death as her room floor fell on the ground floor and she has been staying under rubbles for few hours before fireman came to save her. Since then, her finger has been permanently injured as she could not bend it anymore. Giada shows several difficulties in elaborating the traumatic memories, especially

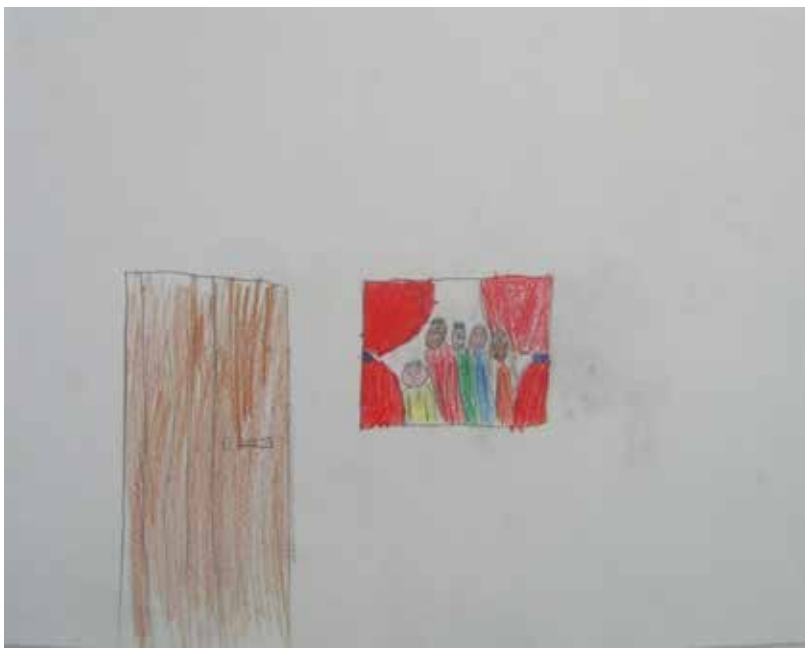

Figure 1. Draw your house, your family, and yourself before the earthquake—Francesco, 9 year old.

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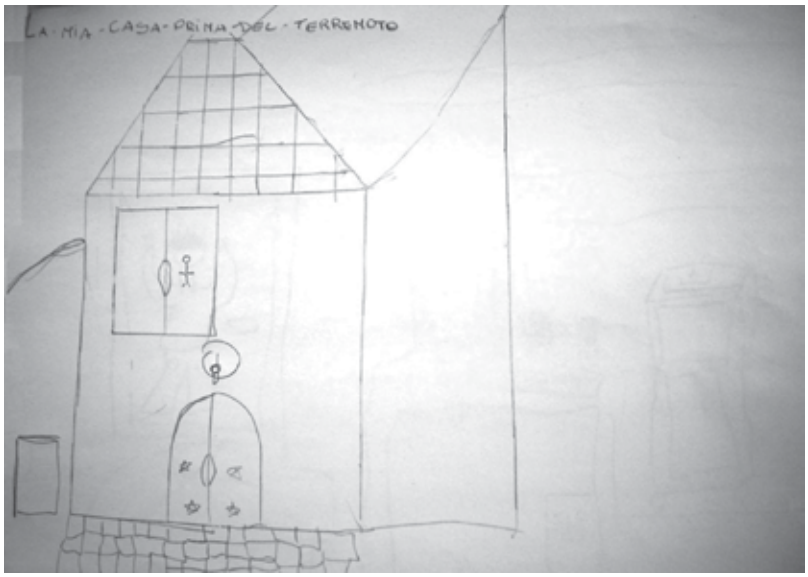

Figure 2. Draw your house, your family, and yourself before the earthquake—Alessio, 12 year old.

in accepting the loss of her house. She has struggled during several workshops that she has been doing in the camp. In particular, during the house thematic workshops, Giada could not draw a house spontaneously, but she copied the castle image represented on the colors pencils box. When educators asked her the reason why she decided to draw the castle, she said that its her dream house, where she would like to live forever.

Furthermore, she showed difficulties in joining sport activities, in particular volleyball: when the ball goes toward her instead of playing, she immediately tries to protect herself from it. It seems that the image of the ball coming toward her is a kind of traumatic reviviscence related to rubbles which fell on her, during the earthquake.

For Giada (9 year old) (**Figure 3**), the past memory is inaccessible: the house is installed in an empty space, without any context detail that could situate it in a temporal and spatial setting. The window and the door are closed and the handles are very prominent, it reinforces the idea of lack of access. The sidewalk around the house is sharply interrupted by the outline of the house: it is not supposed to lead anywhere.

3.2. Draw your family, your house, and yourself during the earthquake

In the second task, Giada (**Figure 4**) expressed the confrontation with the reality of death. The child kept on repeating that if she had fallen asleep in front of the television, like she used to, now she would be dead. During the earthquake, her room floor fell onto the ground floor, where the sitting room and the television were located. The child spent several hours under the rubbles, until firemen managed to get her out. The only object that she managed to draw while she was speaking was the television, but then she tried to erase it as if it was too complicated to access the memory.

Figure 3. Draw your house, your family, and yourself before the earthquake—Francesco, 9 year old.

Case study No. 4: Rebecca is a cheerful, bright 9-year-old girl. She enjoys taking part in educational activities and collaborating with other kids. She behaves in an appropriate way in different situations. Her family, composed of her parents, a 10-year-old sister, and a 5-year-old brother, is Muslim Macedonian, but she was born in Italy. Her father risked dying because of a work accident, happened after the earthquake. But fortunately during the test administration, he was no more at risk of death. She did not exhibit specific psychological difficulties following the earthquake. She used to spend most of the time playing with her sisters and with the other kids from the camp.

Rebecca made three drawings for the second task. In the first two (**Figures 5** and **6**), she drew her parents' bedroom and the bedroom she shares with her sister. The black color occupies the whole paper and seems to invade both bedrooms, and all objects look as if they are floating in the terrifying blackness.

Figure 4. Draw your house, your family, and yourself during the earthquake—Giada, 9 year old.

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Figure 5. Draw your house, your family, and yourself during the earthquake—Rebecca, 10 year old, first drawing.

In the third drawing (**Figure 7**), the floor line divides it in two parts: the upper part still invaded by the terrifying blackness and the lower part which is left completely white. She could not find any way to represent what was happening in the earth. The lack of symbolic representations of the traumatic event of the earthquake leads Rebecca to leave the half of the draw uncolored.

Figure 6. Draw your house, your family, and yourself during the earthquake—Rebecca, 10 year old, second drawing.

Figure 7. Draw your house, your family, and yourself during the earthquake—Rebecca, 10 year old, third drawing.

3.3. Draw your family, your house, and yourself, how you would like them to be in future

Two of the sample children did not manage to accomplish the third task. The lack of the third drawing can be due to the fixation on the traumatic moment, which does not let the children detach from it and figure out a positive future.

In other cases, the need for security prevailed and seemed to be the unavoidable/essential base for building up a future. Several children have figured out different solutions for a safe future. In particular:

1. A five-floor house drawn by Giacomo (**Figure 8**).

Case study No. 5: Giacomo is a 9-year-old boy. He lives in the camp with his mother, his two aunts, and his grandmother. He exhibits an aggressive attitude, with low frustration tolerance and frequent bouts of anger that lead him assuming rough and sometimes violent behaviors against the others. His mother says that those behaviors have increased following the earthquake. The frequent fights with the other children lead him to get away from the educational activities and to cry alone, in a corner. If someone tries to comfort him, Giacomo says that he would have rather died under rubbles. During the earthquake, he got trapped in his bunk bed; his parents took his brother, who was sleeping in the upper bed, and ran out of the house, without him. He has been taken out of the rubbles by his uncle and firemen, few hours later.

2. A house in another country, far away from the earthquake threat, but still without any inhabitants (Rebecca) (**Figure 9**)

3. A magic solution as reality is still too much threatening and cannot offer any safe solution. Luca (8 years old) (**Figure 10**) left the drawing pencil, took the gray-colored pencil and started drawing all objects « made of iron » : the house with nails strengthening the wall, himself, and his mother. At the end of the task he added: "She wont like the dress, but at least we will all be safe."

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Figure 8. Draw your house, your family, and yourself how you would like them to be in the future—Giacomo, 9 year old.

Case study No. 6: Luca is a 8-year-old boy. His father was alcohol addicted and died one year before the earthquake due to a serious illness linked to his addiction. He lives with his mother, his grandmother, and his uncle. Luca was really attached to his father and he suffered a lot because of his death. He still shows several difficulties in facing this sufferance: if a child teases him mentioning his father, he exhibits bursts of uncontrollable rage and can become very violent. He manages to calm down only with the help of the educator. Since the earthquake he moved to the camp with his grandmother and his uncle, as his mother did not accept to live in the tent because of the multiethnic population that live in the camp. She keeps on living in her house, despite the danger. Luca is very attached to his mother. Since the earthquake anxious attitudes have increased: if his mother or his grandmother do not answer the mobile, he gets worried very quickly and does not manage to go on with the activity. But in general, he enjoys taking part in the educational workshops, where he shows independency in the individual task and collaborating skills in team works.

Figure 9. Draw your house, your family, and yourself how you would like them to be in the future—Rebecca, 10 year old.

Figure 10. Draw your house, your family, and yourself how you would like them to be in the future—Luca, 8 year old.

Concerning the second hypothesis, on the "Three Pictures Test: Past, Present, and Future" capacity of promoting meaning attribution process to the traumatic event, two main functions assumed by the test have been identified:

1. **Mediating role between child's conscious and unconscious mind**: drawing has assumed the role of prelanguage, as it allowed the child to access the traumatic memory and to share it with the interviewer. The graphical language difficulty in following the rhythm of narration, which appeared to be very rich and full of details, has generated in some children a sort of frustration that annoyed them and provided them with several self-critics on their own tasks. Therefore, we can affirm that the test has allowed the child to get in contact and explore the raw traumatic memory and to provide it with both a verbal and graphical form that permitted him to share it through drawings and narration.
2. **Mediating role between the child and the interviewer**: In particular, the test has let the interviewer assume the role of a guide for the child in accessing his/her own traumatic memory and in giving a first order to the traumatic memory. Some children exhibited defenses and resistances in accomplishing the tasks, which obstructed or blocked expressive channels. In those cases, the task reformulation, aimed at re-inscribing the memory in a defined moment, helped the child to break it up and therefore, to start providing it with a sort of order and form. Furthermore, the containing and encouraging role of the interviewer has been fundamental, especially for those children who experienced loneliness and abandonment during the traumatic event due to the lack of their parents' protecting role. Building up a trusting relationship with the interviewer has allowed them to face the loss of trust on the protecting solidity of external world and on the illusion of the other's capability to

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provide him with the sense of safety [53]. The inter-relation with the interviewer led him to co-create a new image of himself and of the external world. In the second task, several children demanded for more papers, in order to represent the complexity of the memories that little by little came to their mind, in a crescendo of emotionality. The protecting frame offered by the interviewer has allowed to embrace and answer to this need.

Finally, the test structure, divided into the "before," "during," and "after" the earthquake, has allowed a gradual access to the memories of the event and has stimulated the integration process of the traumatic experience in the childrens' life story.

4. Conclusion

This pilot study has succeeded in investigating the two functions of diagnostic tool and therapeutic technique of the "Three Pictures Test: Past, Present, and Future", through a non-statistical qualitative observation, which has taken into consideration a small group of participants. The results that have been brought out through the case study analyses encourage further researches, which may validate scientifically the efficacy of this technique through the employment of both qualitative and quantitative methodology. The use of standardize questionnaires would allow to collect statistical findings, which may be generalized and adopted in different contexts. Particularly, the scientific validation of the tool may provide art therapists with standard criteria that can be employed for detecting the presence of psychological trauma in both the graphical and the verbal data, and with instructions on the most appropriate and effective practices that should be adopted for promoting the uncovering of traumatic memories and for fostering reintegration of the traumatic event in the childrens' life story.

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Chapter 3

Can Frames Make Change? Using Communications Science to Translate the Science of Child Mental Health

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Additional information is available at the end of the chapter

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Abstract

Mental illness in children is on the rise in the United States, but research shows that the American public does not understand the science of child mental health—what it is and what supports and disrupts it. To build public understanding of child mental health and support for the systemic solutions needed to promote it, the FrameWorks Institute developed a "core story"—a master narrative—that advocates and experts in the field can use to communicate about the issue more effectively. This research is built on interviews with experts and members of the public, cognitive analyses of frames commonly used in media stories about the issue, and surveys of frame elements such as values and metaphors. Findings show that two values—*Prosperity* and *Ingenuity*—lifted support for policies related to child mental health. The *Levelness* Explanatory Metaphor, which compares child mental health to the levelness of a table, is also effective.

Keywords: framing, communication science, health communication, mass communication theory, qualitative analysis, culture and science, interdisciplinary social science, public perception of science, child mental health

1. Introduction

Mental illness, long considered a taboo subject, is breaking into the public discourse. Lawmakers across the U.S. political spectrum, members of the American news media, and leading advocates and philanthropists in the country are increasingly paying attention to mental health issues. New laws have expanded access to mental healthcare services, and advocates are working to fulfill growing demands for treatments for a range of mental health disorders. As President Obama stated in 2016: "Mental health should be treated as part of a person's overall health, and we must ensure individuals living with mental health conditions can get the treatment they need." Nevertheless, advocates, experts, and practitioners still face significant obstacles in the way the public thinks about mental health—and particularly child mental

health. We must overcome these barriers, and the cultural understandings that undergird them, if we hope to build public support for the services and supports that children and families need to promote good mental health and if we want our society to flourish in the future.

To do this, we must find new ways of talking with the public and policymakers about the science of child mental health. Mental illness in children, including conditions often diagnosed in childhood such as attention-deficit/hyperactivity disorder, behavioral disorders, and autism spectrum disorder, are on the rise [1]. And many children do not get the treatment they need when they need it. The average time between the onset of mental illness symptoms and intervention is 8–10 years, according to the National Alliance on Mental Illness (NAMI). Children with mental illness have lower educational achievement and greater involvement with the criminal justice system [2]—negative outcomes that affect individuals, families, and communities. Data clearly show that the inability of our systems to support positive child mental health is affecting our entire society.

To be sure, the national conversation does occasionally turn to child mental health, particularly in response to high-profile incidents in the news—when, say, an adolescent opens fire on his classroom peers. But these conversations do not advance the movement for better prevention strategies and much better treatment for children with mental illness. In fact, they reinforce the very patterns of public thinking that keep people from engaging productively with this issue. Part of the inability to move child mental health issues forward is due to an inhospitable communications environment—a cultural context in which messages about the science of child mental health and the importance of the systems that support it are unable to thrive and spread.

Child development scientists have made significant advances in recent decades, and the public does have more access to information about child mental health than previous generations did [3]. Yet our research, discussed below, shows that Americans do not understand the complex science behind mental health, particularly as it applies to children. They are not even sure child mental health exists—that children, and especially young ones, can in fact have "good" or "poor" mental health. Child development experts say that child mental health is a real phenomenon that requires public attention. But the public does not share this conviction; they do not appreciate the importance of this issue or the need for policies and systemic solutions.

Even when people are able to understand that children experience states of mental health, our research shows that they tend to equate good mental health with a narrow understanding of emotions and see solutions in individualistic terms rather than at the level of biology, development, or social context. According to this way of thinking, children can achieve good mental health if they have the discipline to control their emotions. Mental *illness*, on the other hand, is perceived as a genetic problem that has no cure but that can be managed to some degree by taking drugs to correct "chemical" imbalances. This way of thinking, as we discuss below, interferes with public support for potential solutions.

This lack of understanding undermines efforts to educate the public about child mental health and build public support for programs and policies that can support positive mental health

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and address mental health issues. When people have a better understanding of what child mental health is and when they can see what disrupts and promotes it, they are more likely to take steps to support policies and programs that promote good mental health in children and that increase access to high-quality treatment. Public support for child mental health policies, in other words, is not a matter of *opinion* but of *cognition and understanding* [4].

This chapter explores research conducted by the FrameWorks Institute, a communications think tank in Washington, D.C., to describe the "cognitive terrain" of thinking about child mental health in the United States and to provide advocates and experts with communications tools they can use to more effectively move through this terrain. It first "charts the landscape" by describing the differences between how child development experts and the American public understand child mental health and illness and then analyzes child mental health frames in use by the news media. Next, this chapter "redraws the map" by exploring the effect of communications tools and framing strategies on public understanding of the issue.

2. Charting the landscape

The Expert Story. In 2009, FrameWorks conducted extensive research on expert views of child and family mental health; public views of these issues; and of media frames. This work was undertaken in partnership with and with support from the Center on the Developing Child at Harvard University and was supplemented by initial funding from the Endowment for Health in New Hampshire. It builds on more than a decade of FrameWorks research on ways that frames—the strategic presentation of information that cues predictable responses—can build public understanding of the science of early brain and biological development. It is an important chapter in the "core story"—or master narrative—FrameWorks developed to more effectively communicate the science of early childhood.

FrameWorks undertook a two-step research process to understand the differences between how child mental health is understood by child development experts and by members of the U.S. public. First, researchers interviewed a panel of seven child development experts to distill the state of the science and refine the messages experts need to communicate with the public. This series of one-on-one hour-long interviews was supplemented by a review of relevant scholarly literature. Researchers found that—contrary to public narratives about the issue—experts emphasize that child mental health is a "real phenomenon" that has long-term implications for lifelong health and well-being [5]. They emphasized that child mental health is caused by interactions between a child's genes and the environment in which he or she lives and affects the child's ability to function in developmentally appropriate ways within the family and community. Experts often defined child mental health in negative terms—as the absence of symptoms or pathology—rather than in clear, positive ones. The science was clear, however, about the importance of early intervention and the fact that it can help prevent long-term effects for children who have symptoms of mental disorders.

The Public Story. After distillling the "expert story" about child mental health, FrameWorks researchers set out to distill the "public story" about this issue. This research is based on theories

that argue that individuals use cognitive structures called cultural models to make sense of their social worlds [6]. As noted anthropologist and sociologist Evan Goffman wrote in his 1967 book:

> *Cultural models can be seen as systems of existing and consistently implied relationships, propositions, and assumptions that are implicitly applied to make sense of and organize the information and experiences that individuals are presented with. Functionally, these models are what allow us to make sense of an infinite range of incoming information and experiences expeditiously enough to interact seamlessly with the individuals and situations that we encounter [8].*

To understand the cultural models that Americans use to understand mental health, mental illness, and child mental health, FrameWorks conducted a series of in-depth open-ended interviews with 20 members of the American public in Dallas, Texas, and Cleveland, Ohio, and an additional set of "on-the-street" interviews in three other U.S. locations. The sample included 10 men and 10 women of various ages, races and ethnicities, and political identifications. While the sample was not nationally representative (nor was it intended to be), participants were selected to ensure that the cultural models identified represented shared, or cultural, patterns of thinking. Previous research shows that members of the same culture share many of the same beliefs and attitudes about social issues—even when they differ according to race, ethnicity, socioeconomic background, and other criteria [4].

2.1. Dominant cultural models

Analysis of the interviews revealed the following cultural models about mental health, mental illness, and child mental health. The FrameWorks Institute describes these models as "dominant" because of their pervasiveness throughout participants' talk. The findings are summarized in *Conflicting Models of Mind in Mind*, a report published by the FrameWorks Institute in 2009 [7].

- ***Mental* health is tantamount to *emotional* health.** Participant discussions revealed an assumption that good mental health results from experiencing positive emotions and coping with negative ones. Poor mental health, in turn, was seen to result from failing to "deal with" negative emotions. Participants also believed that individuals are responsible for controlling their emotions and, by extension, their mental health.

  Mental health, then, is seen as an individual issue, not an environmental or contextual one. This individualistic, or "mentalist," model is common in American culture. It reflects a widely shared assumption that people's outcomes are completely under their control and determined by hard work and self-discipline. When applied to issues related to child mental health, this model reduces the complex interactions between individuals and environmental and systemic factors to individual control and undermines efforts to advance systemic solutions to promote child mental health. If mental health is determined by an individual's emotional state and controlled by his or her ability to control emotions, then remediating problems is an individual's responsibility and can be accomplished through effort and discipline. Contextual supports and interventions are difficult to see as important when thinking in this way.

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- **Mental *illness* is a "chemical imbalance" in the brain.** While participants saw mental health as an issue of emotions, they understood mental illness as caused by the presence or absence of certain chemicals in the brain. As such, participants saw mental health as a condition that can be controlled by the individual and mental illness as a condition over which individuals have no control. Some participants thought people might benefit from medication, but participants also assumed that the chemicals that result in mental illness are genetic and, as such, are "hard-wired" into the brain. Pharmaceuticals, they reasoned, are the only way to rebalance these chemicals.
- **Children either *do* or *do not* experience mental health.** Participants spoke in multiple and contradictory ways about child mental health and illness. Some said, for example, that children *do not* experience mental health because their brains work in different ways than adult brains do. Children, they said, cannot "really" have mental health because they "are not sufficiently aware of, do not have the ability to remember, and do not have enough understanding of their emotions to experience either good or poor mental health." Participants also said children—especially the very young—have less ability to understand and remember emotions, which they understood to determine whether children can experience meaningful mental states. Other participants, meanwhile, said children *do* experience mental health but in less complex ways than adults do. Participants compared children to "little adults" who live in "simpler worlds" with "fewer variables" (i.e., parents, the home environment, and the classroom). Reasoning from this assumption, children's narrow worlds limit their ability to experience extreme states of mental health or illness.

2.2. Implications of dominant cultural models

These dominant cultural models have significant implications for advocates and experts who are seeking to build public understanding and support for systemic solutions. Communicators who cue these models, even if inadvertently, are likely to depress public support for child mental health policies and programs. FrameWorks compares these cultural models to a swamp—a rich, wild, untamed ecosystem where advocates' messages can get "lost" in a thicket of unproductive or competing assumptions, attitudes, and beliefs about children, families, and mental health, or "eaten" by stronger, counterproductive attitudes and beliefs about these subjects. The swamp is meant to convey the complexity, depth, and multiplicity of public thinking on social and scientific issues and the fact that much of this thinking takes place at an implicit level. The swamp can help communicators see how certain ways of thinking are productive for communicating certain messages and others unproductive in creating openings to consider new information. The swamp metaphor is not meant to imply that certain ways of thinking are "right" and others "wrong." Culture is never right or wrong, but certain cultural understandings can facilitate the communication of ideas while others may block or impede the communications process.

Advocates and experts who have a map of the swamp of cultural models about child mental health will be better able to make their way through it and more successful in moving their messages and issues into the public discourse with fidelity. Their messages will not get lost in the swamp or "devoured" by other counterproductive models about child mental health—the "gators" in the

swamp. The following are key implications of the swamp for those communicating about child mental health, as explained in detail in a 2009 report by the FrameWorks Institute [7].

First, if the public believes that emotional health is tantamount to mental health, and that children do not experience emotions in the same way that adults do, then people will question whether children do in fact experience mental health. This makes it difficult to effectively communicate about the importance of policies and programs that promote child mental health and for funding for such actions. This is especially true in conversations about very young children, who are perceived to have even less capacity to experience emotions.

Second, if young children cannot remember experiences, then the long-term effects of those experiences on mental health become difficult to conceptualize. This can make it difficult for people to grasp the importance of programs that promote child mental health at early ages, which experts say is deeply affected by the experiences children have in their early years.

Third, if people believe that child and adult mental health are essentially the same, then they will have difficulty understanding the need for child-specific treatments or interventions for particular developmental periods and will gravitate toward those that encourage children to take responsibility for coping with negative emotions. This is something that was frequently seen in FrameWorks research.

2.3. Recessive cultural models

Analysis of cultural models interviews revealed the following recessive cultural models about mental health, mental illness, and child mental health [9]. FrameWorks describes these models as "recessive" because they came up less often than dominant models and were pushed to the cognitive periphery when a more dominant model came into thinking.

Some participants acknowledged that a child's environment can influence whether he or she experiences good or poor mental health. Environmental factors, however, were most frequently restricted to parental behavior and home life. Participants often overlooked other factors, such as relationships with other caregivers, housing quality, neighborhood and community resources, child care and school quality, and the "built environment."

Some participants understood that stress, and specifically prolonged or repeated stress, can contribute to mental health conditions in children. As above, these participants had a narrow understanding of the source of stress; they saw it coming mainly from home and school environments. Some also talked about how children who experience strong "foundations" (i.e., nurturing and responsive interactions with caring adults during their early years) are more likely to experience good mental health and those who have poor foundations are more likely to have poor mental health.

Participants also defined the quality of a child's mental health as his or her level of functioning—the ability to participate in developmentally appropriate activities in typical ways in family and community environments. This is consonant with the views of experts, who assess a child's mental health in part by his or her functional and developmentally appropriate capabilities.

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2.4. Implications of recessive cultural models

Swamps are not entirely dangerous places. In addition to giant reptiles, venomous snakes, and murky bogs, they also have things of great beauty, richness, and utility, like orchids and rare medicinal plants. The same is true for the "swamp" of cultural models of child mental health. This cultural ecology has useful thought patterns that, if activated, can help in the communications of child mental health science and increase the accessibility of key messages from the field of child development. These more recessive models represent opportunities for advocates to help members of the public better understand the science behind child mental health and build support for needed policies and programs.

For example, the fact that, with the right cues, people are able to appreciate that a child's environment can affect his or her mental health is important because it opens the door for people to access and apply scientific understandings of the influence of environmental factors such as nutrition, supportive relationships, housing quality, access to health and child care, and others, on child mental health. Even so, participants had a very limited understanding of which environmental factors *do* in fact affect mental health; they tended to focus narrowly on parents and home life and overlooked the effects of other environmental and systemic factors that shape mental health and development more generally. Also important is the fact that participants were able to understand the effects of stress—again, at certain points in their discussions—and particularly prolonged, severe stress, on children's mental health. And finally, the fact that participants could think of child mental health in terms of developmentally appropriate functioning is promising because of the consonance between this way of thinking and the science of child mental health.

2.5. Gaps in understanding

The following section summarizes the gaps between expert and public understandings of child mental health [4]. These gaps represent specific challenges for child mental health advocates to address through strategic communications and framing. Frames, as discussed in subsequent sections of this chapter, have proven effective in bridging these gaps and deepening understanding of key concepts from the field of child mental health and increasing support for a new set of solutions.

- Experts blur the line between mental health and mental illness, but the public see these as separate and distinct.
- Experts support a wide range of means to prevent and treat mental health issues and disorders, but the public has narrow understandings of effective treatments depending on whether they are thinking about mental health or mental illness. They see individuals as responsible for developing good mental health and drugs as a way to cope with—but not cure—mental illness.
- Experts believe that child mental health is a real phenomenon that requires attention, but the public frequently does not share that unequivocal conviction or the experts' sense of the salience of the issue.

- Experts have a broad understanding of the environmental factors that shape mental health, but, for members of the public, this view is limited to home and family.
- Experts believe that the genetic influence on mental health and illness is contingent on environments and experiences, while the public sees genes and the chemicals they shape as "set in stone."

2.6. The media story

Understanding cultural models about child mental health, and knowing how they differ from expert views, is a key first step in creating more effective strategies to bring science to public thinking. Understanding how the media frames the issue adds an important layer of detail about public thinking and can be a lever for shifting and expanding it. The media is a primary source of information for Americans [10] and plays a powerful role in setting and reinforcing cultural models. As explained in an earlier FrameWorks study on this subject: "Common media frames lead to common interpretations both because of their standardized content and due to the fact that repeated exposure to these frames activates and engrains a set of interpretations that become highly practiced and easy to use in 'thinking' information on an issue" [10]. Advocates and experts who understand how the media influences cultural models—specifically how they amplify some ways of thinking and suppress others—will be better able to navigate their messages through the swamp of public thinking.

To map media frames of child mental health, FrameWorks, in partnership with the Endowment for Health and the Center on the Developing Child at Harvard University, conducted a systematic analysis of articles published in major newspapers between May 2008 and May 2009. The analysis identified dominant news frames and examined how those frames affect, and are affected by, public thinking.

Overall, the findings showed that the media rarely cover children's mental *health*. Instead, the media is more likely to cover mental *illness*, but in ways that are likely to cue unproductive cultural models. For example, many articles that were included in the sample painted detailed "pictures of vivid cases" of disruptive child behavior. One story, published in the *Omaha World-Herald* in 2008, chronicles a mother's decision to leave her 11-year-old son in a U.S. hospital. The story describes how the boy tore the house apart, refused to take his medication, tortured the family pet, and physically abused his brother. The mother felt that placing her son in state care was "the only way" to help him [10]. Articles that describe children's disruptive behavior in this level of detail are likely to trigger the public's sense of hopelessness about mental illness in general and children's mental disorders in particular. When presented with such vivid accounts of severe issues, members of the public are likely to see these problems as caused by genetic factors, and "set in stone" and thus incurable [10]. Reasoning from this perspective, it is difficult to see solutions as tenable and hard to engage in the issue.

These articles also present details about the difficulties faced by families in accessing care but exclude, to a large extent, explanations about how and why children develop mental illness or about specific solutions and how they work to address issues and improve outcomes. This

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suppresses public thinking about programs and policies that can promote child mental health. "Without coverage that strategically frames the science of child mental health, and concretizes and specifies policies that involve all citizens, child mental health outcomes will continue to be perceived by the public as an unfortunate but unsolvable problem that affects a small subset of Americans," the study found [10].

On the other hand, researchers did find some promising aspects of media coverage of child mental health. To start, the media focus on issues of access and adopt a systemic perspective in these discussions—that is, when discussing access issues, media coverage tends to focus on the structural factors that impede or facilitate a family's ability to access treatment. This is particularly true of coverage of issues facing marginalized populations. Low-income families, or those of racial and ethnic minority groups, are frequently portrayed as facing structural factors that make it difficult for them to access the care they need for a child with a mental health issue [10]. These more systemic or "thematic" stories likely encourage readers to adopt a more structural and contextual perspective and move beyond what FrameWorks calls the *Family Bubble*—the widely shared assumption that parenting behaviors determine children's outcomes and the difficulty in seeing the wider set of factors that affect parents. Despite these more positive aspects of the media coverage, the report concludes, "The likely impact of the media's definition of the problem is to deepen the public's sense that children's mental health problems are fundamentally intractable and cannot be addressed through programs or policies that support these children and their families" [10].

3. Redrawing the map

To help advocates and experts navigate the swamp of public thinking about child mental health, FrameWorks designed and tested framing strategies for their ability to increase public understanding of child mental health issues and support for a wide range of evidence-based solutions [11]. As part of this work, FrameWorks tested the effect of six values on public thinking. Values are frame elements that orient readers to deep beliefs or principles they consider worthy and important. Four of the six values were chosen because they had performed well in prior research on early childhood development. These values were collective prosperity (we will all prosper if we promote child mental health); ingenuity (we can tackle difficult problems like child mental health with innovative solutions); future progress (we must devote resources to children because they are the key to future social progress); and responsible management (we have a responsibility to make careful decisions about how best to support child well-being). The survey also tested two values that were common in advocacy literature: vulnerable children (we must take action to support children because they are society's most vulnerable members) and health (investing in children's well-being is important because health is an important social goal). In 2010, FrameWorks followed this initial survey experiment with a subsequent one that tested two additional values: prevention (the power of prevention-focused actions in improving long-term outcomes for children and society) and interdependence (the notion that children's mental health affects the well-being of all of society) [11].

The surveys found that two values—prosperity and ingenuity—improved respondents' understanding of the importance of child mental health and elevated their support for evidence-based policies [11]. The value of prosperity was the most effective in shifting support for children's mental health policies. The value of ingenuity, meanwhile, increased efficacy by helping to counter the public's default assumption that little can be done to improve outcomes for children.

To help advocates and experts use these frames in their communications, FrameWorks developed sample iterations of these values in a report it produced in 2010 [3]. These examples follow:

> *Child well-being is important for community development and economic development. Young children with strong mental health are prepared and equipped to develop important skills and capacities that begin in early childhood. These children then become the basis of a prosperous and sustainable society—contributing to things like good school achievement, solid workforce skills, and being strong citizens. When we ensure the healthy development of the next generation, they will pay that back through productivity and responsible citizenship. Innovative states and communities have been able to design high-quality programs for children, which have solved problems in early childhood development and shown significant long-term improvements for children. As a society, we need to invent and replicate more effective policies and programs for young children.*

FrameWorks also studied the effects of "explanatory metaphors"—metaphors that enhance understanding of scientific concepts by comparing them to concrete, ordinary objects, and processes—on public thinking. This research found that comparing child mental health to the "levelness"—of a table or piece of furniture—helped members of the public understand the concept and reason about solutions in productive ways [12]. This metaphor in particular was effective in communicating that children's mental health is influenced by environmental factors and must be addressed with actions that address environments and experiences. It also tapped into people's recessive connection between child mental health and functioning. People reasoned that if a table is unstable it would not function well and that a child's mental health works in the same way. If a child is exposed to abuse, violence, or neglect, or does not have access to nourishing foods or quality health and child care, then his or her mental health may not be as "level" as it would be if he or she grew up in a more stable environment. This metaphor counters the public's assumptions that children's mental health is influenced entirely by parental behaviors.

The metaphor also takes the onus for achieving good mental health off of individual children. Tables, after all, cannot level themselves. Likewise, children cannot solve mental health problems on their own. At the same time, the metaphor conveys that interventions and treatment *can* promote stability and function. Putting a piece of cardboard under the leg of a wobbly table will increase its stability, as will moving it to more level and stable ground. Interventions work the same way; they have the potential to help children achieve better mental health. This counters the public's fatalistic attitudes, which presuppose that mental illness is genetic and therefore incurable. A sample iteration from the 2010 FrameWorks report follows [3].

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Scientists say that children's mental health affects how they socialize, how they learn, and how well they meet their potential. One way to think about child mental health is that it's like the levelness of a piece of furniture, say, a table. The levelness of a table is what makes it usable and able to function, just like the mental health of a child is what enables him or her to function and do many things. Some children's brains develop on floors that are level. This is like saying that the children have healthy, supportive relationships and access to things like good nutrition and health care. For other children, their brains develop on more sloped or slanted floors. This means they are exposed to abuse or violence, have unreliable or unsupportive relationships, and do not have access to key programs and resources. Remember that tables cannot make themselves level—they need attention from experts who understand levelness and stability and who can work on the table, the floor, or even both. We know that it's important to work on the floors and the tables early, because little wobbles early on tend to become big wobbles later.

These findings led to the creation of a "core story" of child mental health—a master narrative that advocates and experts can use to help the public understand what child mental health is and what needs to be done to promote it. This core story begins with an appeal to the values of prosperity and ingenuity and includes the "levelness" metaphor. Leading communication materials with messages about how our future prosperity depends on children who have good mental health and about our country's history of tackling difficult problems with innovative solutions primes the public to productively consider the policies and programs needed to promote good child mental health. Using the *Levelness* metaphor to explain the science behind and solutions to child mental health also supports productive thinking. These are the tools—the flashlights, the compasses, the protective gear—that communicators need to navigate through the "swamp" of public understanding and get their messages through to the public in productive ways. For more detail about these tools and the research that supports them are found in website visit www.frameworksinstitute.org.

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Chapter 4

Integrative Approach to Child and Adolescent Mental Health

Seungpil Jung

Additional information is available at the end of the chapter

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Abstract

The prevalence of mental disorders between children and adolescents is 10–20% worldwide. Research has shown that most mental disorders begin at childhood and adolescence. Neurodevelopmental disorders are classified by which the development of the central nervous system is disturbed and are associated with varying degrees of consequences in one's mental, emotional, physical, and economic states. Recently, research in mental health, neurobiology, and early childhood development supported the case for early intervention and prevention. The causes of mental disorders in children and adolescents are not currently known, but research suggests that a combination of factors that include heredity, biology, psychological trauma, spiritual well-being, and environmental stress might be involved. There are many factors that play into child and adolescent mental health and disorders; therefore, individualized, personalized, and integrative approaches are necessary in therapeutic interventions and prevention. Thus, by ensuring that the needed mental health care competencies are made available in each primary health care team and by assuring fully integrated mental health and other types of health care, primary health care teams would best provide early, efficient, effective, and optimal recovery-based care.

Keywords: child and adolescent mental health, neurodevelopmental disorder, integrative mental health

1. Introduction: growth and development of the brain

The nervous system is derived from the ectoderm—the outermost tissue layer—of the embryo. The neuroectoderm appears in the third week of fetal development and forms the neural plate that is the source of the majority of neurons and glial cells in the mature human [1]. This is called the neural tube which later gives rise to the brain, the spinal cord, and the telencephalon,

which eventually encompasses the two lateral ventricles, which in turn develops into the areas of the brain known as the basal ganglia and the limbic system [2]. Over time, cells cease division and begin to differentiate into neurons and glial cells, creating the main cellular components of the brain. The newly created neurons migrate to various parts of the brain to differentiate into the different brain structures. The fetal brain develops from neurons moving outward from early precursor cells [3]. After the neurons migrate, they grow extensive dendrites (a neuron's input) and axons (a neuron's output), components that allow communication with other neurons via synapses. Synaptic "discussions" lead to the establishment of functional neural circuits that mediate sensory and motor processing, as well as underlying behavior. This establishment is crucial, as the human brain develops the most in the first 20 years of one's life, and development is driven mostly by genetics and environmental factors (GxE hypothesis). At birth, the infant has many more neurons and synapses than it will use as an adult [4]. The strong bond and attachment of infants to their parents are crucial at a young age since their physical and social environments aid to strengthen the neurons that are used repeatedly. As the infant continues to develop, those neurons that keep up active "discussions" develop to perform better and efficiently. Several clinical and animal studies have shown that providing a child in developmental stages an enriched physical or social environment can significantly improve learning and memory, encourage exploration, and decrease fearful responses to new and unfamiliar experiences [5–10]. It can also reduce the impact of genetic or environmental risk matters. Despite these experimental and clinical researches, it is hard to know the relationship between the particular mechanisms of brain development and mental activities. Psyche is a function of the brain, and psychic phenomena and disorders may have neurobiological correlation. According to a longitudinal study, children as young as 18 months may suffer from mental illness as older children do. Risk factors and predictors of mental illness could be identified in the first 10 months of life, and the association of risks found in studies of older children seems to operate already from birth [11]. Even though there is plenty of research, it would be necessary to have further evidence between mental illness and risk factors of children at a young age.

2. Causes of neurodevelopmental disorders

Ten to twenty percent of children and adolescents experience mental disorders worldwide [12]. Research has shown that most mental disorders begin at childhood and adolescence [13, 14]. Neurodevelopmental disorders are classified by which the development of the central nervous system is disturbed and are associated with varying degrees of consequences in one's mental, emotional, physical, and economic states. Developmental brain dysfunction, which can manifest as neuropsychiatric problems or impaired motor function, learning, language, or non-verbal communication are also characterized by abnormal behavioral or cognitive phenotypes originating either *in utero* or during early postnatal life. The causes of mental disorders in children and adolescents are not currently known, but research suggests that a combination of factors that include heredity, biology, psychological trauma, and environmental stress might be involved [15].

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A large cohort study of neurodevelopmental disorders showed a direct association of the severity of the physical condition with most classes of mental disorders. It also showed a strong overlap between physical and mental conditions and their impact on the severity of functional impairment in youth [16]. Specific patterns of comorbidity have important implications for the etiology. Prospective tracking of cross-disorder morbidity will be important to establishing more effective mechanisms for the prevention and intervention of mental disorders [16]. Genomic technology has shown great advances in gathering evidence that the current paradigm of psychiatric research needs to be updated. These studies provided converging evidence across a number of different levels, supporting the hypothesis that genetic risk factors are shared between disorders and challenging the validity of the classification systems currently used in research and clinical practice [17]. Through genomic technology, the growing list of genes that contribute to early onset developmental disorders is in its hundreds. That increasing number is further complicated by the observation that each patient can carry a unique combination of alleles of varying degree of effect that occurs *de novo* or inherited [18]. In the last 10 years, tremendous progress has been made in our comprehension of early onset developmental disorders [19–26]. To date, five main pathways have been identified as candidates for early onset neurodevelopmental disorders: chromatin remodeling, cytoskeleton dynamics, mRNA translation, metabolism, and synapse formation and function [17]. Understanding the symptoms and course of action for each individual, as well as the biology ranging from genetic and environmental risk factors to the neural circuits involved, remains a substantial challenge for geneticists and neurobiologists [27–29]. Many mechanisms of human brain development remain hidden, but neuroscientists are beginning to uncover some of these complex steps through extensive studies [30–32]. Research finds that neurons migrate from their birthplace near the ventricular walls to their final destination in the brain. As they collect together, they form each of the various brain structures and acquire specific ways of transmitting nerve messages. The result is the creation of a precise and elaborate adult network of 100 billion neurons capable of directing a movement in the body, a perception, an emotion, or other brain functions. Both genetic factors and activity-dependent factors play a role in developing the brain's architecture and circuitry.

3. Shifting paradigm in child and adolescent health

In 2000, scientific and clinical research groups were formed to create an agenda for the fifth major revision of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-5)* [33]. These groups generated hundreds of white papers, monographs, and journal articles that provided the psychiatric field with a summary of the state of the science relevant to psychiatric diagnosis and faults within the current research in order to fortify knowledge in those fields. In 2005, the *DSM-5* Task Force was commissioned by the American Psychiatric Association (APA) to start revisions from the 1994 published *DSM-4*. The Task Force was also aided by 13 different work groups tasked with focusing on various disorder areas. Despite the great advances in neuroscience and genetic research during the last 20 years, there are still too few reliable genetic or other biomarkers that can reliably guide

the diagnosis of psychiatric disorders. The diagnostic criteria in the *DSM-5* is a concept of neurodevelopmental disorders, such as intellectual disability, communication disorders, autism spectrum disorders, attention-deficit/hyperactivity disorder, specific learning disorders, and motor disorders. As a diagnostic tool, the *DSM* considers different disorders as distinct entities. However, from the diagnostic perspective, such disorders do not classify neatly within their boundaries as the DSM would want it. As an alternative tool for diagnosis and research into psychiatric disorders, the U.S. National Institute of Mental Health (NIMH) introduced the Research Domain Criteria (RDoC) project. This new project strives to create an experimental classification system that can provide a first step toward precision medicine for mental disorders [34]. The RDoC stems from the Research Diagnostic Criteria (RDC), created in the 1970s in response to the problems in diagnosis that the field of psychiatry experienced as it emerged from the shadow psychological domination [35]. In the RDoC, five main "domains"—Negative Valence Systems, Positive Valence Systems, Cognitive Systems, Systems for Social Processes, Arousal/Regulatory Systems—reflect a brain system in which functioning is impaired, to different degrees, in difference psychiatric conditions [36, 37].

The RDoC framework strives to free researchers and investigators from the rigid classification system of the DSM and pursue research questions in psychopathology that take advantage of burgeoning knowledge of complex behaviors and how these relate to specific aspects of brain activity [38]. It provides a set of guidelines for evaluating the strength of hypotheses relating clinical symptoms or impairments to dimensions of behavioral functioning and neural systems. The future of the RDoC is undetermined but will depend on how well the diagnostic system can direct clinicians to concise and effective treatment or prevention strategies for each individual patient [38]. The RDoC approach to clinical research of child and adolescent psychopathology contributes to the understanding of development as an aspect of the heterogeneity within DSM disorders and commonalities across seemingly disparate disorders. Incorporating the RDoC as a diagnostic tool in this area of clinical research promises to be fruitful avenue of research into the root causes and manifestations of mental illness, eventually leading to more precise and patient-specific treatments [39].

4. Early life programming as target for prevention of child and adolescent

Behavioral and emotional mental disorders with a high prevalence frequently commence in childhood or adolescence. With some respect, the fetal origins of adult disease models explain the associations between undernutrition of the fetus and an increased risk of cardiovascular disease, diabetes, and metabolic syndrome in later life [40]. This model has been expanded to include events beginning prior to conception as well as early postnatal life [41]. Three main classes of prenatal exposure were investigated in the late 1990s for a range of general health outcomes: lifestyle factors, maternal mental health, which covers antenatal stress, anxiety, and depression, and teratogenic and neurotoxic exposures to specific toxins found in substance abuse, environmental toxins, and prescription medication [42]. Recent human epidemiological

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and animal studies indicate that stressful experiences *in utero* or during early life may increase the risk of neurological and psychiatric disorders, arguably via altered epigenetic regulation. Altered epigenetic regulation may potentially influence fetal endocrine programming and brain development across several generations, resulting in the added attention paid to possible transgenerational effects of stress. Based on existing evidence, it would be possible that prenatal stress, as an epigenetic factor, may become one of the most powerful influences on mental health in later life [43]. Epidemiological studies suggested that gestational exposures to environmental factors such as stress are strongly associated with an increased incidence of neurodevelopmental disorders, including attention-deficit hyperactivity disorder (ADHD), schizophrenia, autism spectrum disorders (ASD), and depression [44–47]. There is growing evidence from human studies showing that early exposures to lifestyle factors and maternal mental health are predictive of child behavioral, emotional, and learning outcomes. Already a number of successful programs have been developed, such as nurse visitation in the perinatal period [48]. Recent emerging evidence shows that current interventions aiming to prevent postnatal depression in women are beneficial and effective not only for women with depression but also for those suffering from anxiety and high stress disorders [49–51].

Fetal programming refers to the way in which environmental events alter the course of fetal development, resulting in lasting modifications in the structure and function of biological systems. Programming refers to the influence of a specific environmental factor at a specific point in development. There are exposures during pregnancy such as maternal mental health, lifestyle factors, and potential teratogenic and neurotoxic exposures on child outcomes. Outcomes of interest are common child and adolescent mental disorders such as hyperactive, behavioral, and emotional disorders. The preconception and perinatal periods offer opportunities for the prevention of harmful fetal exposures. Therefore, it is imperative that during the perinatal period maternal mental health prevention efforts should be most strongly advocated and developed. Interventions developed with evidence-based advisement for the perinatal period could later be instituted into the public health system and grow toward universal and targeted interventions. In the course of time, such interventions are likely to have lifelong effects on mental and physical health [52].

5. The role of inflammation in child and adolescent mental health

Data from human and laboratory animals provide compelling evidence that stress-relevant neurocircuitry and immunity form an integrated system that evolved to protect organisms from a wide range of environmental threats [53]. In particular, the fetal inflammatory response to intrauterine infection seems to contribute to neonatal brain injury and subsequent neurological disability [54]. The preconception and perinatal periods are important because deleterious fetal exposures can be prevented during those periods. Therefore, future mental health prevention efforts must be focused on the critical period as well as prevention models should be developed focusing on the perinatal period. Interventions based on evidence-based recommendations for the perinatal period may occur as the form of public health, interventions that are universal and more targeted. If successful, such interventions can have enduring, lifelong

effects on (mental) health. Extensive experimental studies are being conducted on the precise mechanisms of how latent or persistent inflammation negatively affects neurochemical and neurobiological abnormalities related to schizophrenia and/or autism. By further clarifying such mechanisms, novel immunomodulatory interventions that help prevent abnormal brain development and long-term mental illness suffered by people with prenatal infectious/inflammatory histories can be established [44].

The quality of the fetal environment can be compromised in several ways. Indirect stresses such as endocrine, metabolic, or immune responses of toxins like nicotine or alcohol produces vascular restrictions, thereby impeding oxygen and nutritional supply to the fetus. Direct transfer of maternal glucocorticoids or other agents across the placenta are the other stresses. These stresses include neuro-immune factors that are now being recognized as playing important roles in the etiology of neurological and neuropsychiatric disorders, including immunological processes that target the developing brain and prenatal mental infection. Recent data have elucidated the mechanisms by which the innate and adaptive immune systems interact with neurotransmitters and neuronal circuits to influence the risk for depression. Responses of stress mediated via activation of the inflammasome to secrete inflammatory cytokines, heightened serotonin metabolism, and reduced neurotransmitter availability together with hypothalamic-pituitary-adrenal axis hyperactivity. If this intricate neuro-immune communication network is dysregulated during pregnancy, the maternal milieu can be modified, which enhances the emergence of depressive symptoms, as well as negative obstetric and neuropsychiatric outcomes [55].

There are multiple pathways through which inflammatory cytokines can lead to reduced synaptic availability of the monoamines, which can be believed to be a fundamental mechanism in the pathophysiology of depression. Brain regions that regulate motor and motivation activity (promoting social avoidance and energy conservation) in addition to arousal, alarm, and anxiety (promoting hypervigilance and protection against attack) are involved in the primary cytokine targets in the CNS. Dopamine is fundamental to motivation and motor activity, and cytokines have been found to decrease the dopamine release in the basal ganglia together with decreased effort-based motivation and reduced activation of reward circuitry in the basal ganglia, specifically the ventral striatum [56–59]. Pathogen infection and food antigen penetration across gastro-intestinal barriers are means by which environmental factors might affect immune-related neurodevelopment [60]. The proteins gluten and casein are hydrolyzed in the GI tract into peptides, some of which have been shown to have opioid-like properties and are referred to as exorphins [61, 62]. The immunomodulatory potential of these exorphins is not well-understood, with observations that among the repertoire of digested peptides, some have pro-inflammatory and others have anti-inflammatory effects [63]. A study suggested that a strictly supervised and restricted elimination diet can improve the symptom scores of children with ADHD [64], but up to now, there is neither evidence for food-associated mental diseases nor recommendation for dietary therapies besides the experimental stage. A longitudinal study proposed an association between allergic disorder in early childhood and the development of ADHD in later life [65]. Polymorphisms in the C-reactive protein (CRP) gene were associate both with increased peripheral blood concentrations of CRP and symptoms of post-traumatic stress disorder, especially increased arousal for individuals exposed to civilian trauma [66].

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Currently, it is discussed whether this association is an epiphenomenon or a consequela of the inner-psychic events. The role of hormonal signals operating in pregnancy or early postnatal interactions that is able to alter the sensitivity of certain target tissues, often via altered expression of hormone receptors, to these same hormones in later development [67]. There is also an increasing recognition of mechanisms of resilience that, ranging from effector T cells producing IL-4 to $T\text{-}_{Reg}$ cells with anti-inflammatory properties, there is a variety of T cell responses and their neuroprotective effects. For the development of new anti-depressant therapies, a better understanding of such neuroprotective pathways and of the inflammatory mechanisms, ranging from inflammasome activation to cell trafficking to the brain, would be important [68].

6. Integrative approaches to improve child and adolescent mental health

Human beings, in health and disease, are complex systems of dynamically interacting biological, psychological, social, energetic, intellectual, and spiritual processes. There are many factors that play into child and adolescent mental health and disorders; therefore, individualized, personalized, and integrative approaches are necessary in therapeutic interventions and prevention. Complex, interrelated causes, and consequences are understood to be parts of adolescent mortality, sexually transmitted disease, pregnancy, substance abuse, and depression. Therefore, categorical programs targeting only single type of problem behavior and seeking simple solutions are not adequate [69]. Prospective follow-up studies on youth have shown that child and adolescent mental disorders are related to a wide array of adverse outcomes [70]. Recent epidemiological studies have shown that about one fourth of youth experience a mental disorder in the previous year, and approximately one third across their lifetimes. For children, anxiety disorders were most frequent, followed by behavior disorders, mood disorders, and substance use disorders in that order. The difference in rates across the world can be explained by both methodologic factors and true cultural differences in childhood disorders and their magnitude [71]. Recently, research in mental health, neurobiology, and early childhood development supported the case for early intervention and prevention. For instance, according to epidemiologic surveys, some mental health disorders had an early age of onset while an association between increased risk of mental health disorders as an adult and early symptoms was found in other studies [72]. Another research emphasized recognizing the importance of early developmental screening and interventions, in addition to issuing related anticipatory guidance for pediatricians [73]. The other research also increased the understanding of how cognitive and emotional developments in older children and adolescents were related. Newly found evidence on age of onset, risk factors, and effective prevention strongly suggest that early identification and intervention in the primary care environment is important. The range of primary care practice includes a wide variety of activities, such as promoting well-being, preventing illness, and diagnosing and treating illness. A practice to meet children's mental health needs must have a similarly wide scope of activities. This comprehensive approach should consider the full scope and intensity of social, emotional, and behavioral problems influencing children and adolescent. Such an approach needs strategies targeted to different levels of need and coordinated between the systems serving children. Three levels

of intervention exist in mental health—namely, prevention and health promotion, early intervention, and treatment, and using validated and standardized tools for screening and assessment used to identify and treat emotional and behavioral problems earlier.

The way people receive health care is being transformed by the technology in new and exciting ways. Electronic and mobile devices for mental health are available for various conditions, but implementation into clinical practice is low [74]. Also, there is no evidence that using novel media is promoting mental health, but new diagnostic entities have been introduced in the DSM-5, such as Internet addiction. Also, service providers can deliver cost-effective and innovative care to geographically distant areas. Still issues have to be solved with regard to data integrity and security [75].

E-mental health care is defined as mental health services through the Internet and related technologies [76]. E-health is a broader concept which has an information and communication technology (ICT) to connect patients and physicians in real time [77]. According to systematic reviews of the computerized treatments of common mental health problems (therapist-assisted and self-directed), E-mental health treatments were shown to be more effective than zero treatment and equally effective as face-to-face treatment [78]. A clinical study has shown that the effect of computerized interventions for children and adolescents with depression and anxiety [79].

E-therapy is an emerging and fast developing field of research and practice that involves the application of digital technologies to assist or deliver psychotherapy. Currently, a vast majority of E-therapy programs have been developed for adults. It is imperative to find a more suitable and user-friendly method to treat children and adolescents. E-therapy programs for children and adolescents need to take in to account developmental considerations. Also, evidence-based research and further discussion would be needed to determine the optimal forms of delivery and efficiency of E-therapies in clinical environment.

Virtual reality (VR) involves a computer-generated simulation of a three-dimensional image or environment. The use of a VR platform offers an effective treatment option for improving social impairments commonly found in autism spectrum disorder [80]. VR appears to be a promising and motivating platform to safely practice and rehearse social skills for children with ASD. New virtual reality games dealing with motor coordination were tested with children having developmental coordination disorder [81]. The findings will offer essential information on whether such electronic games would have a positive impact on the children's physical and mental health [81]. Mental disorders and substantive mental health problems in children and adolescents are complex phenomena with regard to the pathoetiology, social, and clinical expressions and in the interventions that can ameliorate, modify, or prevent onset, effects, or negative outcomes [82]. On the other hand, it needs to be investigated which interventions are effective, separating these from the ones without effect or adverse effects. To meet the mental health care needs of young people and their families, convergence, not isolation, of professional identities is required. This change is affected by advances in scientific knowledge and clinical therapeutics, as well as changes in social forces and importance of convergence. Thus, by ensuring that the needed mental health care competencies are made available in each primary health care team and by assuring fully integrated mental health and other types of health care, primary health care teams would best provide early, efficient, effective, and optimal recovery-based care [83].

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Section 2

Changing Tides. New Trends and Cultural Contexts of Adolescent Mental Health

Chapter 5

Parenting Adolescents in India: A Cultural Perspective

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Additional information is available at the end of the chapter

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Abstract

Contemporary parenting has witnessed a multitude of adaptations over the past decade across various cultural settings. Adolescent attachment patterns with parents have been explored in varying cultural contexts. These attachment patterns have been extensively studied in the light of adolescence as a turbulent phase of development. This chapter offers a systematic review of the cultural factors influencing parenting, with a theoretical analysis specific to adolescents within the Indian context. Based on the exploration of these cultural influences on parenting, the chapter further explores the relevance of mindfulness-based approaches within the Indian culture, with an applicability of a model of mindful parenting specifically with adolescents in India. The conceptualization of mindfulness-based approaches stems from both Eastern and Western cultures, which have significant influences on parenting of adolescents. The components of mindful parenting have shown applicability within the dynamic context of parental-adolescent attachment patterns, especially considering the culture-specific concept of interdependence in a collectivistic culture like India. Such findings have potential implications for the formulation of parenting strategies toward the future of adolescent mental health in the country.

Keywords: India, parenting, mindfulness, adolescent mental health, cultural factors

1. Introduction

Ever since the conceptualization of parenting has evolved, it has been universally identified as one of the most crucial roles. Extensive research has further propelled its significance by highlighting its far-reaching consequences for the offspring, parents, siblings, and significant others. With growing awareness, parenting is increasingly being considered as a skill that needs to be honed through experience and training. As a result, many parents find themselves struggling to become a 'perfect' mother or father. Without a clearly defined thumb-rule to perfect parenting, this is undoubtedly a challenge, more so during the growing years of adolescence.

In an attempt to gain a comprehensive understanding of parenting, it becomes important to recognize the multiple factors within the family as well as the dynamics of the family with the larger community [1]. Extensive research has vouched for the influence of cultural contexts on parent-child relationship, for example, see Refs. [2–4]. Therefore, the impact of these factors on the development of child-rearing practices within a particular culture assumes greater implications. The past few decades have witnessed significant adaptations in parenting approaches globally, for example, see Refs. [5–7]. With changing times, it is not only the practices of parenting that are evolving but also the attachment patterns and perceptions encompassed, especially within a parent-adolescent relationship. This chapter attempts to highlight such cultural influences interplaying within the parenting of adolescents, while also exploring mindfulness-based parenting strategies, with specific applicability to the evolving contemporary Indian cultural settings.

2. Evolving approaches to parenting: From then to now

Parenting has often been metaphorically described as an exciting and rewarding journey, providing a sense of fulfillment that is said to be incomparable to most other significant milestones of life. However, the same journey has also been regarded as a potential source of tremendous stressors and challenges, both for the parents and for the significant others involved. These very sentiments about parenting adolescents have been aptly expressed as being a source of "excitement and of anxiety; of happiness and of troubles; of discovery and of bewilderment; and of breaks with the past and yet of links with the future" [8]. With the evolving advancements and progress in our society over the past few decades, parenting practices as well as perceptions about parenting have undoubtedly witnessed adaptations in accordance with the changing times.

2.1. Theoretical background

Parenting as a variable has been extensively explored in the course of human development studies [9]. The theoretical background of parenting has emerged from the groundbreaking work by Baumrind, with the conceptualization of three specific parenting styles, namely authoritarian, permissive and authoritative, along with the identification of parental responsiveness and parental demand as the two fundamental elements of parenting [10, 11]. According to this traditional classification, parents with an authoritarian style tend to be strict, directive, and emotionally detached; parents with a permissive style tend to set less restrictions or limits; while parents with an authoritative style tend to give clear and firm direction, with moderate discipline, warmth, and flexibility [12].

A parenting style is a representation of the standard strategies used by parents to raise their offspring(s) [12], and therefore, as a psychological construct is dependent on the behavior and attitude of the parents. In fact, a parenting style need not always fit into specific theoretical paradigms and instead could also be a creation by the parents themselves; it could be derived from a combination of multiple variables, further evolving over time as their wards begin to develop their own individual personalities and experience transitions across varying stages of life [13].

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2.2. Traditional parenting

Endeavors to trace the journey of how parenting would have begun with new parents who did not have any support from researchers and theorists, and efforts to identify a single original 'tradition' of parenting, would unfortunately, be in vain. This is so because parenting patterns tend to exhibit variations based on a variety of factors, including culture, personality, parental background, educational level, socioeconomic status, family size, religion, etc. [14]. From a traditional point of view, most parenting styles tend to emanate from the way the parents themselves had been parented. However, this need not involve a repetition of similar parenting practices but could in contradiction involve discarding or avoiding such a repetition. This could simply be because these are the only practices of parenting that they have any knowledge about, or with the intention of learning from one's own parents' mistakes, or unconsciously relying on a vicarious learning of the same. In fact, even contemporary parents believe that their parenting styles are largely influenced by the way they were raised by their own parents, thereby serving as the departure point for beginning one's own journey as a parent [15, 16].

As it has been established that parenting styles are largely based on the cultural value systems that have been internalized within the family, it would seem appropriate and befitting to this chapter to gain an understanding of the traditional parenting practices within an Indian context. At the same time, it is important to keep in mind the paucity of research studies exploring such factors in contemporary India [17]. Based on the documented evidence about the collectivistic nature of the Indian society, it does not come as a surprise that traditional Indian parenting would also be pivoted around the promotion of social cohesion and interdependence [18]. The value of such parental goals helps Indian families provide for nurturance, emotional bonding, and social support [17]. Given the strong hierarchical kinship structure within traditional Indian families, an emphasis on obedience to authority can be clearly expected. Finally, as a culture which tends to give higher value to affiliation and contact, traditional Indian parenting does emphasize greater physical proximity between the parent and the child, including closeness to the body, frequent massaging, and co-sleeping, especially as an infant [19, 20].

2.3. Changes in contemporary parenting approaches

Parenting practices are bound to have evolved with changing demands over a period of time. With a constancy in the main objective of parenting, the methods and strategies used to attain such an objective have undergone significant adaptations. Over the decades, historical changes have been noted, including greater autonomy being provided by the parents, in terms of both private self-expression by the offspring and expressions of defiance toward parents [21]. There has also been a decrease in autonomy being provided by the parents for freedom of movement and a delayed acceptance of meaningful responsibilities [21]. The traditionally authoritarian style of parenting, involving an unquestioned obedience is now almost obsolete, instead being substituted by a preference for a sense of parental control [22]. Such transitions have been witnessed through a qualitative analysis of parental advice columns, with findings suggesting that parents, at the beginning of the previous century, lacked awareness regarding the offspring's whereabouts, and emphasized completion of chores and obedience as a

parental goal; but changing times have led to a reversal in the degree of importance attached to these same goals, with more emphasis on the freedom of expression within the home, greater restrictions on their independence outside the home, and emphasis on chores being replaced by value being given to academics [21].

Consequently, evolutions in the parenting styles, especially among urban educated parents, have led to an orientation toward a sense of connectedness, autonomy as well as control, with parenting practices becoming more permissive, child-centered, and responsive; and therefore seeming to fit in more with Baumrind's authoritative parenting style, as compared to a traditional authoritarian approach [10, 22, 23]. In fact, there is evidence to suggest a dialectical synthesis of both material independence and psychological interdependence as a characteristic of contemporary models of parenting within urban settings of India [22]. With the advent of technological invasion, especially the increasing role of the social media, a definite change in the nature of communication patterns in families can be witnessed [24]. In addition, there have been changes within the family size and structures [17], for example, increase in dual-income families (with working parents), or increase in number of single parents, among others, are also underlying significant changes in parenting trends. Such familial adaptations have been associated with a new form of parental indulgence, as parents are spending more time, energy, and resources on their children's educational and career options, ironically assuming a more demanding role in terms of parental expectations of achievement and success [22].

At the same time, contemporary parents seem to be receptive toward reviewing their parenting approach in an effort toward building a better relationship with their child or adolescent [16]. With the dawn of globalization, better education and increased exposure to the Western cultures, both parents and adolescents have come to recognize the importance of independence and self-reliance in the contemporary world [25]. In tandem with such exposure, this growing awareness is also enabling a greater parental sensitivity, which in itself could lead to potential implications toward a 'kid-glove handling' approach to parenting in the future. Such an interface thus leads to an amalgamation of traditional parenting wisdom being integrated with the recent ideas and advancements in the field of childcare and parenting [20].

3. Parenting an adolescent

Adolescence as a phase is characterized by rapid developments including, both physical and psychological changes. It is a crucial stage of development, not only for the adolescent but also for the parents, bringing with it a set of apprehensions and worries. It is not uncommon to hear parental concerns regarding the approaching teenage years, being associated with changing expectations and relationships. In fact, a majority of parents have been found to consider adolescence as being the most difficult stage for childrearing [13, 26]. This section examines the attachment patterns of adolescents in relation to their developmental needs, along with exploring the influence of various cultural variables within this interplay.

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3.1. Parent-adolescent attachment patterns

While there has been abundant research on attachment patterns arising from the seminal work by Bowlby and Ainsworth, for example, see Ref. [27]; most of the emphasis has been on the transmission of attachment patterns in infancy and childhood [28]. Ever since the work of these pioneers, it has been agreed upon, that an attachment with the parent (or caregiver) typically begins from infancy. However, as a child approaches the developmental stage of adolescence, it is not uncommon to note a shift in such attachments, seemingly to be directed more toward peers [29]. The function of attachment with parents has been found to change from the phase of childhood to adolescence [30]. While parental attachment with an adolescent does not necessitate the same degree of physical proximity as compared to childhood years, there is, however, a greater need for parental sensitivity during these teenage years [31].

It is also common for parents to feel isolated while parenting adolescents, which could possibly be attributed to this shift in attachment patterns. However, it is vital for them to recognize the significance of their role as a parent and to persist in their efforts toward increased awareness of the adolescent's subjective world, while being available to provide guidance, direction, and support, especially in the contemporary world [13].

3.2. Need for autonomy

As adolescence serves as a transitional period between childhood and adulthood, achieving a sense of autonomy has been identified as one of the salient characteristics of this phase of development. It has also been recognized as a period of transition from dependence on adult direction and protection to self-direction and self-determination [13]. Adolescents tend to adopt an exploratory approach, with the major objective of attaining independence. As Erikson described in his developmental theory, the primary psychosocial task of adolescence is the formation of an identity [32]. Therefore, it is during this phase that adolescents are likely to demonstrate a shift in their focus from the parents and the family, instead, striving toward greater interactions with the systems outside the family [33]. Recognition of such a shift reinforces the fact that the attachment of an adolescent with a parent cannot be viewed as similar to that of a child-parent relationship.

Moreover, it is also important to note that the desire for achieving autonomy does not necessarily imply a decrease in the attachment between an adolescent and his/her parents. However, normal adolescent development has been characterized by such a gradual shift from the importance of familial relationships toward interpersonal relationships with peers, with the objectives of socialization, self-definition, friendship, and support systems [13]. An adolescent would simply aim at reducing dependence on parents and, consequently, would tend to form attachments with peers, neighbors, and other members of the community. Moreover, there could also be instances when adolescents feel lost or overwhelmed with their independence, and this is the time when they could rely on their parents serving as a secure base for them [27]. In addition, a positive relationship between adolescents and their parents can often serve as a predictor for the adolescent's ability to develop a sense of autonomy [34].

It is also necessary to mention the role of cultural factors interplaying with such a developmental need, though these factors shall be discussed in more detail in the next sections. Commonly, a large extent of conflicting interests between parents and adolescents is attributed to this need for autonomy. Such a conflict could often be exaggerated within the Indian context, with parental emphasis on interdependence as an inherent part of the collectivistic culture of India. This discrepancy is often attributed to be a manifestation of adolescent rebellion or parental conservativeness. However, the role of cross-cultural variables needs to be reiterated here, as in individualistic cultures, parenting goals tend to value independence, while on the other hand Indian parenting goals are more likely to value obedience and good manners [28]. In addition, it has also been demonstrated that the parenting practices of Asian American parents who adhere to traditional Asian values may be incongruent with their children's level of acculturation, which could also breed further conflicts [35].

Simultaneously, there is growing contradictory evidence from the universalistic perspective, which demonstrates the importance of fulfilling the need for autonomy across both individualistic and relatively more collectivistic societies [36]. However, such apparent contradictions stem from the varying definitions of autonomy by both warring perspectives [37, 38]. Finally, it is necessary to note that there exists a gap in the extant research on this aspect of parenting, which has mainly been based on Western populations and thereby does not take into consideration the cross cultural differences in developmental pathways [28].

3.3. Role of cultural factors

Despite the progressing advancements, the traditional cultural value systems and beliefs still play a significant role in influencing parenting, parental attachments, and perceptions of parenting practices [21, 39–41]. Such influences can not only be attributed to the psychosocial and cultural factors influencing the immediate environment but also extending to the experience of these parents during their own upbringing. The role of a culture-parenting nexus has been recognized, both in constructing and in maintaining a pattern of parenting [2]. Recent evidence highlights the influence of both the parents' and the children's temperaments on the parenting style adopted by the parents, also being largely influenced by their own parenting and culture [13]. Therefore, it seems apt to devote the next subsections in exploring such cultural variations influencing the adolescent attachments and perceptions across cultural settings.

3.3.1. Cultural differences in parental-adolescent attachment

An analysis of the earlier research seems to suggest that most attachment theorists have focused on universals, with their measures being based on Western values like individuation and exploration; consequently, the role of cultural differences seems to have been neglected [42]. Cultural variations within the development of attachment could include differences in the subjective meaning of parental sensitivity, perceptions of parental acceptance or control, and in the meanings attached to various parenting practices [28, 43].

Research has identified that changes in parental attachments differ cross-culturally due to differences in the developmental pathways, which are characterized by culture-specific concepts

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of independence or interdependence. This suggests that individualistic cultures tend to have a greater emphasis on the developmental pathway of independence, as compared to the construct of interdependence prevailing in collectivistic cultures [43, 44]. Culturally significant differences in the parental-adolescent relations have also been evidenced, for instance, a symbiotic harmony characterizes their relationship in Asian cultures like Japan, maintaining a stable relationship with both parents and peers; on the other hand, in Western cultures like in the USA, the parental-adolescent relationship is characterized by a generative tension, with a transferring of close relationships from parents to peers, consequently leading to a challenging of parental values, and conflicts between the adolescents and their parents [43]. Elaborating on the culture-specific functional role of attachment, it can be understood that such a symbiotic and interdependent relationship fulfills a need for assurance and further serves as an agency to provide for the universally underlying need for competence in such cultures; this is opposed to the striving for independence and separateness leading to competence within a Western culture [45]. Therefore, a parental-adolescent attachment could be viewed as being dependent on the cultural perceptions and interpretations of their needs, including competence, autonomy, and relatedness, which are considered to be three basic psychological needs of an individual [37, 46].

3.3.2. Cultural perceptions of parental control vs. parental sensitivity

Cross-cultural factors have also been found to influence the perceptions of parental practices. For instance, the degree of parental control as perceived by individuals across cultures cannot be generalized, more so because the research findings related to parental control tend to focus more on culturally heterogeneous samples [47].

Especially from a culturally relativistic perspective, family climates with more emphasis on dependence are likely to demonstrate a greater degree of parental control, as compared to family climates emphasizing achievement [38]. According to a research study, parental control could have two specific expressions: a dependency-oriented control, involving the use of pressure to ensure greater physical and emotional proximity to the parent; and an achievement-oriented control, involving the use of pressure to strive toward excellence in performance-based situations [48]. In alignment with the same, the role of culturally significant differences in these expressions of parental control has also been evidenced [38].

Depending on their cultural orientation, adolescents' interpretation of parental control, sensitivity, and the affective connotation attached with it is likely to differ [38]. An individualistic culture is likely to have adolescent perceptions of parental control as being intrusive and hostile, as a constraint, contradictory to a relatively benign and appropriate perception in the form of a supportive and more sensitive approach, in collectivistic cultures [49, 50].

Greater parental control could be correlated with detrimental effects on the adolescents, specifically in terms of stifled independence, along with an encouraged dependency. However, such negative effects of parental control would be relevant only to cultural contexts where independence is highly valued, being inconsistent with the prevailing cultural values [38]. Based on such differences in cultural orientations, parental control in Asian countries is likely to be perceived as an expression of parental involvement and care, being in alignment

with their traditional cultural values [51]. Therefore, positive meanings of sensitivity could be attached to the parental control in families wherein loyalty, parental involvement, and cooperation are valued [38]. However, it is important here to highlight the role of increasing westernization, growing exposure through education and media, and a greater cultural awareness, which could in turn lead to evolving cultural values influencing an adolescent's perceptions of the parental control.

3.3.3. Individualistic vs. collectivistic cultures

An exploration of the cultural variables influencing Indian parenting would be incomplete without an understanding of the nature of collectivism characterizing Indian culture. As discussed above, adolescence is earmarked by the development of autonomy and relatedness as a universal task. However, there is research evidence that supports cultural factors influencing the degree of importance given to each of these two tasks; for example, individualistic cultures emphasize autonomy relatively more than collectivistic cultures, which emphasize parental control and family obligations [28, 44]. Research on parenting within Indian families is suggestive of greater emphasis on interdependence [52]. This difference could be attributed to variations in the family size and structure across cultures, with smaller family units' parenting goals focussing on raising autonomous and independent individuals, and dependence being discouraged as being psychologically unhealthy [41].

Interdependence is a culture-specific construct highlighting the role of family relationships and obligations, which is emphasized in a collectivistic culture like in India [28]. This can be evidenced by the strength of the kinship networks and extended families that have been prevailing in India [53]. Therefore, such a cultural backdrop tends to emphasize loyalty toward family values; consequently, seeking an independence from parents could actually be disapproved of in such a cultural setting.

Upon examining cultural differences in parenting styles, Asian parents have been found to exhibit an authoritarian style of parenting [54]. Specifically, Indian fathers have traditionally been the patriarchal figures dominating their households [55]. Internalizing the values of collectivistic cultures within the process of parenting, the expression of an individual's own needs is typically inhibited in deference to valuing the needs of others; subsequently, it is common to note more authoritarian and restraining parenting, with a greater expectation of obedience dependence and sociability; on the contrary, parents from individualistic cultures tend to value self-reliance, self-interest, and autonomy within the socialization process, thereby having greater parental expectations of exploration and independence with an authoritative style of parenting [56]. At the same time, it is vital to note that the restrictive and normative parenting in collectivistic cultures is not necessarily associated with parents being rejecting or lacking in warmth [57–60].

Finally, it is also essential to mention that although Asian countries are often depicted as being uniformly collectivistic in nature, such a static characterization of cultures in general could be overly simplistic [61]. Simultaneously, it is interesting to observe multiple instances of Indians persisting to value familial unity and filial piety, despite the impact of increased exposure being considered responsible for the waning of traditional values over decades [62].

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And therefore, the prevailing cultural factors within a family need to be explored as independent entities with significantly potential implications toward the relationship between parents and adolescents.

4. Mindfulness-based approach to parenting

According to the teachings of Buddha, mindfulness, being ubiquitous in nature, can be useful everywhere [63]. As a fundamental parenting practice, mindfulness in the context of parenting and parent training has been suggested as a significant force toward improving the effectiveness of parenting interventions [64]. Such an approach not only could improve the quality of the parental-adolescent relationship but can also influence parental self-efficacy.Given the pressure felt by most parents to "get parenting right," along with the parents' concern about their level of confidence in their parenting [16], adopting a mindfulness-based approach could be extremely beneficial. With the growing popularity of the concept of mindfulness, and increasing evidence indicating its benefits within the field of mental health and applied research, incorporating such an approach within our parenting practices undoubtedly can unfold its potential toward improving the experience of parenting for both the parent and the adolescent.

4.1. Historical underpinnings of mindfulness

The roots of mindfulness as a practice have been borrowed from the Eastern meditative and Western Christian contemplative traditions, specifically from the teachings and practices associated with Buddhist traditions [65]. The term "mindfulness" is an English translation of the Pali word *sati*, in the language of Buddhist psychology 2500 years ago, connoting awareness, attention, and remembering [66]. While this is not the first instance of borrowing components of Buddhist practice and other Eastern meditative practices, many such integrations between Buddhism and Western psychology have been developed in the past few decades, ranging from such inclusions within the original psychoanalytical traditions to more recent integrations within the cognitive-behavioral traditions [67, 68]. The construct of mindfulness has now carved a niche for itself as an established component of several contemporary psychotherapies, including Mindfulness-Based Stress Reduction, Mindfulness-Based Cognitive Therapy and its derivatives, Dialectical Behavior Therapy, Acceptance and Commitment Therapy, Compassion-Focused Therapy, and Mindfulness-Based Relationship Enhancement [67, 69].

According to Marsha Linehan, who developed the model of Dialectical Behavior Therapy, core mindfulness is one of the fundamental modules of the skills training program, aiming at improving an individual's control of attention and the mind, which has also been found as a promising intervention for adolescents [70, 71]. The practice of mindfulness has been defined as "the awareness that emerges through paying attention, on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment" [72]. More Western psychological perspectives are also in alignment, describing mindfulness as "a receptive attention to and awareness of present events and experience" [73].

4.2. Model of mindful parenting

Mindful parenting was first proposed as a concept by Myla and Jon Kabat-Jinn in 1997, identifying sovereignty, acceptance, and empathy as the salient features of parenting [74]. According to them, sovereignty is described as the process of recognizing the child's "wholeness" by "seeing beneath behavior"; and acceptance refers to "an attempt to come to terms with the nature of things", within the parent, the child, or a particular situation [74]. The parental attitudes of compassion, acceptance and kindness, along with them being fully present during their interactions with their offspring, are key characteristics of mindful parenting [75, 76].

While there is not much empirical evidence as yet to explore the application of mindfulness within parenting, there is sufficient evidence supporting its role within a preventive paradigm toward mental health [77]. A model of mindful parenting could be considered as a framework in which parents intentionally bring moment-to-moment awareness to the parent-child relationship, through an integration of various components of core mindfulness; these could include attending behavior, emotional awareness, self-regulation, and nonjudgmental acceptance as integral parts of the parenting practice [78]. Further elaborating on this model, a recent research operationalized mindful parenting consisting of six dimensions, which involved (i) listening with full attention, (ii) having compassion for the child, (iii) a nonjudgmental acceptance of parental functioning, (iv) an emotional nonreactivity in parenting, (v) an emotional awareness of the child, and (vi) an emotional awareness of the self [79]. A combination of these dimensions enables parents to be mindful, maintaining a consistency with their parenting goals and values, within the realm of the parent-child relationship [78].

Integrating a mindfulness-based approach within parenting practices enables a shift in parental awareness toward the present-moment parenting experience, thereby becoming one of the most significant aspects of the parental relationship [78]. In fact, an application of such an approach to parenting creates a demarcation between the parenting goals being predominated by parent-oriented or child-oriented motivations [80]. The model of mindful parenting reiterates such a distinction, encouraging parents' mindful awareness and acceptance of the child's needs, thereby improving their relationship with the child [78].

5. Applicability for adolescents within an Indian context

Drawing from the implications suggested above, with an integration of the various cultural factors influencing parenting, it seems interesting to explore the applicability of such a mindfulness-based model of parenting in India. Such an approach could be advocated especially for the parenting of an adolescent population, considering the characteristic challenges associated with this phase of development. Undoubtedly, the role of parenting does not come without its challenges, it being easier to find faults in retrospect. In fact, with increasing stressors, it is indeed becoming difficult to parent effectively in the contemporary world [7]. In light of research supporting the benefits of mindfulness within daily living, such a model can also have potential implications not just toward the parental-adolescent relationship but also toward reducing parental stresses and enhancing their own well-being [73].

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5.1. Incorporating mindfulness within communication patterns

As the value of interdependence within the Indian culture has previously been established, the application of one of the most significant components of the model of mindful parenting can potentiate significant implications. Parents' mindful listening, i.e., with full attention and awareness being given to the present moment experiences, can have significant implications toward the relationship between the parent and the offspring. As the parental attachment undergoes a shift during adolescence, such mindful listening can enhance the quality of attachment and security. Furthermore, this can be appreciated by adolescents who are commonly heard complaining of 'not being understood' by their parents.

This model can also play a significant role in shaping the perceptions of the parental sensitivity toward the adolescent. This is expected to be reflected in their accurate and increased awareness of the adolescent's verbal as well as behavioral cues, along with a simultaneous reduction in parental expression of expectations from the adolescent. This assumes a greater significance considering the lack of parental awareness of the adolescent's whereabouts in the outer world [81].

Finally, recent preliminary evidence suggests that self-reported mindful parenting can be associated with the interactions between the parents and the youth [82]. Further, such mindful attention and awareness is likely to improve the accuracy of parental perceptions of adolescents' thoughts and feelings, thereby leading to a significant decrease in the amount of conflicts or disagreements, and deceptiveness by the adolescents, which are considered characteristic of this phase [81, 83].

5.2. Adopting a nonjudgmental stance

Given the magnitude of conflicts between adolescents and parents, a mindfulness-based model of parenting advocates a nonjudgmental acceptance of both the self and the adolescent [78]. In combination with an enhanced and mindful understanding of the adolescent's thoughts and feelings, such a stance enables the parents to be accepting of the presence of struggles within the parental-adolescent relationship. Such an acceptance brings with it a more realistic set of expectations, along with an enhanced sense of parenting self-efficacy.

Mindfulness within parenting approaches has been hypothesized to reduce parental preoccupation and/or negative bias [77]. It also enables parents to identify their interactions with the adolescent, which could contribute to a relational disconnect [84]. Therefore, the parental goal shifts from evading such conflicts toward gaining a more complete and nonjudgmental understanding of the present moment (based on mindful attention). Such a perspective can serve as a foundation for a preventive approach toward parenting conflicts, and in turn improving the parental-adolescent relationship.

6. Implications: Way forward

Mindfulness-based parenting can serve as a foundation for enhancing crucial parent-adolescent relationships. As has been suggested by Duncan [78, 82], the implementation

of a mindfulness-based model of parenting can help in the creation of family contexts that are more conducive for a satisfying parental relationship with the child. Such a model has immense potential toward a preventive approach to adolescents' parenting. Adolescents' perceptions and attitudes toward their parents can largely be impacted by this model, consequently improving the quality of the parent-adolescent attachments.

Incorporating a mindfulness-based approach within our parenting styles can be instrumental in altering the nature of responsiveness toward the adolescent's emotions. It is also likely to reduce the expression of negative affect within the parent-adolescent relationship. In addition, mindful parents tend to develop more adaptive coping mechanisms, thereby equipping them to deal with their parental stresses as well. Therefore, this model brings with it a twofold benefit for adolescents' as well as parents' well-being.

Finally, the success of such a mindfulness-based approach is expected to have a greater receptivity, given the nature of spirituality rooted within the Indian culture. In spite of the research supporting mindful parenting as a preventive model, there is a need for empirical investigations of the efficacy of such mindfulness-based parenting, as a means to foster positive outcomes for the adolescent [77, 85]. It is imperative that future research exploring the efficacy of such a model can extend this discourse, as well as formulate more culturally sensitive parenting practices within the societal realm of India.

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Chapter 6

Poverty and Mental Health Outcomes in Mexican Adolescents

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Additional information is available at the end of the chapter

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Abstract

The purpose of this chapter is to analyze the adaptive and resilience processes in adolescents from different marginalizing communities. The theoretical and empirical foundations of the ecological-transactional perspective of adolescent development as a framework for understanding the adaptive processes and resilience in contextual adversity is reviewed, with the recognition of risk and protective factors at multiple levels and ecological settings. Under this perspective, the authors provide data supporting the predictive role of stressful life events, coping, and family functioning in adaptive and nonadaptive outcomes in adolescents living in diverse contexts of high-risk communities in Mexico City. These findings may contribute to early intervention programs based on empirical evidence with adolescents and families living in disadvantages communities in schools and in clinical settings.

Keywords: adolescents, resilience, poverty, mental health, adaptation

1. Introduction

Adolescence is a transitional and vulnerable period in the life cycle. Particularly for those living in countries where access to mental health (MH) services is low, it is necessary to promote preventive interventions based on evidence. The purpose of this chapter is to analyze the adaptive and resilience processes in adolescents from different marginalizing communities. The theoretical and empirical foundations of the ecological-transactional perspective of adolescent development as a framework for understanding the adaptive processes and resilience in contextual adversity is reviewed, with the recognition of risk and protective factors at multiple levels and ecological settings. Under this perspective, the authors provide data supporting the predictive role of stressful life events, coping, and family functioning in adaptive and nonadaptive outcomes in adolescents living diverse contexts of high-risk communities in Mexico City. These

findings may contribute to early intervention programs based on empirical evidence with adolescents and families living in disadvantaged communities in schools and in clinical settings.

2. An ecological framework for understanding youth outcomes in high-risk contexts

For more than four decades, development researchers appear to be concerned with children and adolescents living in a situation of considerable adversity, including poverty or social marginalization, and thus trying to understand those mechanisms that draw them either to a path of psychopathology or to positive adaptation [1–3]. The findings provided a set of questions regarding the traditional assumption that situations of risk and stress are "inevitable" linked to psychopathology. This questioning broke down previous schemes of child development, inviting new theoretical and methodological proposals to appear. Thus, a more comprehensive and positive perspective about the human development emerged, which involves the possibility of positive adaptation together with the reconstruction, from experiences, in the face of adversity. With this, the focus extended toward the study of strengths despite significant stress and risk, also known as resilience. Its study is originated in the model of"developmental psychopathology," proposed through longitudinal investigations made by Garmezy and Rutter [4] with children living in contexts of poverty, psychosocial risk, and parents with mental disease. Likewise, the model is based on multifactorial research carried out by Werner and Smith [3], among others, with vulnerable population which, contrary to predictions, presented positive adaptation.

Developmental psychopathology represents a macroparadigm that resumes basic assumptions of both systemic [5] and bioecological approaches [6]. This perspective implies the intersection between the fields of clinical and human development and it also includes contributions from neurosciences, ethology, and psychiatry. It is focused on children and adolescents within different ecological levels that involve risk, vulnerability, adaptation, and resilience [7, 8], and it also recognizes the multidimensional nature of adaptation. For this reason, the evaluation and intervention methods are multifactorial, multilevel, and multireferential. Also known as "ecologic-transactional perspective" [9] and "organizational model" [10], this new approach assumes that adaptation is the result of an organization of different systems that interact dynamically. It also includes particular theories and approaches that frame the investigation in multiple contexts and settings, such as hospitals, schools, mental health (MH) centers, and courts and with different risks like sexual abuse [11], mental diseases in parents [12], psychosocial risk and marginalization [13], and poverty [14].

Under this perspective resilience is a multidimensional construct with two basic components: positive adaptation and the presence of significant stress, risk, and/or adversity [8]. Luthar [7] defines resilience as those behaviors within a norm and a relatively good outcome in the face of a context of risk and vulnerability. Resilience is a supraorganized construct that presents adjustment indicators both negative and positive emotional and behavioral and not always in directly observable behaviors [8]. Thus, resilience has to be inferred comparing individual's outcomes among individuals with similar experiences of adversity [12]. So the study of resilience, in terms of trajectories and outcomes, is still very useful, in order to design prevention and promotion programs aimed to strengthen the positive youth development [15, 16].

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In the last years, the study of resilience has encompassed various domains, fields, and problems. Among them, an important area is the one in charge of studying positive adaptation processes in children and adolescents that live in contexts of high risk, such as poverty and low socioeconomic status (SES). In this sense, poverty is a distal multidimensional factor considered a risk factor due to its link with other adversities and sources of stress such as economic constraints [17], child maltreatment, [18], alcohol abuse [19], and negative parenting [20] which can be operating cumulatively or as a risk cascade [21]. There is evidence that economic distress may cause daily hassles and family conflicts which either directly or indirectly negatively influence the adolescent's health [22].

UNICEF [23] points out that the experience of childhood occurs each time more often in an urban environment allowing children to enjoy the advantages that urban life offers, such as education, medical services, and recreational facilities. However, a countless number of children lack basic services despite having them close. Socioeconomic inequality has an impact on adolescent health, particularly in countries with low- and middle-income, where rapid economic and urban growth leads a large number of adolescents to displacement and deprivation and finally unemployment. Therefore, this has a negative impact on mental health outcomes; for instance, an increase of suicide and also mortality related to violence [24].

It is interesting to evaluate whether this impact derives from income *per se* or also form other family conditions that coincide with an environment of poverty: monoparental families, low educational level, unemployment, and underemployment. These sociodemographic factors affect health in different moments in the life course and operate two different levels and through causal differential mechanisms [25]. It is important to identify other factors that mediate between the distal context (socioeconomic status) and adolescent results, since usually family is a mediator between the adolescent and his environment. Thus, some family factors are described as being the ones with higher prevalence in an environment of poverty. These include emotional distress (e.g., depression, irritability, emotional liability), substance abuse by parents, less solid parenting styles which are more punitive and inconsistent, mostly chaotic environments, with fewer stimulation and regular routines as well as restricted learning opportunities and reduced accessibility to parental interaction [26].

In short, multifactorial research emphasizes the importance of a balance between personal, familiar, and social protective and risk factors for resilience [18, 27, 28]. The understanding of adaptation profiles and mechanisms of adolescents, who present a relatively good outcome despite living in an environment of psychosocial risk and poverty, could be the basis for designing programs with an ecological framework based on evidence [29]. The programs should be aimed at promoting positive adaptation, teaching coping skills, and a positive parenting in both adolescents and their families in accordance with global mental health policies [30].

3. Adolescent mental health problems: risk and protective factors

The concept of risk borrowed from the medical model and then transferred to social sciences refers to those characteristics of a person, or of the environment, that limit, impede, or

represent a threat for his development having as a consequence negative outcome [9, 20]. Statistically this involves a higher probability of presenting an alteration in the course of development in "critical" domains. Vulnerability entails personal and environmental factors that increase the negative effects of a risk condition [7]. Protection is a process in which individual and environmental factors participate and attenuate the impact of stress and risk. Because of their contribution to positive adaptation they are called protective and can be defined based on personal attributes such as coping, personality [31], self-efficacy, and also environmental ones like a functional family organization or family care [11]. This perspective suggests that factors of risk and protection belong to multiple levels, from individual to contextual (family, school, community) and of a diverse domain (biological, psychological, and social), and throughout life [32].

What is mental health and mental health problems (MHP)? Mental health (MH) is defined as the "successful performance of mental function that results in productive activities, fulfilling relationships with other individuals and the ability to adapt to change and cope with adversity" [33: p. 6]. Mental health problems (MHP) include signs and symptoms which are not intense or lengthy enough so as to fulfill the criteria of a certain mental disorder. The term mental or psychiatric disorder refers to the group of disorders diagnosed according to medical classification systems like DSM5 and ICD-10 [33]. These include a series of conditions characterized by thought, mood, or behavior disturbance (or a combination of them) and associated to an altered functioning or personal suffering.

Children and adolescents constitute a third of the world's population (2.2 billions) and a 90% of them live in low- and middle-income countries (LMIC) where they represent 50% of its population. Although adolescents are considered to be a healthy population group, it is during this period of their lives that they are confronted to risk processes decisive in their future health, like drugs, tobacco and alcohol consumption, unsafe sex, obesity, and lack of physical activities. Under these circumstances, mental disorders increase [34]. It is known that neuropsychiatric disorders are the main cause of global burden (accounting for 15–30% of the disability-adjusted life years, DALYs) and the world prevalence of these disorders is calculated to be among 10–20%. However, there is a gap between the need and the existing resources in these countries [35].

A recent meta-analysis of research carried out in 27 countries (regions in North America, South America, Caribbean, Europe, Africa, Asia, and Oceania) specifies a number of 13.4% of mental disorders that affect children and adolescents, just slightly below obesity (16.8%) and above asthma (8.5%) [36]. However, there is a scarcity of youth health and well-being indicators at an international level and the ones available are for high-income countries (HIC). It is therefore recommended to carry out research for those health aspects that have been ignored in adolescent health: mental health, health systems, and risk and protection factors in their immediate context.

The most prominent distal risk factor associated with mental health problems in children and adolescents is low socioeconomic status (SES). It is suggested that the study of the relationship between SES and MD includes disaggregation in its indicators in order to explain the mechanism through which poverty impacts in adolescent's results. McLauglin [37] estimated the association between SES and MD in a representative sample of U.S. students and noted that a

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subjective perspective of social status was one of the indicators more directly associated to mental disorder. Parents' education level is associated with a low risk of anxiety disorders and relative deprivation as a high risk for affective disorders. Another mechanism supported in research data is the inverse relationship between parents' education and the use of health services and/or treatment [38, 39]. Even in high income countries, most adolescents with a psychiatric disorder do not receive treatment and once it occurs, it is not provided by a mental health specialist [40].

In Mexico, the prevalence of mental disorders in adolescents was measured through Mexican Adolescent Mental Health Survey [38] and it revealed that 39.4% of the adolescents, from 12 to 17 years, presented a mental disorder measured by CIDI and DSM-IV criteria: 1/11 had a serious disorder; 1/5 moderate; and 1/10 mild. Anxiety disorders were the most prevalent ones in both sexes. In men, oppositional-defiant disorder and alcohol abuse appear as the second and third main ones, respectively, after specific phobia and social phobia. The most frequent disorders in women, after anxiety (phobias) were major depression and oppositional-defiant disorder. Most of them did not receive treatment. Two-thirds lived with their parents, four-fifths were students, and one-tenth had social burden. Social burdens associated to a probability of mental disorder were: being married, having a child, and working while studying. Parents' education was related to the use of treatment. The relationship between mental disorders and other indicators of well-being is not yet available in Mexico.

In comparison to other OECD [41] countries, Mexico ranked the bottom third regarding children and adolescent well-being with the next indicators: income and wealth, housing

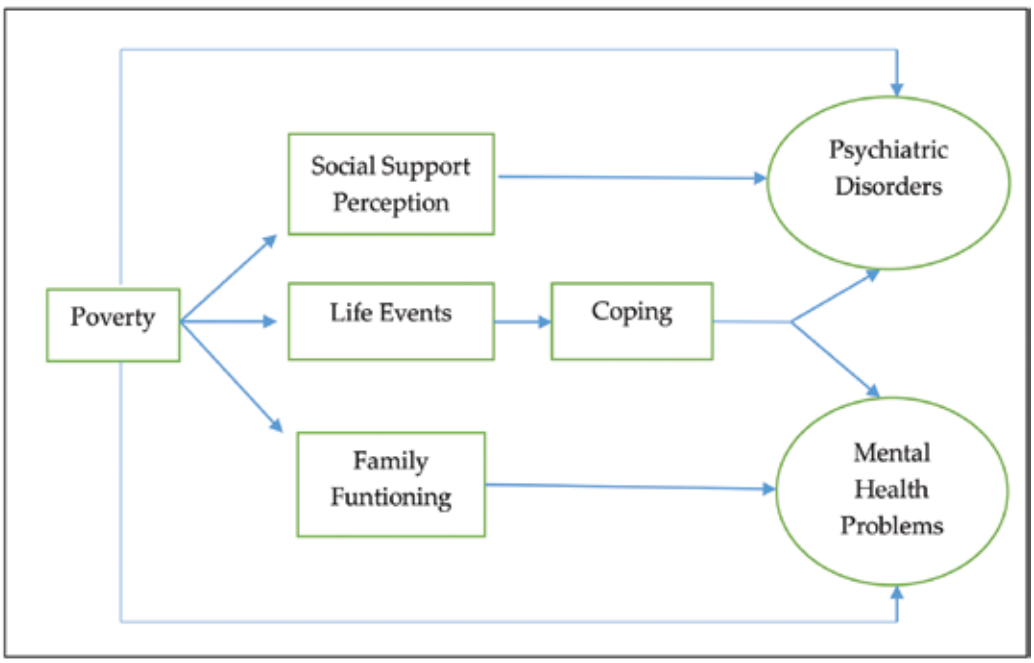

Figure 1. A research proposal-intervention for adolescents in disadvantaged communities.

condition, infant mortality, teenage birth rate, reading skills among 15 years old (PISA), and youth neither in employment nor education/training, among others. These data show the situation of Mexican adolescents and their families and at the same time represent different challenges in the ability of adapting, including the flexibility to generate new personal and familiar functioning ways. Hence, the research line proposed for adolescents living in a high risk context includes proximal and distal variables that allow, based on evidence, to identify "clue" elements for intervention and promotion of adolescent development. Literature shows how elements such as coping and familiar functioning (communication and familiar cohesion) work are protective variables in contexts of poverty that buffer the effect of psychosocial risk.

Finally, although it is proposed [35] that the risks factors are similar in HIC to those reported in LMIC, resilience research is scanty in LMIC. Hence, we propose a theoretical model aimed to understand risk/protective factors underlying adaptation and resilience in **Figure 1**. The research data that were generated is described in Section 3.

4. Adapting processes and resilience in multiple contexts

According to our previous statements, adolescents' outcomes result from a complex process involving the dynamic interaction of multiple factors at multiple levels. A salient individual factor explaining the mechanism of adaptive or maladaptive outcomes is coping. However, in the field of resilience it is needed to take into account the social context of adolescents in order to analyze the relationship between stressful life events and coping in multiple contexts, clinical and nonclinical, in disadvantaged communities.

4.1. Stress life events and coping in disadvantaged communities

Adolescent stress approaches [42–44] based in Lazarus' transactional model [45] emphasizes the importance of individual characteristics, stressors, and context. There is evidence that both, major and daily events or hassles, due to its frequency, intensity, and duration represent a high stress burden [46]. However, according to the compensatory model of resilience [8] positive events can buffer the negative effect of these stressors [46, 47]. Family stress theory [48] shows that daily stressful experiences associated to a socioeconomic disadvantage usually generate family crises and mental health problems affecting whole family system and family members [49]. The "Context Model" (e.g., risk-stress model) suggests that families in disadvantaged societies are exposed to multiple risks, most of them related to a lack of money [50]. Economic pressure represents a chronic stressor associated to mental health problems including anxiety and depression. Therefore, it supports the notion of relationship between economic hardship, family conflict, and emotional disorder [17, 22].

In a Mexican context, it is reported that around 80% has experienced an adverse event in a year and that to a higher number of adversities there was also a higher probability of psychopathology [51]. This coincides with previous data regarding stressors and internalizing an externalizing problem [22, 50, 52]. The difference between youth risk, for instance, with or without suicidal ideation [53], drug consumers or nonconsumers [54] and adolescents with or without

psychopathology [55] is the number, type, and source of stressors, generally related to family, in which, even normative life events, can be perceived negatively by adolescents [46]. Regarding this, our research line[1] has been oriented to analyze adaptive processes in adolescents and families of marginalized and high-risk communities in metropolitan area of Mexico City. A cross-sectional study tested a model on resilience [56] in 538 students aged 13–18 years who were provided with the life events questionnaire [57] and the MMPI-A [58]. Findings showed an overall model (R^2 = 0.278; X^2 = 16.294; $p > 0.05$) with stressful life events as negative predictors of adaptation (β = 2.118, p = 0.000). These findings were also replicated in older adolescents confirming the contribution of stressful life events and perceived social support on resilience [59]. In concordance with previous research [17, 46, 47], data showed the negative influence of stressful life events on adaptive processes.

On the other hand, there is systemic evidence regarding coping as a relevant factor playing a mediator and/or moderator role in stressful experiences and adolescent outcomes. Resilient adolescents and families with a kind of adversity frequently present problem solving and seeking social support. The adverse effect of negative contextual experiences and parental conflict can be buffered with functional coping, being a predictor of resilience [60]. Coping reduces the negative impact of family stress which derives from economic pressure [61]. Similar data were founded in Mexican adolescents: problem solving, seeking social support, and spirituality were the strongest predictors of resilience in poor adolescents [62]. However, its protective function can be diminished due to influence of negative peers or negative models of parental and family coping [63]. On the contrary, adolescents that present an emotional problem like anxiety, depression, or aggressive behavior, basically use avoidance coping [50, 60, 64].

Recently, a cross-cultural research that compared styles and coping strategies between Mexican and Paraguayan students was carried out [65]. Participants completed the adolescent coping scale [43] and results showed that both samples used mostly productive strategies. However, problem solving and effort to achieve success was more frequent among Mexican adolescents, whereas Paraguayan reported a higher level of seeking spiritual support and slightly higher nonproductive strategies than Mexican students. Although adaptation was not assessed, results are similar to others cross-cultural studies [43, 64].

The relationship between coping and externalizing and internalizing behaviors and resilience was assessed with earlier adolescents. Results showed higher scores in productive strategies (e.g., physical recreation and seek relaxing diversions) [66] and nonproductive strategies (e.g., worry and not cope), which significantly related to both, internalizing (i) and externalizing (e) problems. When testing a model of resilience [67] active coping, perceived control, and family support predicted negatively, internalizing (R^2 = 0.364; F = 97.47; $p < 0.001$) and externalizing behaviors (R^2= 0.279; F = 63.564; $p < 0.001$). Positive qualities (e.g., prosaical behavior, positive self-concept) were predicted by positive thinking, perceived social support, and self-control (R^2 = 0.229; F = 57.597; $p < 0.001$). As hypothesized, a set of personal and familiar

[1]Current research "Adaptation and resilience in multiple contexts. Basis for the intervention in adolescence" (PAPIIT IN303714). Research granted by DGAPA, National Autonomous University of Mexico.

resources was related to all syndromes or behaviors as the literature regarding resilience has reported [13, 18, 19, 68].

In brief, coping is relevant for adolescent adaptation in adverse context, although its multidimensional character sets questions with regard to its role and the nature of its relationships with other personal, familiar, and contextual variables which also contribute to resilience.

4.2. Family functioning in clinical and nonclinical adolescent settings

Family represents the first scenario, which is at the same time the most natural and lasting one, of the individual-context interaction. Family factors are suggested to be a determinant in health during the course of life and among different cultures. Supportive parents and families are "crucial part in the improvement of global health" [24, p. 1647]. However, it is not possible to ignore the influence of macrostructural factors that shape the individual and familiar development such as the economic crisis that characterizes low- and middle-income countries (LMIC) like Mexico. The family unit is a reflection of contemporary transformation processes and there is no convergence with a unique family model as it was proposed in the sociological theories of the 1960s [69]. It is hard to build a set of understandable generalizations of how family environments relate to the developmental life course from childhood to adolescence. This may be a result of both a wide array of measurements that evaluate the same constructs and variables and the complexity of the relationships itself.

The debate about the nature and impact of the psychosocial determinants in the trajectories and outcomes of the adolescent development is still open and to a certain level mediated by genetic factors [8, 10, 21]. Still, it appears that there is a universal agreement in the understanding of human development as an interactive process between the individual and the context, particularly family context. Developmental systems theories [16] and ecological-transactional perspectives [9, 10] suggest that high social risk contexts entail a series of adversities for adolescents and their families. Risk indicators include sociodemographic characteristics and structural and psychological markers that affect family functioning and adolescents' adaptive processes. The most prominent influence in the family environment is poverty. Razavi and Razavi [70] highlight that SES influences the adolescent outcomes through parental communication, which acts as a predictor of emotional and behavioral problems. The association between low economic income, low academic level in parents, and addictions are described in the corresponding literature [9, 14, 19]. The effect of some families in the physical and mental health of their offspring has been also documented [48, 71]. The term risky families [9, 71] describes environments characterized by the presence of conflict and aggression. Family relationships in these environments are cold, neglectful, and unsupportive affecting the quality of parenting practices and contributing to adverse mental and physical outcomes in their offspring.

Schleider and Weisz [72] suggest a triadic model family process, formed by three main level factors: parent, dyad, and family (here family functioning is just one of its parts). This integral model incorporates processes of an adolescent, his or her parents and his or her family context, which has to a certain level an impact in the internalized problems of the adolescent. A set of family variables such as communication, social support, and parenting practices has been related to positive and negative outcomes (e.g., anxiety, depression, aggressive behavior) [73, 74].

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In contrast with risk factors, family support (parental) often offered by the mother, is a source of protection for those adolescents with psychosocial risks and due to its protective character is also one of the strongest predictors of resilience [28, 73, 75]. Although a good part of the evidence that family connectedness are one of the strongest protective factors in mental health, comes from the U.K., Canada, and U.S., this phenomena is being confirmed in other cultures [24]. Our findings about family functioning perceived social support and resilience in poor Mexican youth [76] showed significant main effects of both, family functioning ($F = 18.60$; $p < 0.01$) and perceived social support ($F = 11.71$; $p < 0.05$) on resilience. In concordance with previous data [14, 28, 73, 75], mother's level of education, father's occupation, adolescent's daily spending money, conflict family, and friend perceived social support were predictors of resilience by using logistic regression analyses.

A cross-sectional study aimed to assess the influence of gender in psychopathology in adolescents attending a public mental health institution was carried [77]. Data was obtained from 67 adolescents (M_{age} 14 years, $SD = 1.49$) who answered the YSR [78] and a sociodemographic questionnaire. It was hypothesized that age and gender effects would be related to psychopathology, however, only gender main effects were found. Adolescent girls reported more anxiety/depression ($F = 6.186$, $p = 0.016$) and internalizing problems ($F = 2.740$; $p = 0.050$) at a significant level than boys. To evaluate the contribution of parent's rearing style in adolescent mental health problems, another correlational and predictive study [79] was carried in 117 low-income adolescents (12–years), attending mental health centers ($M_{age} = 14.02$; $SD = 1.70$). Participants completed a sociodemographic schedule, the YSR and the EMBU-A. Multiple regression analysis showed that the Rejection and Control of both parents were positive predictors whereas the Mother's Warmth predicted negatively: Internalizing ($R^2 = 0.297$; $p = 0.035$), Externalizing ($R^2 = 0.275$; $p = 0.001$) and Mixed Syndromes ($R^2 = 0.289$; $p = 0.000$). Preliminary conclusion suggests that negative parenting leads to negative outcomes as internalized problems, whereas positive parenting is a predictor of better psychological adjustment as has been reported previously [72–75].

In summary, linking family functioning, as well as parental rearing style is highly relevant in research. There is a need of cross-country studies of parenting constructs and adolescent (mental) health.

5. Conclusion

An ecological-transactional perspective encompasses a theoretical and methodological framework for a comprehensive understanding of youth outcomes. Although adolescents are regarded as healthy, the pressures of the globalized world imply multiple challenges and threats to their well- being. An increasing number of youth people suffer mental health problems and a gap between the needs and resource availability exists. Although most of the knowledge about the risk and protective factors arises from developed countries research is needed in the resilience field, particularly in developing countries where most adolescents live.

Poverty is linked to a number of adversities including stressful life events. However, the protective role of family factors and coping styles and strategies are just starting to be studied

in these countries. The interplay between stressful life events, coping, and family factors should be the basis to undertake research initiative as much as preventive intervention. Developmental trajectories in high-risk settings moving to well-being and mental health or to psychopathology may be the result of this interplay.

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Chapter 7

Marijuana, Experience of Temporality, and School Performance from a Qualitative and Quantitative Approach

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Additional information is available at the end of the chapter

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Abstract

The study aims at knowing how low marijuana doses affect cognitive ability in postprimary students. The objective of the quantitative research was to analyze the results of neuropsychological and Neuro-SPECT tests comparing schoolchildren who smoke marijuana with those who do not, with emphasis on the effects on cognitive functions involved in learning. We wanted to assess the effects on the cerebral function of marijuana-only users. It was a comparative study based on the total sample of 565 school adolescents coming from four schools in the metropolitan area of Santiago, Chile. All were interviewed in order to select a sample that was stratified by sex, class and consumption of marijuana. The following two groups were made: 40 marijuana-only users and 40 nonusers. We took as a reference a study performed by the authors in 2007, in which the correlation between the consumption of marijuana and effects on cognitive functions involved in scholastic learning were established. The findings show statistically significant differences in the following areas: subgenual bilateral hypoperfusion, more marked on the left side (Brodmann area 25), frontal bilateral hypoperfusion (Brodmann's areas 10 and 32), front cingulate gyrushypoperfusion (Brodmann area 24) and hypoperfusion of Brodmann area 36 that projects to the hippocampus. The results are highly matched with the neuropsychological tests given in the sense that, like with the 2007 study, significant differences are found between the two groups as far as the tests measuring cognitive functions are concerned. A qualitative research: we wanted to investigate the experience of time in high school students who regularly smoke marijuana, given that this substance has effects on the prefrontal lobe and on the hippocampus, brain areas related to the ability to plan tasks (executive function) and to memory. Moreover, adolescence is a delicate stage in regard to planning of the future. At the same time, the idea was to understand and make use of the concepts of temporariness and anticipation, which as a general rule will be handled only by

philosophical theories. Our guiding principle is the ability to "anticipate oneself," proposed by Sutter, a phenomenological psychiatrist. Data were analyzed from the autobiographies of the students through the hermeneutical phenomenological method developed by Lindseth, based on Ricoeur. Results allow answering the question of the study about the temporary experiencing of the young abusive marijuana consumer. The results showed poverty in the temporary dimensions referring to the past and the future, while in the report, it is more developed in the present moment. They appear detained in a more childish stage, in which the present predominates, and the future seemed not to be united with the past, which impresses as if it were "avoided." What has been (past) does not link with what is wanted to be, so, elements of the past have no relation with future project.

Keywords: cannabis, marijuana, adolescents, Neuro-SPECT, HMPAO, neuropsychological tests, temporality, time, hermeneutical phenomenological method, anticipation, projection capacity

1. Introduction

From a historical point of view, cannabis or marijuana consumption has been related to cultural and worldview aspects that confer different meanings. Marijuana is a recreational drug that comes from the marijuana plant: the hemp plant Cannabis sativa. Marijuana has 489 known constituents, only 70 of which are cannabinoids with the remainder including potentially neuroactive substances. Tetrahydrocannabinol (THC) is the most common phytocannabinoid and is psychoactive. CBD is the best studied of the nonpsychoactive cannabinoids [1, 2]. Consumption has been common since ancient times, but it never seemed to be a social problem. Nowadays, without discussing its characteristics and biochemical structure, its consumption seems to be tied to both positive and negative connotations that arise from social, historical and cultural circumstances. These circumstances determine and define what a society or era regards as a social problem [3]. Regarding this topic, scientific research reports the negative effects and potential benefits of marijuana consumption. These findings do not have an impact on the discussion, which has turned into a political matter, instead of a public health matter.

In order to discuss the benefits or negative effects of marijuana consumption, and especially its medicinal use, first we need to clarify that marijuana cannot be regarded as medicine. This confusion comes from various studies on the medicinal properties of marijuana, but this study considers the cannabinoids only, which are some of the components of this plant. This means that we must make a difference between the plant and some of its components, which are used in studies on pain management, for instance. Assigning medicinal properties to marijuana is the same as assigning the analgesic properties of morphine to poppy plants: morphine is used to manage the pain, not the hallucinogen effects of opium. This conceptual error is the base argument in the defense of the medicinal use of marijuana plants [4] and, by extension, for its consumption at a population level.

Regarding its use as medication in the palliative treatment of pain in terminal cases, chronic pain reduction is described without a determined cause. The same happens with the increase

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in mobility in multiple sclerosis patients with spasticity reduction, as well as in arthritis and musculoskeletal ailments. In low doses, it could stimulate the appetite of AIDS patients [5–7].

It is used to relief oncological pain as a palliative strategy (compassionate), even though specialists do not consider it to be better than morphine derivatives. It has been used to treat vomit and secondary effects of chemotherapy, without evidence to defend its use in this cases, nor comparative studies to confirm it to be better than the recommended medication to treat vomit and nausea associated with chemotherapy. It has never been proven to be better than conventional antiemetics, yet only in placebo studies.

It is worth mentioning that, without denying some possible benefits of its medicinal use, none of these studies addresses its use in adolescents directly. Additionally, to this day, the food and drug administration (FDA) has not approved cannabis to treat any disease; therefore, the investigation for its medicinal use, focused on cannabinoids, and the evidence on its medical usefulness are still limited [4], while the discussion regarding the medical benefits of marijuana is still present. The risks associated with the medicinal use of the plant have not been determined accurately [8], and there is a lack of comparative studies to validate its use as a replacement for scientifically approved drugs [9].

Regarding the negative effects related to the early consumption of marijuana, evidence suggests that consumption before the age of 17 may cause neurobiological changes, more serious than in cases of later consumption [10–13]. A deterioration of the neuronal connectivity in specific brain zones has been described in this line of studies, such as the precuneus and hippocampus, zones involved in learning and memory, as well as in the prefrontal networks [14, 15], which can lead to a poor school performance and school desertion [4, 16]. In turn, alterations in the neuronal organization of the nucleus accumbens and the amygdala, as well as in their volume and shape, have been reported in young marijuana smokers [17]. Cognitive deficiencies and reduced IQs have been observed in adults that smoked marijuana regularly during their adolescence [18]. Some other consequences of the consumption of cannabis during adolescence (before the age of 17) that can be observed in adults are pointed out, such as underperformance in academic activities, an increase in the dependence of marijuana and other illegal drugs, as well as a greater number of suicide attempts [19]. On the other hand, in the case of genetic vulnerability, cannabis facilitates the triggering of psychosis [20, 21] and, in addition, it aggravates the course of the disease in patients with schizophrenia and fosters the first psychotic episode [22, 23].

According to the DSM-5 [24], the amotivational syndrome, pathognomonic symptom of marijuana consumption, is characterized by the loss of energy and abulia, which affects the normal performance of everyday activities. This decrease in energy, abulia and demotivation of the young consumer affects their capacity to efficiently plan and organize their time for a determined objective or life goal. This is valid, even though occidental societies have extended the period for youngsters to begin their adult lives and meet the responsibilities entailed in this new stage. This postponement is known as social moratorium.

The studies of Quiroga [25] conclude that consuming cannabis permanently may lead to a state of passivity and indifference, with a subsequent generalized dysfunction of social capabilities;

in addition, the consumption of marijuana can cause addiction: it has been claimed that one in six people that started to consume marijuana in their adolescence develops an addiction, as well as 25–50% of the daily consumers [26]. The cannabis abstinence syndrome is widely known, characterized by irritability, trouble sleeping, dysphoria, need of consuming and anxiety [4, 26].

In order to reveal the social and cultural meaning of cannabis, it is worth mentioning that in the last four decades, there has been a notable change regarding the ways and situations in which it is consumed. During 1960, consumption was relatively normal among university students that defined themselves as rebels or avant-garde, while school pupils practically did not consume. Commonly, they only experimented with alcohol and tobacco in order to look indifferent and defy the status quo. This shows that the environment and the scope of consumption have changed, from a restricted consumption culturally circumscribed to some groups for artistic, ritual or religious purposes, to massive consumption, becoming a part of the everyday lives of many youngsters [27, 28], to the point that we can claim that nowadays marijuana is the most produced, trafficked and consumed illegal drug.

Cannabis is consumed and grown in almost every country, and the produced quantities are higher than the total of other drugs [29]. Additionally, the type of marijuana that is available today for consumption is stronger, since clandestine laboratories have achieved changes at the genetic level through sophisticated biotechnology methods, achieving a higher concentration of THC. This concentration has been increasing from 3% in the 80s to 12% in 2012 [4]. This leads to the hypotheses that the negative consequences of its consumption may be greater.

Regarding risk perception, studies carried out in Spain and Chile [27, 29, 30] show that in the last 10 years the perception of risk associated with consumption has decreased considerably, especially among secondary students, this is adolescents. A report by SENDA in 2015 claims that the risk perception regarding consumption shows significant changes, decreasing from 46.8% to an even lower 34.4%. These data coincide with the findings of recent investigations, such as data in the study on marijuana and learning disorders carried out in 2007 [31], in which the risk perception associated with marijuana consumption was very low. This decrease in the risk perception among youngsters contributes to the fact that in Latin America there is a significant number of free magazines that advertise the benefits of marijuana consumption, ways to consume and acquire the product and different ways of cultivating it, in order to grow better plants at home, or even for commercial production. These magazines are distributed in places with high concentration of youngsters and adolescents, such as concerts, cinemas, art events or simply on the streets or outside schools [29].

The results of the investigation carried out by the Inter-American Drug Abuse Control Commission [32] show that marijuana consumption among youngsters increased in all countries in the continent, except Peru, with Chile as the country with the highest consumption in the region. In Uruguay, marijuana consumption doubled during the 2003–2014 period. An increase of roughly 20% in marijuana consumption among adolescents, 12 years and older, has been observed in Colorado and Washington [33]. Likewise, between 2008 and 2014, the Children's Hospital Colorado reported a significant increase in the number of consultations for high marijuana intake [59]. The 2015 World Drug Report published by United Nations [60]

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points out that in Chile the consumption level in 13-year-old kids reaches 15.7%, compared to 3% in 1995 and reaches 38.9% for 17-year-old youngsters, while in 1995, it reached 21.4%. It is worth mentioning that this 38.9% of consumption in 17-year-old youngsters represents the highest figure in the world related to age. According to figures reported by SENDA [27], the consumption of marijuana in the 12–18 age group increased from 6.7% in 2012 to 13.5% in 2014. With respect to the group of youngsters aged between 19 and 25, the consumption also increases significantly from 17.5 to 24%.

In Chile, the socially shared belief, especially among youngsters, is that consumption has no negative effects on behavior, mental health or school performance. However, two lines of research carried out recently in the country have empirically proven the existence of negative effects that deny the belief of harmless consumption, especially in school adolescents, who represent the most vulnerable segment of the population.

2. Two studies

Two parallel studies are carried out, one aimed at studying the subjective experience of the young consumer, through the analysis of the temporality variable [34], and a second study that analyses the effects on basic cognitive functions for the school learning process [28, 30]. These studies are carried out in a scenario where Chile is the country with the highest consumption levels in school pupils in Latin America, with a tendency to decrease the age of first consumption.

First, we have a line of research aimed at studying the subjective experience of the temporality variable in young consumers. This approach to the problem represents pioneering work in Chile in terms of addressing the problem in parallel from the individual experience of the adolescent, derived from the analysis of the information that they provide (qualitative approach), and a quantitative study with a representative sample of the consumer adolescent population.

The future experience (qualitative approach) represents a decisive variable in terms of the current behavior of the young adolescent student, their motivation to work and study, and, in general, to plan and achieve their life projects in a society that expects certain competences for them to be prepared to develop in a quintessentially competitive and individualistic world [35]. Very important future aspects are defined in this stage of life, with youngsters freely and consciously deciding the path that will give meaning to their lives.

This planning takes us to the temporal dimension as an existential category of human beings, and therefore decisive in their life history. When we talk about the temporal dimension, we refer to the experience of temporality, this is, their capacity of moving through time, shaping the past through memory and shaping the future through the present [36], in such a way that the subjective experience of time would be equal to the internal temporal happenings [37] in a synthesis of past, present and future. From this perspective, it is not the past, but the future, that determines the actions of the young adolescent. Ortega even claims that we live from the future, which comes to life in our project, and that the future forces us to select everything in our past that is related to our future [38–40].

The study of the experience of temporality in the young consumers should have privileged the qualitative methodology, based on psychological discipline and philosophy, especially in the phenomenological trends, due to its contribution to the understanding of the time experience in human beings. The key concept was the "anticipation," developed by Sutter [41], who presents the centrality of the future and the capacity to anticipate, and how it can be altered in the different psychopathological conditions.

The second parallel investigation presented uses the classic quantitative methodology procedures to study the behavior of a group of nearly 600 high school students, belonging to three schools in Santiago, Chile. These students were evaluated by psychologists through psychometric tests and by medical professionals, qualified specialists, through hi-tech neuroimaging procedures.

These two lines of research address the problem from two different disciplinary and methodological perspectives, which allows us to widen our range of view and add certainty to the conclusions related to the effects of marijuana consumption in young students in Chile.

2.1. Qualitative study about marijuana and temporality experience in adolescents

Psychology has developed the idea that the acquisition of formal thought in the adolescent generates the dimension of future, which is expressed through the life project [42–47]. However, the philosophical phenomenological current offers an analysis of temporality experience allowing a better approach to the study of the experience of the young consumer, generally socially disadvantaged or left at the margin of the work market. This group shows a tendency to remain trapped in an "extended present," with scarce capacity to think in the future and even less to plan it [48–53].

For answering the question about the temporality experience in a group of young Chilean consumers [34], their biographic narratives are analyzed, using for it qualitative methodology validated by the scientific community [54, 58]. This methodology consists in gathering information, starting from autobiographies, about perceptions, feelings and actions and about their capacity to anticipate themselves in the realization of their projects and of their way of experiencing temporality.

The narratives of 15 young consumers [55] who meet the specifications of being school adolescents, men and women, coming from different social contexts are gathered. Among other requirements, they had to be usual marijuana consumers (and not of other drug) with ages fluctuating between 16 and 19 years old. This stage corresponds to the period of late middle adolescence, characterized by the search of reaffirmation of the project and need of social insertion for accomplishments of goals [45, 46, 56, 57].

2.2. Quantitative study with respect to marijuana consumption in pupils and its effects in cognitive functions through neuropsychological tests and Neuro-SPECT

This second study answers the question about the effects over the brain function of exclusive marijuana consumption in adolescents not labeled as addicts, by means of neuropsychological tests, such as Benton Visual Retention Test, Rey Words Memory, Rey Complex Figure Test and

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Wisconsin Test. Added to the previous, Neuro-SPECT was used and the information obtained was analyzed with the purpose of identifying regions and sub-regions of altered perfusion as consequence of the consumption.

For purposes of this study, it was considered consumer the student who declares a minimum of four episodes of exclusive cannabis consumption during the last month and minimum usual consumption of 18 months. The ages of the groups forming the sample fluctuated between 15 and 18 years old, with an average of 16 years old.

In accordance with quantitative investigation norms accepted by the scientific community, two groups were conformed: 40 exclusive marijuana consumers and 40 not consumers, and the results obtained were compared in both groups in neuropsychological tests and Neuro-SPECT technology.

3. Results

3.1. Qualitative study of the temporal variable

The so-called naive reading of the biographic narratives delivered by the adolescents show that almost all of them were a production of brief texts, in which it stands out the poverty of the descriptions of past situations, with abundance of experiences associated to losses (death of a close relative), solitude and, specially, feeling of not being recognized by significant figures (father). The temporal dimension of the present appears as richer in details, especially related with present friendships, felt as refuge. In what refers to interests, they showed lack of clarity, frequent changes of goals and objectives and a dimension of future that impresses for absences and losses in almost all the analyzed ambits: family, image of themselves, interests, relationship with pairs and goals or projects. It seemed as if the future was not related with what they did in the present, that is, as if the future was not bound to the present or to the past and as if what was done today was not related with what one wanted to accomplish in the future.

In the following stages of the process of narrative analysis, the same results are confirmed, especially lack of capacity to visualize the future in the areas related with family, pairs, image of oneself and interests. In general, the tendency corresponded to postpone the future, not to assume it, leaving it for later. It is verified that the temporality experience is characterized by centering in the immediate here and now, and an impaired experience of the future. The anticipation capacity, determinant of the acting in favor of the accomplishment of the proposed goals, is absent, is so that although in fact they have some projects, there is no way of visualizing how they anticipated their conduct to reach them.

3.2. Quantitative study of the effect of the consumption in learning

The results obtained in neuropsychological tests individually applied to the selected consumers and nonconsumers show significant differences in yield in favor of the nonconsumer group in comparison with the consumer group.

(a) Rey words memory evaluates immediate verbal memory. The consumer group yields in average 15% less than the nonconsumer group.

(b) Benton Visual Retention Test. The nonconsumer group reaches scores significantly superior in comparison to the consumers in tasks involving capacity of attention, concentration, immediate retention, perception, visual memory and visoconstructive aptitudes, confirming an alteration in the consumers with respect to integration and organization of the spatial stimuli. The adolescent consumers make in average 3.8 mistakes per test in contrast with 1.7 mistakes of the nonconsumers, which means that the quantity of mistakes made by the consuming group is 21% higher. This difference is statistically significant, which reveals an impoverishment of the capacities of attention, concentration and of work spatial memory.

(c) Rey Complex Figure Test. The scores obtained by both groups show significant differences in favor of the nonconsumers in tasks involving ability and strategies of execution in the visoperceptive level, visual memory, capacity of hierarchical structuring and organization of visual information. A difference close to 7 points was verified in the average obtained by both groups revealing clear evocation difficulties and limitations in the fidelity of the visual memory of the consumers. The scores of the test show that the consumers use execution strategies of inferior quality to that expected for age, for copy and visual memory.

(d) Wisconsin Test. It evaluates executive functions, that is, mental flexibility, planning strategies, organized inquiries and utilization of the environmental feedback to change schemes, in addition to capacity of inhibition of the answer in course. It showed that in the category total mistakes 30% of the consumer group is located in the level of moderate to intermediate impairment. In persevering mistakes, 26% scored in the level of medium or inferior impairment. With respect to the percentage of persevering answers, 17.2% of the school consumers obtain scores of impairment superior to the media.

3.3. Results of the evaluation with Neuro-SPECT

The individual results obtained were compared with normal population of the same age. The results were expressed in standard deviations (SD) over and under normal average. It is verified that there are focuses within some Brodmann areas that are hyperperfused to 5 SD over the normal average: areas 9, 10, 46 (frontal lobe) of the right hemisphere, areas 23, 30 and 31 (posterior cingulated, cognitive circuit) bilaterally, and area 17 of the left hemisphere, corresponding to the visual area of association. Hypoperfusion focuses are observed, at less than 5 SD under normal average, bilaterally in Brodmann area 24, in the left hemisphere in area 25, bilaterally in the projection of the hippocampus and Brodmann area 36 and in the frontal lobes in Brodmann areas 10 and 11. Deep hypoperfusion is also observed in bilateral temporal inferior gyrus and 23 right.

Although the understanding of these results is not within reach of everybody, it is clear that marijuana consumers showed brain alterations and dysfunctions that result consistent with

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the behavior showed in neuropsychological tests and that move them away from the results obtained by adolescents in accordance to demographic norms.

4. Discussion and conclusions

The results of the two presented studies add evidence to the negative effects of marijuana consumption both in the adolescent life project—in a moment in which that project is a key in his psychological development—and in their present school performance, base of their future social, professional, work, family development. Both studies coincide in the fact that marijuana consumption in pupils has harmful effects in the capacities for school learning and in temporality, lived without an explicit connection between the past, the present praxis and the yearning of future.

The lack of capacity for anticipating interferes with the possibility of transcending the present and confines them in themselves. This state of being in captivity in their own intimacy is translated in the evasion of obligations and responsibilities, in not assumed tasks, in largely postponed decisions, for example, with respect to what to study or to what actions to initiate for preparing themselves for adult life.

The fulfillment of the young consumers in neuropsychological tests shows an increased capacity of mistakes in the execution of the proposed tasks. These results can be transferred to situations of their school life and explain their deficient fulfillment in cognitive tests and demands in the classroom. Their diminished capacity of attention and concentration explains their omissions, mistakes and confusion in the moment of answering to the task. Their work strategies, inferior in quality to those expected in relation to their age and cognitive development, bring them to work by trial and error, to improvise answers, not to evaluate nor self-correct their work, in any way, to deliver infantile, improvised solutions, only for answering without demanding themselves farther. Without doubt, the executive functions affected by the consumption compromise learning and in general, school performance.

The results of the application of neuropsychological tests and evaluations by images (Neuro-SPECT) confirm the association between marijuana consumption in adolescents and harmful effects over brain functioning, especially in executive and cognitive functions. It is added to the previous the compromise of the immediate verbal memory or of work, indispensable in the classroom if one considers that most part of the content is orally delivered.

This compromise has its correlate in neuroimaging tests (Neuro-SPECT) by means of which it concluded that marijuana produces, in brain cortex, multifocal functional alterations. It is especially compromised the cognition, the mood control and the executive function for frontal abnormality in area 10 and 11 of bilateral Brodmann. It is necessary to outline that the frontal cortex participates in the range of human conducts related with the ethical dimension, function that would also influence on the work and the social conduct of the pupils consuming marijuana. Functional alterations are also observed in the form of multifocal hypofunction of disorganized distribution in marijuana smokers, although of lower statistical significance (less

severity) than the observed in cocaine consumers. These findings allow us to pose the presence of neurotoxicity in marijuana consumers since, when comparing their results with a normative data base for persons of the same age group, none of the Neuro-SPECT studies of the young consumers was normal.

The results of neuroimaging tests showing effects in brain areas related with learning are highly coincidental with the scores obtained by the same subjects in neuropsychological tests, which adds evidence to the negative effects of marijuana consumption in learning, central theme of this study. Especially important is the fact that these results correspond to adolescents who have not been diagnosed nor labeled as addicts and who, therefore, do not yet constitute a public health problem, nor are perceived as adolescents in social risk. If one considers that these youngsters come from socially vulnerable populations associated to poverty, there are aggravated consequences or effects that can have for them the school failure bound to usual marijuana consumption, thinking that education should be the medium that allows them a greater social mobility, and it is in fact a protector factor against social risk.

The nonperception of risk in consumption, the easy access to cannabis, the unquestionable harmful effect over the cognitive functions involved in learning and school performance, the increase of the number of adolescent women consumers, the evidence gathered about cannabis as inductor or facilitator of the use of other substances and the diminution of the age of beginning of consumption constitute a problem for public health policies, compromising school, adolescents and their families. In relation to this challenge, it is again confirmed the debt of the institutions, especially of the family and of the school, in the sense that adolescent consumers do not perceive risk awareness by their parents or by their teachers, nor social control over the consumption.

With respect to qualitative investigations about the altered temporality experience, the results become relevant when coinciding with the also altered functioning of the hippocampus associated to memory and to the prefrontal lobe responsible for planning. The findings about the alterations in temporality experience explain how it is that in these youngsters there is a verifiable connection between the past and the future projections or possibilities. The past, which brings the subjects toward their future and which determines the course of his actions, appears impoverished. Instead of a possible future, it is a matter of a future full of unrealizable projects, of empty possibilities, that do not consider feasibility arguments and that change with facility to replace them by others equally unrealizable. They live, then, an inauthentic future, with an irresponsible treatment of the future, without interest for reaching goals. They verbalize unrealizable and fantastic plans, such as being famous, or that the world recognizes their value, but without planning actions for reaching those unrealizable goals, imprisoned in a present without hope or yearnings.

Finally, it is not difficult to think that this attitude in front of life, this demotivation, has its correlate in school performance, that is, in the most proper task of the adolescent life stage. The circle is then closed and is fed back with negative signs: marijuana consumption, real difficulties in cognitive capacities, closing of the future experience, absence of plans, school failure, verification of the inutility of the effort, withdrawal to the present facilitated by the consumption and more consumption. The cycle is reinitiated.

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Although the presented results impact the common sense of the parents and the social sensibility of the teachers who work with adolescents, it is necessary to outline that there is no real discussion on the part of the scientific community with respect to the damages and benefits carried by its use, but rather a debate at the level of public policies, which leads to confusion and to a contradictory discourse between the socially internalized and the message transmitted on one side by the authorities and on the other, by the academic and scientific world.

Cannabis consumption in adolescents is a complex and multidetermined theme, but what the population does with respect to this is simplified and dichotomic without considering the context, the age of onset, who, how much, when good or bad, legal or illegal, beneficial for health or innocuous marijuana. This lack of agreement among the responsible adults leads the young adolescent to adopt the belief and the discourse of the majority who consider themselves avant-garde in relation to the values: "it is not harmful, it is cool, it is a natural herb and the power elites are trying to prescribe it or to restrict its consumption for very determined cases and persons." This contradiction is very real and is clearly reflected in the arguments used by the youngsters: why is the cigar permitted in circumstances that it kills? Why is marijuana illegal? Finally, this situation leads to the fact that its prohibition is seen as empty, without support and believable norms.

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Chapter 8

Internet Addiction Disorder

Pabasari Ginige

Additional information is available at the end of the chapter

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Abstract

Internet addiction (IA) was introduced as a new disorder in mid-1990s. Since then, there is growing concern about the addictive nature of the Internet. This chapter is a comprehensive review of published seminal, research and review papers, meta-analyses and book chapters/books on IA in adolescents. The conceptualization of IA, epidemiology, phenomenology, screening, diagnoses, treatment and prevention are discussed with relevant references. The concept of IA is at fetal level with no consensus on definition, norms or clinical criteria. Asian countries such as China and South Korea are affected most. A multination meta-analysis estimated an overall prevalence of 6% for IA. Most of the research identifies IA in gaming, gambling, social networking and cybersex. A few assessment tools have been used with no comparability or cultural sensitivity. Diagnostic criteria are proposed based on those used for substance abuse and pathological gambling. The treatments are mainly psychological with a lot of emphasis on cognitive behavior therapy. The Internet is a very versatile and useful tool for children and adolescents, and it is not advisable to ban it totally. The review highlights education of them on sensible Internet use and supports inclusion of IA in international disease classifications.

Keywords: Internet addiction, children and adolescents, epidemiology, management

1. Introduction

The Internet evolved from early 1980s to the modern day revolutionizing the broadcasting, information sharing and connecting individuals worldwide. Today, it has become an in-built part of daily lives of people including children and adolescents. The Internet can be used for many purposes: educational such as teaching, learning and research; business, such as monetary/document exchanges and conference meetings; recreational such as games, online gambling and watching sexually explicit material, and as a mode of connecting people via texting, calling, social websites, chat applications and e-mails. Research has found increasing number of students are using the Internet for their academic activities, for example, one US

study showed an increase in the Internet use among students from 24.5% in 1996 to 79.5% in 2001 [1]. However, together with the many benefits come the risks that are inevitably intertwined due to the innate qualities of the Internet.

There is growing concern about the addictive quality of the Internet, and pioneering researchers have introduced the concept of addiction (IA) in mid-1990s [2, 3]. IA has attracted the attention of media and general public increasingly, with the speedy growth in computer use and the Internet access [4]. The Internet today has reached not only the computer, but also the mobile phone and even the wristwatch with many more sophisticated high-tech apparatus with the Internet facility being introduced to the world, incessantly. It is common to find children and adolescents coming from a reasonable socioeconomical background, around the globe, using a personal digital devise like a smart phone, tablet or a laptop with the Internet. It is important to look into how it is like to grow up with such a vast degree of stimulating and inviting attractions from the cyber world on the developing brain.

This chapter explores the conceptualization of IA as an evolving novel theme [3, 5], describes the types of Internet addiction disorders (IAD) and looks into available epidemiology and etiology. Then, a proposal of a neurobiological basis for IA in the developing brain is introduced based on the current knowledge on more established dependences of substances/behaviors such as gambling of the maturing brain. Identification of high-risk children and adolescents and association of IA with other psychiatric disorders such as depression are discussed next followed by an account of the symptoms and signs of varying clinical presentations of IA and diagnosis. Then a review of treatment modalities, proposed so far, and prognosis of and finally prevention strategies for this, most probably, a fastest growing addiction disorder of the world is discussed.

2. The concept of Internet addiction and its controversies

IA was introduced as a disorder by Young in her seminal paper "Internet Addiction: The emergence of a new clinical disorder" in 1996 [2]. She proposed diagnostic criteria for IA based on the existing Diagnostic and Statistical Manual of Mental Disorders 4th edition (DSM-4) criteria for substance dependence [6]. In 1999, David Greenfield too proposed IA to be a form of addictive disorder [7]. These researchers highlighted that the tolerance and withdrawal symptoms of Internet use and those of substance use have similar features. There are others who suggest that IA is an impulse control disorder or even an obsessive-compulsive disorder. But the symptom overlap with substance and known behavioral addictions supports the notion that IA is an addiction—a behavioral one—for that matter.

An increasing incidence of IA together with its high cooccurrence with other established psychiatric disorders was pointed out later [8]. The proposal to include "Internet addiction disorder" in the 5th edition of Diagnostic and Statistical Manual of Mental Disorders (DSM-5) was brought forward. DSM-5 acknowledged the growing concern about the Internet use and related problems, but they claimed there is "insufficient peer-reviewed evidence to establish the diagnostic criteria and course descriptions" to identify the behavior as a mental disorder.

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However, DSM-5 has introduced the condition Internet gaming disorder with some proposed criteria under "Emerging Measures and Models" heading for future study. The DSM-5 work group has reviewed many articles about online gaming, and they found some behavioral similarities of Internet gaming to other addiction behaviors which are established as disorders, namely gambling disorder and substance use disorders. The proposed criteria for Internet gaming disorder focus on preoccupation and behaviors, which mainly consume most aspects of life, withdrawal, tolerance, lack of control of use and marked deterioration of the function. The criteria are mostly as proposed by early researches on Internet addiction disorder [2].

Lack of consensus on a definition for IA, which is even blurred subcategory of Internet use (i.e., gaming, social media, cybersex, etc.), makes it difficult to derive prevalence data. Also, there is little or no knowledge of natural histories of cases. Thus, limited scientific research from around the globe has hindered IA earning a place as a disorder in DSM-5 [6].

However, in parts of the world where Internet gaming has an apparent high prevalence, relevant governments such as Chinese have accepted Internet gaming as an established "addiction" and South Korea have identified IA as a problem at governmental level and declared it a serious public health hazard [8]. Such highly affected Asian countries have developed separate treatment units for Internet gaming addiction, in hospitals (e.g., China, Korea). There are an increasing number of researchers looking into the diagnosis of IA, and many researchers agree that the criteria to identify Internet addiction are like in any addiction with craving and compulsion to use despite the knowledge of the harm, loss of control in terms of initiation, continuation and conclusion of the use and withdrawal features such as mood symptoms and distress. In the case of children, however, the knowledge of harm may not be relevant due to the level of cognitive development. For example, a Taiwanese study has proposed diagnosis criteria for Internet addiction and when tested on a group of adolescents found them to be of high specificity and sensitivity [9]. The criteria of Ko et al. are more organized than what is introduced by Young in 1998 [10] with the former following the pattern of International Classification of Diseases 10th version (ICD 10) by World Health Organization (WHO) [11]. However, we need larger multicenter international collaborative studies to understand the prevalence, etiology and the course of IA before we adopt criteria proposed based on local studies as the validity and reliability of the diagnostic criteria have to be ensured. Mental healthcare professionals in many countries particularly in Asia and Europe are increasingly urging the authorities such as World Health Organization to identify IA as an independent disorder [12].

3. Controversies

The Internet is undoubtedly a very useful commodity. Can we consider liberal use of the Internet as an illness at all? Is it unwanted pathologization of changing times? A disadvantage of such a labeling could be the stigmatization of the Internet, which has many important and versatile uses. One may wonder whether there is any underlying pharmaceutical company agenda in pushing this as a diagnosis!

One controversial view is based on the argument that there is no "chemical substance" as such, to get addicted to. However, American Society of Addiction Medicine (ASAM) has defined addiction as a chronic brain disorder, which is not limited to substance use [13].

A strong argument against an independent disorder of IA is brought up by some researchers who believe existing and well-established disorders such as depression or social anxiety are the root causes of driving people to misuse the Internet [14, 15]. They argue that IA therefore is not a new disorder but a consequence of a more primary problem in mental health. Others (e.g., Some Forensic Psychiatrists) suggest that we should consider problematic Internet use, and the same way we consider the online gamblers as gamblers but not as Internet addicts [16].

More and more younger age groups are using the Internet with wider prevalence of the availability of the Internet. It is wondered how young is too young for children to go online. Some question the demarcation between passionate high involvement and problematic use or addiction [17]. Some experts in the field bring the argument whether we are pathologizing a common behavior [18, 19]. It is also relevant to keep in mind the discrepancies in cultural beliefs and attitudes toward the Internet use in different parts of the world. In southeast Asia, for example, parents appear to believe any behavior that takes time away from family or educational pursuits as abnormal [20]. This may partly explain the highly inflated prevalence rates of IA in countries such as Taiwan and South Korea [21].

4. Terminology in Internet addiction

Currently, some have settled into a less controversial term for the problem of IA, the "problematic Internet use" (PIU) [22, 23]. A large European Union-funded multicountry study used the terms Internet addictive behavior (IAB) for IA and dysfunctional Internet behavior (DIB) for problematic use of the Internet [24]. Compulsive Internet use (CIU) is another term used [25]. A more recent European study involving 11 countries has adopted the terms pathological Internet use (PtIU) and maladaptive Internet use (MIU) [26]. The salient features of addiction and problem use are more or less the same though the terminology used by different researchers is different. Addiction to the Internet basically implied a craving for the Internet use for uncontrollably long periods with impairment of functionality in the absence of any other disorders accounting for the condition and problem use was when one not meeting addictive features but nevertheless there are problems in bio psychosocial aspects in life. This chapter uses the terms IA and problem use for simplicity and clarity.

5. Types of Internet addiction disorders

One very common online activity among adolescents is recognized as online gaming. Many attractive single- and multiplayer games are being marketed among the youth worldwide. (e.g., World of Warcraft Clash of Clans, Slither.io, Clash Royale, Pokemon). Virtual communities created by some of the games could be more appealing for an adolescent than the real communities; the gamer can become an avatar of anybody he or she wishes; some games

are designed in such a way gamers can buy cars and mansions and have a virtual second life. People spend/invest a whole lot in the second life at the cost of a deteriorating real life. Author, going by her clinical experience, wonders whether the adolescents with low self-esteem who are not recognized in real life might gain a lot of recognition from other fellow gamers in the online community as great warriors. However, this hypothesis needs to be explored through proper research. A US study has found Internet gaming to be associated with alcohol and recreational drug abuse and poor interpersonal relationships with no gender differences [27]. Research has found online gaming addiction to be associated with aggression, low sociability and self-efficacy, and a lower satisfaction with life [24]. The gamers with these risk factors engage in intense use and are of all age groups. It should be interesting to see the nature of these associations, whether these negative characteristics in the adolescents lead to IA or IA results in these traits. Such knowledge can provide us with interventions in terms of prevention of IA. No clear answer is evident from available data at present.

Another type of internet use, which is popular among adolescents, is social networking using applications such as viber, whatsapp, instagram, facebook, twitter, my space etc. and chat rooms/e-mail. A child or an adolescent will be very much overwhelmed by the amount of online connections he or she can have through these connecting apps. Notifications popping up will invariably distract the youth from homework or any other academic activity. Being connected with around the world friends 24 × 7 could be an around the clock distraction and disturbance. Author recalls one of her patients, a 16-year-old schoolgirl who receives 14,000+ text messages via Viber per day. Her life revolved around receiving and sending texts to her boyfriend and friends and would become aggressive toward family and property when the parents attempted to limit the Internet time. Another grave risk involved in social media sites is children and adolescents getting exposed to unknown adults who may abuse the "online friendship" and bring harm on the young.

Cybersex is also an attractive type of Internet activity among adolescents. Premature exposure to various aspects of sexuality and exposure to adverse sexual activity may hinder the healthy psychosexual development in children and adolescents. Problem use of Internet pornography by adolescents has been associated with alcohol, illicit drugs, greater number of sexual partners, poor interpersonal real-life relationships with partners and poor self-worth [27].

Online gambling is the most studied type of IA. It is found to be highly addictive among adults, yet there are not enough studies to know the situation among adolescents. However, it is reasonable to state that going by available data and author' s clinical experience, social networking and gaming are strongly associated with problem use of the Internet.

Watching videos/movies was not related to problem use of the Internet according to one study [24]. Yet the evidence is not conclusive to derive a definite idea about this type of Internet activity.

Males are found to have been engaging in gaming significantly more compared to females, whereas more females tend to spend time in social media at a significantly higher rate than males. Children and adolescents tend to indulge in these online attractions at the expense of their school work and real-life relationships with friends/family and sports. Researchers have found that IA or problem use can arise from involvement in a range of online activities [2, 23, 28–30].

6. Epidemiology of Internet addiction

Researchers have looked into the prevalence of IA. As discussed above, being an evolving concept there are very few empirical studies and even fewer meta-analyses on IA. Further, it is difficult to compare and contrast available studies due to the vast differences in the methodology as a result of the ill-defined and poor consensual concept of IA. The considerable lack of unanimity in terminology is apparent in studies, and prevalence rates mentioned here are from studies that use many different terms for IA.

IA is reported more commonly in Asian countries and in males aged 12–20. The available research on game addiction centers mostly on young males worldwide. There is some evidence to believe that the onset of IA is probably in late childhood/early adolescence [31]. There are many reports in countries such as China and South Korea. A few European and American studies are also available. The researchers who make an effort to educate the authorities and public in USA claim that IA is a silent epidemic in United States, at present. There are a fewer African studies mainly from South Africa that indicate a lower prevalence estimate compared to other countries of the world. One study reported the figure as 1.67–5.29% [32]. A meta-analysis from 31 nations from seven world regions (North America, Oceania, North & West Europe, South & East Europe, Middle East, Asia and South America) revealed an overall prevalence estimate of 6% in IA. The results showed that the adverse real-life living conditions such as poor satisfaction with life, greater overall pollution, lower national income and greater time spent in traffic were directly proportional to the IA. Middle East had the highest individual world region prevalence estimate of IA, the figure being 10.9% [33].

The far eastern countries such as China report 10.2% of moderate users and 0.6% of severely addicted [34]: South Korea have found 1.6% [35], 3.5% [36], 4.3% [37], 10.7% [38] and 20.3% [39] of adolescents with IA. In Taiwan, 17.9% of students were found to be addicted to the Internet [40].

A European Union-funded research project was carried on among adolescents in Greece, Germany, the Netherlands, Iceland, Poland, Romania and Spain [24]. The Internet addiction was detected in 1.2% of the total sample, and 13.9% have been found to have problematic Internet use. Less affluent countries of the sample, Spain, Romania and Poland, have showed a higher prevalence of problem use, while Germany and Iceland have shown the lowest. The problem use was associated more commonly with boys, older adolescents and those who had parents with low level of education. The problem users have shown lower psychosocial well-being.

A more recent research on the prevalence of Internet addiction on a large number of adolescents from 11 European countries has showed that the overall prevalence of problematic Internet use was 4.4%, and rates were higher in males than in females (5.2% versus 3.8%) and differed between countries ($\chi(2) = 309.98$; d.f. = 20; $P < 0.001$). A significant correlation between problem use and mean hours online and male gender were found [26].

The Indian subcontinent is seemingly overtaking other nations with 53% of Indians connected to the Internet every waking hour according to a recent study conducted in 10 countries by a global management consulting firm AT Kearney Global Research based in London. India has made several attempts to contribute to available knowledge base on IA and related problems

in adolescents. One 2013 cross-sectional study conducted among 987 adolescents in Mumbai has revealed 74.5% as moderate users, 24.8% as possible addicts and 0.7% as addicts. Males in comparison with females were significantly more addicted [41]. Many such local researches are available online, yet a national figure on prevalence of IA or problem use is not yet available in India where one of the leading and fastest growing information technology industries prevails.

A preliminary survey was conducted on the Internet use in a convenient sample of 179 adolescents from schools in central Sri Lanka by author and her team to derive a general idea about the Internet use among adolescents and the views of their significant adults on the Internet [42]. Sri Lanka is a middle-income developing country in South Asia where the Internet is promoted at large scale by multinational companies for competitive prices. No published studies are available on the Internet use among children and adolescents in Sri Lanka. The survey found that 91.06% of the sample was using the Internet with no sex difference; 2.79% of parents and 3.3% of teachers liked students using the Internet; and 45% of each adult group had a neutral view (**Table 1**). This is interesting as for some parents and teachers in Sri Lanka believe the Internet is a bad influence on the young that entices them into pornography and risky relationships. The Internet is not affordable to many young Sri Lankans yet, but mobile phone packages with Internet facility are coming up increasingly enabling the children and adolescents to use the Internet unsupervised by adults. Out of the sample, 68.7% used the Internet for social media and 55.6% was watching films and videos (**Table 2**).

Responses	Parents (%)	Teachers (%)
Like	2.79	3.35
Neutral	45.81	44.69
Somewhat against	43.02	44.13
Totally against	7.26	5.70
Not responded	1.12	1.12

Table 1. View of the parents and teachers about Internet usage of students [42].

Components	Number of users	Percentage (%)
Social media	112	68.7
Gossip sites	13	8
Films and videos	90	55.6
Online games	49	30.1
Educational purposes	119	73
Blogs	2	1.2
Other	11	6.7

Table 2. Purpose of Internet usage (out of 163 Internet users) [42].

7. Etiology

Many children and adolescents are engaging in the Internet use for academic pursuits as well as recreation. But not all will end up being addicted to or problem users of the Internet. The pertinent question what makes a particular adolescent becomes a victim of IA is the question we should try and find an answer. However, like the etiology of any other mental and psychosomatic disorder in psychiatry, the answer is not that simple. After reviewing the attempts made by researchers to come up with a model to understand IA and its management, the author believes that the well-known biopsychosocial model of disease is a feasible and logical explanation for IA, too.

The genetic factors play a part in addictions, and therefore, biological vulnerability is considered to contribute for IA too. The psychological component with cognitive errors, negative effects and personality traits also accounts for the condition. Here, it is noteworthy that personality is again determined by the genetic composition of the individual. Finally, the social factors such as affordability and availability of the devices and networks, the attitudes of the parents and schools about the Internet and the nature of the education system (i.e., whether students are requested to use a lot of online activities for school work as in most high schools in North America) and the inert qualities of the Internet itself that attract youngsters are also contributing for IA.

Researchers have wondered whether different types of Internet addictions (i.e., cybersex, social networking, gaming, etc.) have same underlying mechanisms or not. Apparently, all the types have common features of the well-established signs and symptoms of addiction, pleasure generating quality and the ability to go anonymous if necessary. Yet it is only speculation until scientific evidence is available on underlying pathophysiology.

8. The neurobiological basis of the Internet addiction

It is known that the developing brains of children and adolescents are more vulnerable to get addicted to rewarding activities. Adolescent period is a period of heightened neuroplasticity that makes this age more susceptible to the effects of addictive drugs [43]. Internet addiction and other similar addictive behaviors too can reasonably be considered to have the same effect as drugs on these vulnerable brains. Based on the available knowledge of neurobiology of addiction, scientists have proposed a neurobiological theory for Internet addiction. The "reward center" or "pleasure pathway" of the brain is responsible for the pleasure experienced by an individual. Neurochemicals associated with pleasure such as dopamine, morphine, like endorphins, and others are released when the brain areas such as nucleus accumbens of the pleasure pathway are activated [44, 45]. Substances of addiction or similar behaviors of addictions are found to activate the pleasure pathway. The receptors involved gets affected when exposed to the chemicals over time, and tolerance and withdrawal develop like in any addiction, needing more and more online input to achieve the same stimulation or "kick" together with continuous engagement in the behavior to avoid withdrawal features

[46]. Some activists working on education of public against hazards of the Internet argue, in the genetically vulnerable adolescent or child, lack of love care and affection by the significant adults in his or her life leads to no or minimal activation of pleasure pathways. The children are left alone to fill the emptiness from outside pleasures such as the Internet. That is a theory worth more research as it can be utilized to prevent Internet addiction.

The Internet offers a strong reinforcement for addiction like any other addiction as depicted in Dr. Kimberly Young's Hand Book on Internet Addiction [47]. In gambling, as psychologists found through their extensive research, a variable ratio reinforcement schedule (VRRS) operates giving the gambler the suspension of unpredictability and varying rewards. It is proposed what happens in Internet addiction is also the same. The computer applications are increasingly developed to engage the user fully and incessantly. The coupling of the online activity with pleasure generating themes (sex, sense of connection through social networks, etc.) will heighten the reinforcement leading to more severe addictions [48].

9. High-risk groups for Internet addiction

Qualitative research has reported how the adolescence itself is a risk factor [49].

The developing brain of adolescents has an innate quality of curiosity and a drive for adventures with risk taking. The Internet also gives answers to almost any query they have, keeps them connected and can be a load of never-ending fun at mere finger tips.

However, certain adolescents are more vulnerable to the addictive quality of the Internet than others. One with deficient real-life social skills may find it easy to have online relationships as there is no pressure of real-life eye-to-eye contacts, gestures and human touch. They may find it boosting to be liked and praised online. They may tend to overuse virtual realities offered by attractions in the Internet to fill the voids of boredom and loneliness of real life. At the press of a key, an "emoticon" expressing the due feeling could be far less distressing and comforting than all the "hard work" of trying to express emotions in real-life relationships for the shy adolescent.

Adolescents who are lacking emotional and psychological support are found to be at highest risk and so are the adolescents with identified emotional and behavioral disorders [31].

It is worth exploring the fact whether the adolescents who face tremendous academic pressure in real life tend to find temporary solace in stress-free virtual reality of being online. This may explain the high prevalence of gaming reported in Asian cultures those give priority to the education of the children even at the expense of the psychological well-being of the children. However, this theory needs empirical support.

It is found that living in metropolitan areas was associated with problem use of the Internet. It is not clear whether it is due to wider availability of the Internet by way of free WiFi in cafes, shops and malls in metropolitan area. Poor adult supervision seems a key element in high-risk adolescents. Students not living with a biological parent, low parental involvement

and parental unemployment have shown the highest relative risks of both problem use and addiction of Internet.

Availability of one or several devices to log into the Internet such as smart phones, tablets and even wrist watches at present with wide spread availability of the Internet paves way for increase in the risk of IA.

The Internet-based treatment programs are trialed and used in the management of individuals with autism spectrum disorders. However, there is some concern that, despite its benefits, the Internet has the risk of addictive use in this special group of people [50].

It has been found that doing homework/research was negatively associated with problematic Internet use [24]. A positive correlation was found between Internet use for academic purposes and greater self-esteem, better relationship with parents and less use of substances of abuse [27]. Maybe the studious adolescent does not possess some of the risk factors leading to problem use of Internet to begin with, and it could be the reason for positive findings. This needs more exploration as it may lead us to understand preventive measures.

10. The association of Internet addiction with psychiatric conditions

Several authors have reported a significant comorbidity of IA and mental health disorders. Particularly, depression and anxiety disorders among adolescents may increase the vulnerability of an IA. The affected adolescents may find online activities distracting them from real life low or anxious mood and distressing cognitions [51]. Attention deficit hyperactivity disorder (ADHD) is another behavioral disorder IA is associated with making the affected children and adolescents more vulnerable to IA [52].

But some work brings about the notion whether the depressive and anxiety symptoms experienced by problem or addicted Internet users are more a consequence rather than a cause or co-occurrence [53].

A cross-sectional survey among a sample of 175 university undergraduates in Peradeniya, Sri Lanka, reported IA was positively correlated with depression, loneliness and time spent on the Internet, while it negatively correlated with healthy lifestyle [54].

11. Clinical features and diagnosis

A good detailed history from is paramount for the diagnosis of IA. The adults bring the affected child or adolescent, usually. Mostly, it is the parents who notice the changes in behavior. The clinical picture may be subtle or marked. In subtle cases, the parents or teachers may complain of a drop in school work, disinterest in extracurricular activities previously interested in and lying about the Internet usage—both about the time spent and the particular online activity (e.g., "No…. I did not spend one hour it was just a half an hour!!!!" or "No…. I was not playing Clash of Clans but just checking up something for my home work!!!!"). Denial and

concealment of the extent of the Internet use are quite often seen in the clinical practice, and they complicate matters as help is then sought very late into the problem. Problem use leads to irritabilities, arguments with parents and sleepiness in daytime. However, if the condition is not intervened early, there may be a risk of the adolescent engaging in the behavior openly and resisting adult interventions more aggressively.

Dramatic or marked presentations around the Internet use may also occur. The adolescent may be caught engaging in cybersex during school hours or at home, and the school or devastated parents will bring him or her to a psychiatrist.

In some other cases, a teenager may be engaging in online gaming for excessive hours. Going by the DSM-5 proposed criteria, clinicians can have some directives in order to diagnose Internet gaming disorder. An adolescent who is sitting at a device with the Internet and spends 8–10 h or more per day and at least 30 h per week, in gaming neglecting not only academic activities but also food or sleep, may be diagnosed as a victim of Internet gaming disorder [6]. They typically get angry and agitated if parents try to prevent the addicted behavior.

Clinicians should keep in mind the close association the IA or problem use has with the mental health of the adolescent. It should be the rule to look for features of comorbid, consequent or causative psychiatric disorders such as depression or anxiety. A thorough history and a mental state examination are warranted.

Extreme cases were reported in mostly Asian countries. The world was shocked to hear the news of the young adult couple from Seoul, South Korea, neglecting their infant daughter to death in order to raise a virtual baby called Animus in a gaming community. There are many news items of individuals including teenagers dying after excessive game playing from China, Taiwan, Hong Kong and South Korea. In these extreme cases, the online game is usually a highly addictive role-playing fantasy game.

Young states not only psychological but also physical problems such as back pain, eye strain and carpal tunnel syndrome can be caused by long hours (more than 18 h a day) online [10]. It is reported that cardiopulmonary-related deaths have also occurred in addicts in Internet cafes [55]. Therefore, it is important to look for any associated physical problems.

In the absence of any DSM or ICD 10 criteria for diagnosis of IA, reader is directed to two criteria commonly used to arrive at a diagnosis of IA: Young's diagnostic questionnaire for Internet addiction [10] and Ko et al. 's proposed diagnostic criteria for Internet addiction [9].

12. Assessment tools for Internet addiction

Despite the lack of consensus in diagnostic criteria, many tools of screening and assessing the degree of the Internet-related problems have been developed and used in research around the globe. Internet addiction disorder diagnostic criteria (IAD–DC) by Goldberg in 1995 [56] is the first scale on IA, found in literature. Later a widely used 20-item, quantitative, assessment scale Internet addiction test (IAT) was developed: Young's Internet addiction test [57]. Many researchers are using IAT up-to-date due to its high reliability. Internet addiction disorder scale

by Goldberg in 2000 is a qualitative 11-item scale. Readers are directed to the critical review of existing scales and their psychometric properties by Laconi et al. published in 2014, which is freely available online in the journal, Computers in Human Behaviour, for a more comprehensive in-depth review of the subject [58]. (One of the many advantages of the Internet!)

However, the assessment tools will only substantiate the clinical assessment through history and mental state in diagnosing IA.

13. Management of Internet addiction

It is understandable that there are no definitive treatments laid down for IA in light of the knowledge it is not an accepted disorder at present. However, while world health authorities are being cautious about the fundamental existence of a disorder of IA, children, adolescents and adults are increasingly reported to be facing adversities related to the Internet. Some states (e.g., China, South Korea) have gone ahead and started their own diagnoses and management systems, as they cannot afford to wait till the disease classification systems give them a label to start. Internet addiction can be detrimental to the affected individual adolescent and his or her family, and if one such adolescent walks into the clinical practice of a mental health professional, he or she should be armed with best available options of treatment.

It is important to keep in mind that it is very easy to place restrictions on a child not to use the Internet by adults, parents, teachers and therapists themselves, who grew up in a pen and paper era! The new technology evolves and societies have to keep abreast with the development for successful survival. Therefore, total banning of an adolescent from using the Internet is not the answer. In other words, total abstinence should not be the goal [59]. Instead, controlled/safe/balanced or more preferably **sensible Internet usage** should be the goal. Both the treating clinician and the affected individual should come to a consensus about the details of sensible use depending on the age, educational demands, cultural value system, etc.

14. Assessment of Internet addiction

The first step has to be a detailed history and mental state examination as in the case of any other mental health disorder.

A suitably validated assessment scale such as Young's Internet addiction test (IAT) [10] can be utilized to substantiate clinical diagnosis but not to replace it, as the gold standard in diagnosing any mental and behavioral disorder, including behavioral addictions such as IA, is the clinical diagnosis. However, the cultural differences should be considered when using a tool developed in another sociocultural background.

Comorbidities should be considered, actively looked for and intervened. For example, a social phobic or a depressed adolescent may be masking his affective status by engaging in the Internet activities that make him happy and gives the feeling of being in control. In such

cases, where the IA is only secondary, treating the underlying mental health disorder should be the priority. In mild cases of secondary IA, treating the root condition itself may help the individual to refrain from misusing the Internet.

15. Treatment of Internet addiction

According to a 2011 systematic review and consort evaluation on clinical trials of Internet addiction treatment by King and his team, we are unable to come up with definitive treatment modules for Internet addiction. The evidence base available for treatment is defective with conclusions coming from anecdotal reports, small-uncontrolled studies with no randomization [60].

15.1. Psychological treatments

The clinicians and therapists have attempted to have some direction from existing treatment types mainly extrapolating methods used for more known addictions such as substance addictions. Many methods such as boot camp-style treatments, cognitive behavior therapy (CBT), family therapy, group therapy, behavior therapies such as social skills training and counseling have being used worldwide [60].

Most of the psychological treatments employed had sprung from CBT [61]. This is probably due to the fact that CBT has proven to be efficacious in many other behavioral addictions such as gambling disorder and impulse control disorder.

Dr. Young the pioneering researcher on IA in her book "Internet Addiction: Symptoms, Evaluation, and Treatment" [62] and in her study [63] offers some practical treatment strategies based on CBT. Though the clinical evidence for the efficacy of the methods is not stated, they offer some important directions in managing the individual patient until more evidence to establish them or replace them arrives. The suggestions are mainly based on practical behavioral techniques that are agreed upon by the user. The reader is referred to Dr. Young's book for a detailed account on those treatment strategies. The user's consent, willingness and high motivation are important in order to practice the suggested treatment strategies. In the case of children and adolescents, they may not be very agreeable to the suggestions as their cognitive development is not complete to understand the adverse aspect of the Internet.

A randomized controlled study used eight sessions of multimodal school-based group CBT or no treatment on 56 adolescents aged 12–17 years randomly allocated into treatment and no treatment [64]. The Internet use has decreased in both groups, while actively treated group has additionally improved in some other general constructs.

Many other investigators have found CBT-based treatment approaches being effective on the sample of adolescents they studied [65–67].

Cash and his colleagues in their summary on Internet addiction mention the importance of utilizing motivational interviewing (MI) a client-centered technique used to change adverse

behaviors, as a component in treatment plans for IA (19). MI has not been used so far in the treatment of Internet addiction according to available information.

Since any problem in children and adolescence is closely associated with the family, it is warranted to consider family-based therapies for IA. Though there is not enough evidence to support for efficacy of such interventions, overall improvement in communication in the family and better monitoring of the Internet use are some of the benefits noticed [68, 69].

Many enthusiastic and innovative therapies based on behavior therapy have been put to practice to bring about a positive change in Internet addictive behaviors, such as Reality therapy (RT) [70] and Acceptance & Commitment Therapy (ACT) [71] with varying results.

Simple educational programs for children in real life or ironically online are considered to combat problem use of the Internet. One such online program follows the 12 steps self-help treatment approach used for alcoholic anonymous [60].

Some suggests that there is an important place for physical exercise in helping adolescents to reduce the use of the Internet. Sports believed to be compensating for the reduced dopamine levels in brain resulted in the decreased online use. Further, sports can be a part of CBT programs [72].

15.2. Pharmacological treatments

A few types of medications have been used, and there are some studies looking into the effectiveness of them. However, there are no adequate randomized controlled trials to derive definitive guidance to treatments.

There are several reports on the use of selective serotonin-reuptake inhibitors (SSRIs) particularly when Internet addiction is comorbid with depression and anxiety for which SSRIs have an established place as an effective treatment [73, 74]. The SSRI, escitalopram [75], nontricyclic antidepressants, bupropion [76], psycho-stimulant, methylphenidate [77], mood stabilizers [22], antipsychotic, quetiapine [78] and opioid receptor antagonist and naltrexone [79] have been trialed as treatments. However, most of these studies were quite short term and some are case reports. Hence, no pharmacological medication can be recommended for IA per se in children and adolescents at present.

15.3. Multimodal treatments

IA being a complicated phenomenon involving many aspects of life as biological, psychological and sociocultural, a combined or a multimodal treatment approach is increasingly considered by the concerned scientific community. There are reports on group CBT, parental training, teacher education, family therapy, medication, case management and brief intervention therapies, which are combined according to the necessity [80–85]. A widely inclusive IA recovery program with mindfulness-based relapse prevention, digital detoxification and animal-assisted therapy among many other different multidisciplinary approaches is proposed in 2012 [86].

16. Tips on sensible Internet use

Author suggests, after reviewing available solutions on the Internet (You tube, Ted Talks, etc.) by activists as well as scientific reports, some simple techniques based on behavior therapy with or without cognitive component that can be utilized to use the Internet sensibly (Box 1).

- Having a prior discussion and an agreement on Internet use before a family purchase Internet facility. (healthy digital diet and digital nutrition)
- All in the household following through the plan. (Modeling by the adults)
- Setting aside devices at family/friends gatherings and meal times. (Disconnect to reconnect)
- Having a family Internet-free day probably on a Sunday so that education or work/business is not affected. (Digital Detox)
- When at studies or assignments switching of the notifications of chat sites or social networks just the way people place mobile phones on silent mode or switch them off.
- Have an assigned time for socializing on the net (by using an alarm) and setting limits on checking on social media responses, for example, only three times per day or once a week. (Checking on checking)
- Internet times to be replaced by more attractive offline activities (not offline studies!) such as getting together with friends in real life, competitive or recreational sports, aerobics, etc. (Doing it in real)
- Reward for being off Internet as planned, for example, by having a vacation every 3 months or weekend movie/dinner out. (Celebrate)

Box 1. Tips on sensible Internet use.

17. Clinical course and prognosis

Not much is known about the natural history of the condition as the concept of IA itself is at a very preliminary level. We need follow-up studies.

The experience from highly affected countries suggests that the problem of IA is quite a complex one. With the ubiquity of the Internet and its innate qualities of urging individuals to misuse despite harm, the course of IA is seemingly long term and resistant to treatment.

Prognosis of the highly addicted adolescent seems poor in general given the available information. However, clinicians should not be pessimistic in attempting to treat IA of an affected individual patient as multimodal treatment approached though not tested adequately offers some hope.

18. Prevention

IA is considered at different intensity by different countries depending on how affected their population by it. Asian countries are undoubtedly most affected and hence have come up with most solutions too.

Most of the Internet-based activities are promoted among children and adolescents. Case is particularly so in online gaming which seemingly is the most prevalent type of Internet addiction disorder that could even reach DSM-5 at least at a warning stage.

A mass awareness program on the concept of IA is important. It has to be carefully planned and implemented as a total aversion from the Internet even before it reaches most of the children and adolescents in some parts of the world would be a shame given the unbeatable wonderful positive aspects of the Internet on education, business and recreation. The reader is also reminded at this point, of the accusation by some, that a normal phenomenon is being pathologized by introducing the concept of Internet addiction.

Primary prevention is encouraged by developing a sensible Internet culture starting from the individual household. Adults should set living examples and have controlled access to the Internet following a discussion and agreement in the family upon the way of the Internet use (Box 1).

Secondary and tertiary prevention may call for drastic methods if a nation is seriously affected. For example, total ban of the Internet in certain time of the day for under 18-year-olds, developing a system to slow down the Internet if played more than a certain number of hours (South Korea) [8], restricting Internet gaming among youth by demanding a "game fatigue system" from the game operators (China) [8].

19. Summary

The Internet use is increasingly becoming an integral part of day-to-day life of all age groups around the world. The concept of "Internet addiction" remains controversial and at a fetal stage waiting to be evolved into maturity with better quality research. While IA has not reached DSM-5 or probably the future ICD 11, we cannot ignore the numbers or the seriousness of cases reported in Asian countries, neither can we ignore the individual families seeking help for problematic Internet users, children and adolescents. An internationally consensual multicenter attempt to define the concept, look into etiology, develop valid and reliable diagnostic criteria and come up with effective management strategies that involve prevention is warranted. We are gifted with the technology of Internet, and it has come to stay and will expand in new horizons we may only see in science fictions today. The children should be taught to use it with respect in a moderated and controlled but positive way. Such an approach only will win the cooperation of today's children and adolescents who are growing up with the Internet as a daily commodity.

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Section 3

Treatment in Transition. Giving What is Needed

Chapter 9

Peer Bullying in Schools: A Cognitive Behavioral Intervention Program

Füsun Gökkaya

Additional information is available at the end of the chapter

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Abstract

Students face few problems in schools. Some of these conflicts may be defined with the bullying concept. The concept of bullying is defined as "to repetitively expose a student/students to negative effects of another student or students." "Negative effects" includes students getting disturbed as well as getting hurt from the same kind of negative behavior; it also may be done by attempting to hurt someone, deliberately harming someone verbally or physically. Bullying behavior should include an "inequivalent power" between opponents and this needs to be "permanent" and "intentional." Bullying at school affects lots of students around the schools who witness bullying behavior in different dimensions; thus, it is an important problem that needs to be prevented. While some of the studies encompass interventions toward the whole school system, some studies were conducted by determining separate groups and working on those. In this paper, first, some whole school approach–based prevention programs and the effectiveness of these programs and then intervention programs for groups, which are provided to reduce and intervene bullying, will be explained. Second, cognitive behavioral therapy and its use in preventing bullying will be briefly explained. Finally, the context of a cognitive-behavioral based peer bullying intervention program.

Keywords: peer bullying, intervention program, cognitive behavioral therapy, school bullying, prevention program

1. Introduction

Students encounter various problems in the school environment and some of those are experienced among friends. Cases termed as "bullying," which is one of the problems encountered among friends, have certain characteristics that differ from cases of violence. This concept is defined as "a student/students repeatedly exposing another student/students to negative

effects multiple times" [1]. This "negative effect" may range from disturbance to actual injury and can be done verbally or physically in order to attempt to do harm or deliberately harm another. In bullying behavior, certain characteristics should be present, such as an "unequal power relationship" between the sides, the situation having a "continuous" characteristic and the acts being carried out "on purpose" [1].

Research has shown that approximately 15–20% of all students are affected by peer bullying at school [2–6]. Peer bullying can be performed directly or in an indirect manner. While direct bullying is performed openly against the bullied student, indirect bullying may well range into the realm of purposeful exclusion from the social group because of discrimination [1]. Generally, peer bullying has been grouped into physical bullying, verbal bullying and social exclusion. While physical and verbal bullying are elements of direct bullying, social exclusion is in the scope of indirect bullying. Physical bullying encompasses behavior such as hitting, pushing, spitting, kicking, pulling hair and tripping, whereas verbal bullying encompasses behavior such as use of foul language, giving nicknames and insulting. Social exclusion encompasses behavior that aims to harm the social relations of the students such as gossiping, exclusion from the friend group, ignoring and not accepting the student into games. The shape of peer bullying has changes throughout the years. In recent years, the developing Internet and communication technologies have created the concept of cyber bullying [7]. Writing various things under the photographs of friends in social network sites through the Internet, spreading unfounded rumors on them, disturbing them thorough phone messages and E-mails, taking inappropriate pictures via cameras and spreading them through the Internet are all defined as cyber bullying. Additionally, although these behaviors are conducted in environments outside the school, their effects are more pronounced at school. Sexual harassment/disturbance behavior has also been discussed as a type of peer bullying with a different motivation. For this reason, sexual bullying, which encompasses sexual behavior (lifting skirts, taking pictures under skirts, pulling down pants, etc.), has been defined as a separate category.

While discussing peer bullying, students are generally grouped into bullies, victims, bully-victim and bystanders [1, 8]. Bullying at school affects bullies, victims and bystanders who witness bullying behavior in different dimensions. Victims of bullying encounter problems such as anxiety, feelings of anger and desperation, unhappiness, ostracism and loneliness [9–11]. Alongside possibilities such as disciplinary action and exclusion from academic life, children who exhibit bullying behavior during school years have high risks of having their experiences affect their adult life negatively and carry their behavior into adulthood. Longitudinal studies have shown that children and adolescents who exhibit bullying behavior at school get mixed up in acts of violence in adulthood, have impulsive behavior, lead unsuccessful lives with lower job positions and have substance abuse problems [12–15]. These findings have made interventions to prevent and reduce bullying gain importance.

In many countries (Australia, Finland, the UK, Ireland, Sweden, Italy, Norway), it can be seen that programs toward preventing peer bullying have been applied for years and country wide studies on the subject have been performed [16, 17]. Stopping bullying behavior at school can be carried out through prevention or intervention programs [16, 18, 19].

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Studies researching the reasons behind bullying behavior at school have shown that the personal characteristics of the students, parental attitudes, family relationships, school atmosphere, teacher attitudes, friendship relations and cultural factors may all have effects on the subject [20–22]. For this reason, studies on reducing bullying at schools can be said to have different focal points. While some of the studies encompass interventions toward the whole school system, some studies were conducted by determining separate groups and working on those.

In this chapter first, some whole school approach-based prevention programs and the effectiveness of these programs then intervention programs for groups, which are provided to reduce and intervene bullying will be explained. Second, cognitive-behavioral therapy and its use in preventing and intervening bullying will briefly explain. Finally, the context of a cognitive-behavioral based peer bullying intervention program.

2. Whole school approach studies to prevent peer bullying at schools and their effectiveness

Whole school approach programs to prevent peer bullying at schools are applied on school, classroom and individual levels [1]. Interventions toward bullying aim at all of the students at the school developing an attitude against bullying and are applied to decrease bullying events within the school. Interventions at the school level are student and teacher questionnaires, school conference days aimed at developing a positive school environment, parent-teacher meetings, telephone interviews with parents and the regulation of school playgrounds. Classroom efforts include forming classroom rules against bullying, information being given to raise awareness, the formation of a positive environment and meetings with parents and teachers. Programs applied on an individual level include interventions such as having serious meetings with bullies and victims, having meetings with the parents of children involved in bullying, receiving help from unbiased children, providing help and support for parents, forming discussion groups with the families of bullies and victims and changes in schools and classrooms [1]. The programs summarized in this section are some of the most widely used studies.

2.1. Olweus bullying prevention program (BPP)

The first school-based program to prevent bullying, the BPP aims to change the social norms that see bullying behavior as acceptable. Within the context of this goal, it first tries to create awareness on bullying. First, the rates of bullies, bully-victims, victims, bystanders and exposure to bullying are determined through a scanning effort in the school. Then, school wide conferences, meetings with school staff, teacher trainings, family trainings, small group efforts with the families, classroom studies and individual meetings with bullies and victims are performed [1].

Alongside many studies where Olweus' program was applied and its effectiveness was researched, Olweus himself has made effectiveness evaluations regarding the application. The results of the first studies found a 50% decrease in bullying behavior [1] and later evaluations have shown the change to be between 21 and 38% [23, 24].

2.2. Creating a peaceful school learning environment (CAPSLE)

The program, developed in 1994, aims to prevent bullying and create a positive school environment through ensuring that students learn ways to solve their problems without aggression and the social skills necessary to communicate positively [14]. The program consists of four basic and two supporting elements. The first basic element is to create a positive atmosphere at school by "zero" tolerance to all bullying. The second element is the formation of a disciplinary plan to provide appropriate behavior. In the process of doing this, the importance of social skills not only among the students but also with adults in the school was stressed. The third element is a classroom management plan. For this, the aim is to raise awareness on the dynamics of bullying and develop the appropriate disciplinary measures to ensure the change of these behaviors. The fourth basic element is a unique physical training program. In this program, the focus is on self-defense sports that may help students develop self-regulation skills. Additionally, in this stage, the aim is to provide counseling in a manner that will help to prevent bullying through an appropriate counseling program for children and adults. The first supportive element of the program is changing the language used at school to increase cognitive skills and the awareness of a person of his/her role in the bullying phenomenon. The second supportive element is to focus on psychopathology instead of penalty applications in the bully-victim-bystander triangle to direct toward treatment and making the necessary referrals [9, 25]. In the program, study groups with families as well as the children are arranged to increase their awareness on the subject.

Twemlow et al. [26], who developed and applied the program, which was generally found to decrease victimization, aggressiveness and aggressive bystanders, performed a longitudinal study with a control group. The applications were performed by showing zero tolerance to bullying at the school where the program was applied. In the control group, only regular psychiatric consultation was provided. The results were evaluated by taking data on disciplinary cases and school success from those two schools. The increase in academic success and the decrease in disciplinary events in the school where the program was applied were found to be significantly different compared to the school in the control group [26].

2.3. Steps to respect

The program consists of three stages: the first stage starts with building a school bullying management team that encompasses the whole school. This team makes observations regarding bullying behavior. The antibullying strategies and procedures and the consequences that those who apply bullying behavior will face are determined and the expectations on the subject are communicated to the whole school. In the second stage, the whole school staff is trained according to the reports of the students. During school personnel training, counselors, classroom teachers and foreign personnel are all trained for awareness on the subject. Some selected school personnel are trained to work directly with children involved in bullying. The families are included in this stage. In the third stage, classroom efforts where the classroom teachers give skill trainings last 11 hours. Classroom level efforts are aimed toward increasing the socioemotional skills of the students so that they can form positive relationships. Emotion regulation, recognizing emotions, resisting certain emotions

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and reporting bullying behavior are all among skills taught during training. Additional aims include being able to enter a group, being able to discern bullying behavior from others and adding responsibility to bystanders [27].

The results of studies on the effectiveness of the program have shown a significant decrease in the bullying approval behavior of bystander students in the intervention group compared to the control group. Additionally, an improvement in the taking responsibility to stop bullying behavior of the bystanders in the intervention group was reported [28]. According to the results of another study, students have reported 33% less physical bullying, teachers have reported 35% decrease in fights and 20% of school staff stated that the school environment had a more positive atmosphere [29].

2.4. Bully busters

This program was prepared by Newman et al. [30]. The "Bully Busters" program is a teacher training focused psychoeducational intervention program aimed at preventing violence. The program includes both individual and environmental factors regarding a child. The aim is to ensure that especially teachers learn bullying and victimization prevention and intervention strategies, skills and techniques. The training, which starts with high priority awareness training on bullying, continues by teaching bully and victim recognition, bully and victim intervention, stress management, relaxation and coping skills. Through teacher support groups, trainings on activities to be applied in the classroom are taught to teachers. The teachers are given handbooks and CDs. The special aims of the program are increasing the coping skills of the students through strong role models, decreasing aggressive behavior and creating a more positive school atmosphere. Additionally, the program forms a discussion environment in the classroom so that students understand factors regarding being bullies and victims and aims at the provision of the necessary alternative social skills for conflict resolution.

Study results have shown that the Bully Busters program increases the knowledge of teachers on the subject and their intervention skills [31, 32], increases their personal sufficiency regarding bullying prevention [31], and decreases the bullying events among students and disciplinary problems [31, 33].

2.5. Bully prevention in positive behavioral interventions and supports: BP-PBIS

The BP-PBIS is a school-based prevention program focused on the positive behavior of students and school staff. It is a program where bullying behavior is followed for the prevention of gossiping, inappropriate behavior and cyber bullying that encompasses the whole school curriculum and aims at providing social responsibility awareness. It was prepared using a developmental approach [30].

BP-PBS teaches all of the students in a school the concept of "being respectful" and aims at adopting a three-stage response (do not talk, stop, walk) when they encounter disrespectful behavior. The program is designed to train the personnel to make the correct interventions to the problematic behavior of students by teaching the correct behavior after the three-stage response is used.

Around the school, the PBS is organized around a three-layered prevention model. In the first layer, the aim is to make the school a safe and positive environment for students around the clock. For this reason, the behavior expected from them is taught to all of the students in the form of structured rules, the appropriate behaviors are ensured to be accepted in social environments, the results of problematic behavior are made to be predictable and the punishments to be met are made clear. In the second layer, the students under risk who do not receive enough support in the first layer are provided additional support. This layer includes interventions made to the students in small groups. Bullying is tried to be eliminated using social rewards. Last, the third layer includes students who do not respond to the first and second layers and consistently act negatively to be examined and worked with separately [34].

This program is supported, in addition to subjects included in the school curriculum, activities performed by students on the Internet. The effectiveness of the program is evaluated through questionnaires and the observations of supervisors [30].

Studies evaluating the effectiveness of the program have shown that children in the schools where the program was applied encountered less peer rejection and bullying compared to schools where the program was not applied [35], and that there was a decrease in problematic behavior, especially 65% decrease in physical and verbal aggression [34].

2.6. Kiusaamista Vastaan: against bullying: KiVa

This program, which was developed in Finland, has international characteristics. In the program, it is suggested that teachers and students should form group norms in their schools through individual and group discussion. Content is presented through various materials prepared for teachers, students and parents. For example, in order to make students develop antibullying attitudes, antibullying video games are used. The whole of the program takes 20 hours and the courses are given by the teachers. In the courses, discussions, group studies, short films on bullying and role playing techniques are used to conduct the program. After each course, a classroom rule appropriate for the theme of the subject of the day is adopted. Another important factor of the program is teacher training. Teachers supervise during play time in the school playground. In the teacher training, they are taught to recognize the signals of bullying, which starts at the playground and reflects into the school and intervene appropriately. Additionally, an electronic forum environment where teachers from different schools can communicate is formed. In this electronic environment, teachers inform each other on the bullying events and interventions they encounter and make suggestions. Additionally, support groups for bullying victims are formed. Last, families are sent a handbook containing information on bullying and what they can do to prevent bullying [13].

When the effectiveness of the KiVa program was evaluated, 79.4% of the students stated that bullying stopped completely, 18.5% stated that it decreased, 0.9% stated that it stayed the same and 03% stated that it increased, while an increase in liking school and decreases in depression and anxiety were found [36]. Additionally, bullying was found to decrease in groups where bullies where characterized as having medium or little popularity [37].

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3. Group studies toward intervening in peer bullying and their effectiveness

Some of the programs toward intervening in peer bullying are conducted in a classroom level while some are only toward the target student group [13]. Target-focused programs are intervention efforts made toward bullies, victims, bully-victims, or mixed groups. Since peer bullying is not a psychological disorder that is evaluated and classified according to certain diagnosis criteria, the studies performed with students with high bullying inclination were named not as therapeutic applications but as preventive group efforts in this section. In this section, although the number of the group studies made with high bullying tendencies is not much in the literature, especially the studies made with these bully students will be evaluated. For example, effort to increase the self-respect of victims, similar victim-based intervention studies and classroom-based training studies will not be discussed.

In a study performed with male adolescents displaying bullying behavior [38], the aim was to decrease bullying by using behavioral techniques. The experimental study was conducted with 54 male bullies at age 16 studying at 3 middle schools in South Africa in three groups. The results of the study were evaluated using pretest, posttest and follow-up measurements (1 month). The program was based on the social interactive model which explains the development of aggression in its theoretical basis and the behavioral approach, which is thought to be appropriate for the prevention of bullying. The program was performed by psychology students at school during school hours twice a week in nonconsecutive 10 weeks with sessions that took a total of 20 hours. In the behavioral program applied, the homework, self-monitoring, role-playing and token economy methods were used to provide positive behavior. For behavior change in rewarding nonbullying behavior, the "Wonderland Game" tokens, chocolates and movie tickets were used to utilize token economy. In each session, a topic was discussed in a manner allowing feedback on the behavior of students and role-playing, drawings and games were utilized. During role-playing, each member chose a "partner" to use the observations of the partner in "self-monitoring sessions." With the program, a small decrease in bullying behavior that was not statistically significant was achieved. The nature and shortness of the program were thought to be the reason.

In another study, the aim was to provide outpatient treatment to young people with demonstrating bullying behavior, decrease the anger of young people and to improve their interpersonal relationships and health behavior related to quality of life [39]. For this reason, 22 young people received 6 months of family therapy and 22 young people were included in the control group. Weekly sessions for 90 min were held in the first 2 months and these sessions were made once a fortnight in the following months. In the sessions, elements of systematical therapy, dynamic therapy, gestalt therapy, psychodrama therapy and behavioral therapy were used. The therapy focused on interfamilial relationships. Topics such as communication, interfamilial rules and the freedoms of family members were discussed and "family games" changing familial balance were used to raise awareness and form new family rules. Two trained therapists conducted the sessions. Once every 2 weeks, the scales used in the study were applied to the members to evaluate improvement. A year after the study, follow-up measurements were taken. The results of the study showed that the family therapy decreased

the aggression and bullying behavior of young males with bullying behavior in a statistically significant manner and that the therapies increased health behavior related to quality of life.

In another study conducted with male students who engaged in bullying behavior, short-term strategic family therapy was conducted [40]. The anger and health behavior related to quality of life of male adolescents who engage in bullying were tried to be changed. Of 72 students demonstrating bullying behavior, 36 were assigned to 12-week short-term strategic family therapy and 36 were assigned to the control group. After 12 weeks of treatment, decreases in the bullying behavior of the study group, increases in anger control and increases in health behavior related to quality of life were all found to be statistically significant.

In a study where art was used to decrease bullying, the effectiveness of an opera watched by the students in decreasing bullying was evaluated using pretest and posttest measurements [41]. The opera, named Elijah's Kite, was found to be more effective compared with the results of previous studies through social-emotional learning, improving both social skills and life skills. The subject of the opera, which tried to emerge emotions through music, movement, order and dance, was the recognition of bullying, understanding the feelings of the victim and giving information on what to do in event of bullying. The study was performed with fourth and fifth graders formed from 57 males and 47 females and the opera was staged 6 weeks (3 schools) after the pretest measurements. In the results, the information of the students regarding bullying was found to be increased and reports of victimization were found to significantly decrease. Alongside these, while reports of bullying decreased with time in males, it increased in females.

In a study conducted in Turkey (Konya), the pressure exerted by high school students exerting peer pressure was tried to be decreased [42]. The study was conducted with 24 male students from among freshmen from a high school. In the study, the group psychological counseling applications developed by the researchers with an eclectic approach took 8 weeks. In the sessions, the subjects of having information on peer pressure and understanding basic concepts, sharing experiences regarding peer pressure, what the group members considered peer pressure, why they acted as such, what they feel when they exert or receive pressure, coping methods for feelings of anger, communication skills, conflict resolution training, emotion training and what the situations and automatic negative thoughts were when exerting or receiving peer pressure in daily life and how these could be changed, in respective order. As a result of the application, the program was found to be effective in decreasing peer pressure.

In another study, the elements of cognitive behavioral therapy were used in a program for bullying intervention [43]. The effects of contingency management and cognitive self-instruction on bullying behavior were examined. The sample of the study consisted of 120 randomly selected bully students from 3 schools in 3 settlements in Nigeria. The study was conducted with 2 study (self-instruction and contingency management) and one control group and each group consisted of 40 people (20 male and 20 female). The intervention groups took 1-hour trainings once a week for 6 weeks. In each session, 15 min were allocated to the discussion of the previous session, 30 min to discussion/lesson and 15 min to summarizing and assigning homework for the next session. In the intervention group that received self-instruction training, the method of using positive self-concepts instead of negative ones such as “I should overcome bullying” and “I should think twice before bullying” was used. In the contingency

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management group, reinforcers for positive behavior were given. In the placebo control group, trainings on subjects such as time management and the importance of keeping notes were given. Results based on pretest and posttest evaluation showed that contingency management and self-instruction had significant effects in decreasing bullying behavior. Self-instruction was found to be more effective than contingency management. The effectiveness of the treatment did not show difference according to the religion or age of the participants.

4. A general overview of cognitive behavioral therapy (CBT) and peer bullying preventions with CBT

According to cognitive model, the ways people interpret the events affect their emotions and actions. Cognitive behavioral therapy is based on two principles: one of them is our cognitions (thoughts) that determine our emotions and actions and the other one is the way we act that shows some strong effects on our thoughts and feelings. According to CBT, every single psychological disorders and problematic behaviors have an underlying mechanism as distortional and dysfunctional thoughts that affect people's psychological mental health and their actions. Evaluation and changing them cause some improvements and recruitments on emotions and actions. Briefly, fundamental assumption of CBT is changing emotions and actions by finding the negative automatic thoughts and reframing them. Cognitive and behavioral techniques are used while working on changing thoughts and emotions. These techniques are briefly emotional education, mindfulness education, cognitive restricting, role-playing and exposure techniques.

Examination of peer bullying prevention and intervention programs reveals that cognitive and behavioral techniques are frequently used although not all components of the cognitive behavioral therapy methods are employed. For instance, Olweus' [1] bullying prevention program aims to alter bullying-related cognitions at schools. Attempts at altering bullying-related cognitions involve changing these cognitions with positive thoughts, such as "children are okay with this" versus "bullying must be stopped/no child can be educated like this" or "bullying is a great opportunity" versus "I can stop bullying when I confront it."

In the Bully-Busters bullying prevention program, components of cognitive behavioral therapy are used. The program's manual teaches children to change their negative bullying-related cognitions with positive alternatives and to plan various actions against bullying. Anger management, emotion training, empathy training, cognitive training, social skills training, problem solving skills training and conflict resolution training are among other cognitive behavioral elements used in the Bully-Busters program [44].

In a bullying prevention program which used behavioral techniques involved self-monitoring, role playing and token economy [38]; while in another program which used cognitive behavioral techniques involved self-instruction and contingency management [43]. During the studies, the researchers employed the cognitive reframing technique and tried to establish positive thoughts such as "I must overcome bullying" and "I should think twice before bullying someone."

In conclusion, despite the abundance of efficacy studies on cognitive behavioral therapy programs aimed at reducing aggression among youth, studies that use cognitive behavioral interventions in youth who bully peers are limited [38, 43]. As explained above from a cognitive behavioral approach, it can be postulated that psychological disorders derive from dysfunctional thought patterns or the lack of positive-appropriate behavioral coping strategies. In this treatment approach, it is aimed to restructure effective coping strategies and problem solving skills as well as reducing cognitive bias or distortions [45].

In this context, an intervention program which included cognitive behavioral therapy elements was prepared for middle school students with high bullying tendencies. The efficacy of the program was tested in an experimental study which investigated the pretest, posttest and follow-up measures of experiment, placebo control and control (no intervention) groups. It was found that this cognitive behavioral therapy program that aimed to reduce bullying tendencies was effective in changing bullying related cognitions and in reducing bullying behavior [46].

5. Introduction of a cognitive Behavioral intervention program aimed at decreasing bullying

The cognitive behavioral intervention program was prepared according to the principles of cognitive behavioral therapy. In summary, it consists of certain techniques, namely psychoeducation, which entails understanding what bullying behaviors are, the difference between joking and conflict, how bullying harms people in the short and long terms (to encourage change and motivate the group) and feelings and thoughts that accompany bullying behavior; self-awareness training, which helps a person recognize their valuable aspects and supports positive self-perception; cognitive restructuring, which entails changing the thoughts accompanying bullying; coping techniques, which entail stopping bullying behavior and replacing them with alternative behavior; self-instruction, which entails finding slogans and internal discourses to remind of stopping bullying and repeating them to oneself; and role-playing, which is applied to use the techniques learned in hypothetical situations. Additionally, a reward system to reinforce positive behavior was used.

5.1. The process of the program, duration and content

The group application consisted of 13 120-min sessions, once a week. The first 15 min of each session is allocated to forming connections to the previous session and the discussion of homework, if present. Later, the daily subject was discussed for 20–30 min. After a 15-min break, the second half of the session was started and the subject was reinforced with an appropriate game (table game, enactment) (15–20 min). Later, free play time was given (15–20 min). At the end of the games, the reward schematics were recorded. Last, a review of the day was performed, feedback on the session was received and the session was ended.

5.1.1. Environment

The applications were made in an empty room seen appropriate by the school management (library, counselor's room, etc.). An environment where the students could comfortably sit in

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a circle, come to a table when needed, which was wide enough that free games and role plays could be played and which would not be used during group hours for other reasons was tried to be ensured. To use rewards, sometimes the schoolyard was also used. In each session, the pages of the program handbook were given to the students as written materials and written-table games were prepared for the subjects.

Use of rewards: in order to support members' participation, compliance with group rules, completion of assignments and positive interaction, the use of rewards is very important. In this study, a reward table was used for rewards. The reward table was recorded at the end of each session. These rewards were arranged as individual and group rewards.

5.1.2. The content of the sessions

According to the plan outlined above, the goals and general summary of each session was given below.

5.1.2.1. Sessions 1–3: psychoeducation

5.1.2.1.1. Introduction

The leader started by introducing themselves. The reason for the group gathering and the group process was explained to the students and an introduction game was played. Group rules were discussed and the contracts on compliance with group rules were given as two copies to the students to be signed. Then the aims of the study, rewards, study type and study days were explained. In order to ensure group motivation, the students were told to think of a group name until the nest session.

5.1.2.1.2. Awareness on bullying behavior

In order to make peer bullying more understandable, examples of bullying and nonbullying behavior were given in hypothetical situations and the differences between these behavior types were discussed. What peer bullying is was explained.

5.1.2.2. Sessions 4 and 5: emotional training

In order to recognize emotions, understanding someone else's emotions by bodily cues and the fact that more than one emotion can be experienced in an event were studies using emotion posters and emotion guessing games. In order to make students realize that emotions can change, different people having different emotions in various situations and the emotions that occur during bullying were studied using the experiences of the students recorded at home by homework and the prepared worksheets.

5.1.2.3. Sessions 6–10: cognitive restructuring

In these sessions, the concepts of thought, connections between thought-emotion-behavior, recognizing thoughts related to bullying, making the connections between thoughts and emotions related to bullying behavior and replacing thoughts that cause bullying with new thoughts were studied. Card games prepared beforehand were used to reinforce the subject.

In this process, awareness training was given so that group members could recognize their own positive characteristics. The needs underlying one's bullying behavior were checked, the needs for perceiving oneself as strong, valuable and leading were identified and positive personality characteristics that would make one such a person without bullying were emphasized. Additionally, what the alternatives to bullying behavior could be was discussed.

5.1.2.4. Session 11: self-instruction training

Finding slogans and internal discourses to change the thought that may cause bullying and remind of the alternative behavior and rewarding oneself when bullying behavior is stopped were studied. In order to replace bullying behavior with new behavior, behavioral experiments that would remind one of the slogans were performed. In this stage, self-instruction and role playing techniques were used.

5.1.2.5. Sessions 12 and 13: reviewing all of the techniques and conclusion

In these sessions, all of the techniques that were learned were reviewed and alternative behavior to stop bullying behavior and slogan reminding were reinforced through role playing. The efforts of the students to reward themselves when they stopped bullying behavior were supported.

6. Discussion

In the prevention of peer bullying, whole school approach programs that encompass all groups whether bully, victim, or bystander and that are applied to the school system as a whole are known to be effective [1, 13]. These programs generally contain education efforts done in large groups. However, when the risks exhibited by bullying children regarding their adult lives are considered, it was thought that these children should be the subject of separate interventions with more comprehensive techniques and thus a cognitive behavioral intervention program aimed at reducing or eliminating these behavior was prepared and its effectiveness was tested [46]. This program is not thought to be an alternative approach to prevention programs toward the school system as a whole, but as an additional application that may lead to more effective results in the reduction of bullying.

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Chapter 10

Use of Antidepressants in Children and Adolescents

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Additional information is available at the end of the chapter

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Abstract

Depression is a serious disorder that can cause significant problems in mood, thinking, and behavior at home, in school, and with peers. It is estimated that major depressive disorder (MDD) affects about 5% of adolescents. Research has shown that, as in adults, depression in children and adolescents is treatable. Certain antidepressant medications, called selective serotonin reuptake inhibitors (SSRIs), can be beneficial to children and adolescents with MDD. Certain types of psychological therapies also have been shown to be effective. However, our knowledge of antidepressant treatments in youth, though growing substantially, is limited compared to what we know about treating depression in adults. The U.S. Food and Drug Administration (FDA) issued a public warning in October 2004 about an increased risk of suicidal thoughts or behavior (suicidality) in children and adolescents treated with SSRI antidepressant medications. However, SSRI medications are considered to have an improvement over older antidepressant medications and they have been shown to be safe and effective for adults. In this chapter we provide an updated and well-documented review of the current scientific evidence on this topic.

Keywords: antidepressants, children, adolescents

1. Overview

Major depressive disorder (MDD) is one of the most common mental disorders in children and adolescents [1, 2]. Although the estimated prevalence is 5–6% in adolescents aged 13–18 years and 5–6% in children aged 6–12 years, there are fewer studies to understand how antidepressants work in this age group [1]. Children and adolescents present with undifferentiated depressive symptoms, like irritability, school refusal, and aggressive behavior [3], which is

possible the main reason why major depressive disorder is still under diagnosed and untreated comparing to adults. Depression often impaired social functioning and it may cause suicidal ideation and attempts as a symptom of low mood [4]. Use of antidepressants is wide, in spite of the recommendations of psychotherapy as first-line treatment in most clinical trials [5]. In 2004, the US Food and Drug Administration (FDA) practitioners set a black-box warning relating the use of antidepressants in children and adolescents to an increased risk of suicide [7]. Since then, the use of antidepressants in this group of age remains controversial [3].

The European Medicines Agency has completed its review of two classes of antidepressants and concluded that they should not be used in children and adolescents except in their approved indications [4, 6]. The review of serotonin-selective reuptake inhibitor (SSRI) and serotonin-norepinephrine reuptake inhibitor (SNRI) medicines looked at the potential risk of suicidal behavior in children and adolescents treated with these products [13].

The Agency's scientific committee, the Committee for Medicinal Products for Human Use (CHMP), concluded at its April 19–22, 2005 meeting that suicide-related behavior (suicide attempt and suicidal thoughts) and hostility (predominantly aggression, oppositional behavior, and anger) were more frequently observed in clinical trials among children and adolescents treated with these antidepressants compared to those treated with placebo [13].

The Agency's committee is therefore recommending the inclusion of strong warnings across the whole of the European Union to doctors and parents about these risks. Doctors and parents will also be advised that these products should not be used in children and adolescents except in their approved indications [13].

Most of these products are approved for the treatment of depression and anxiety in adults in the European Union, but are not licensed Europe-wide for the treatment of these conditions in children or adolescents. Some of these products are however licensed for pediatric use for the treatment of obsessive-compulsive disorder and one of them for the treatment of attention deficit/hyperactivity disorder [13].

The efficacy of antidepressants is well documented among adults with major depressive disorder, however, in children and adolescents there are fewer studies and they tend to have worse methodology and more risk of bias [8, 9]. Randomized controlled trials (RCT) have shown that antidepressants agents have positive risk-benefit ratio in children and adolescents, but their clinical use should balance the potential risk and the clinical need. Young people should be closely monitored for suicidal ideation and behaviors, especially when starting an antidepressant and at dosage adjustments [7].

A recent network meta-analysis has proved antidepressants to be well-tolerated in major depressive disorder in children and adolescents [9], although they do not seem to offer a clear advantage against psychotherapeutic interventions. These trials include use of amitriptyline, citalopram, clomipramine, desipramine, duloxetine, escitalopram, fluoxetine, imipramine, mirtazapine, nefazodone, nortriptyline, paroxetine, sertraline, and venlafaxine [8]. Only fluoxetine showed statistically significant differences with placebo. In terms of tolerability, fluoxetine was better than duloxetine and imipramine. According to these results, fluoxetine should be considered the best option when considering medication to treat moderate-to-severe depression in children and adolescents, when they do not have access to psychotherapy or have not responded

to nonpharmacological interventions. Evidence suggests a significantly increased risk for suicidality (suicidal behavior or ideation) in young people given venlafaxine for the treatment of major depressive disorder [10].

2. Selective serotonin reuptake inhibitors (SSRIs)

2.1. Fluoxetine

2.1.1. Pharmacodynamics

- Action mechanism: fluoxetine increases the release of serotonin (5-HT) and inhibits reuptake pump. Possibly increases serotonergic neurotransmission.
- A receptor affinity: receptors desensitize 5-HT, especially 5-HT1A autoreceptors. It also has antagonist properties on 5-HT2C (serotonin) receptors, which could increase the release of norepinephrine and dopamine.

2.1.2. Pharmacokinetics

Fluoxetine is absorbed in gastrointestinal tract and metabolized by the liver. The active metabolite, norfluoxetine, has a half-life of 2 weeks. The original drug has a half-life of 2–3 days. Inhibits cytochrome P450 2D6 (CYP2D6) and cytochrome P450 3A (CYP3A).

2.1.3. Drug and food interactions

- Fluoxetine can increase tricyclic antidepressants concentrations.
- It can cause a fatal serotonin syndrome when combined with monoamine oxidase inhibitors (MAOIs), so it should be used only after 14 days of treatment with this group of drugs.
- It can displace other drugs with high protein binding (warfarin).
- It can cause weakness, hyperreflexia, and incoordination when combined with sumatriptan and other triptans.
- It can cause bleeding, especially when combined with other blood thinners.
- It may interfere with the analgesic actions of codeine (by inhibiting CYP2D6). By the same route could increase the concentration of atomoxetine and some beta-blockers. It could increase concentrations of thioridazine and cause heart arrhythmias.
- It can reduce the clearance of trazodone and diazepam, increasing their concentrations.
- By inhibiting cytochrome CYP3A4 may increase concentrations of alprazolam, buspirone, and triazolam as well as the concentration of some cholesterol-lowering HMG Coa (3-hidroxi-3-metilglutaril-coenzima A o β-hidroxi-β-metilglutaril-coenzima A) (e.g., simvastatin, atorvastatin, and lovastatin).

- It could increase concentrations of pimozide and produce dangerous QTc prolongation and cardiac arrhythmias.
- Tramadol increases the convulsion risk in patients taking antidepressants.

2.1.4. Side effects and toxicology

- Sexual dysfunction.
- Decreased appetite, nausea, diarrhea, constipation, and dry mouth.
- Insomnia, sedation, agitation, tremors, headache, and dizziness.
- Sweating.
- Hematomas and rarely bleeds.
- Patients diagnosed with bipolar disorder, psychotic disorder, or bipolar or psychotic disorder undiagnosed may be more vulnerable to the pharmacological actions of SSRIs on the central nervous system (CNS).

The appearance of these side effects by itself does not need the withdrawal of the drug, but the decision should be individualized. Sometimes these adverse effects could be very disturbing por the patient, so if this happens we recommend to decrease the dose and wait, being able to rise again progressively in case of improving the symptoms. In case of persistent effects despite decreasing the dose, consider withdrawing the drug.

In high risk bleeding patients, consider prescribing another antidepressants (nonSSRIs). In patients taking antidepressants with high affinity for serotonin receptors, it is advised to avoid or decrease the use of nonsteroidal anti-inflammatory drugs or aspirin.

2.1.5. Use in children and adolescents

- Posology: fluoxetine has been approved for depression and obsessive-compulsive disorder (OCD). Teens usually receive the same dose as adults, children receive slightly lower dose. They should be administered in a single dose, usually in the morning. The liquid solution facilitates management in children.
- How to start treatment: you have to gradually increase the drug. The starting dose is 10 mg/day for anxiety disorders and depressive disorders; gradually increase the dose to achieve therapeutic range (usually 20 mg/day). In bulimia nervosa, the dose is 60–80 mg/day in adolescents and in children slightly lower.
- Phase maintenance dose should be carefully adjusted: it is recommended that treatment should be maintained between 6–12 months after reaching the clinical improvement.
- For long-term use: it is safe for an extended period.
- Treatment withdrawal: no need to taper the dosage as fluoxetine alone is removed gradually due to the long half-life that has and shares with its active metabolites.

2.2. Sertraline

2.2.1. Pharmacodynamics

- Action mechanism: potentiates the action of 5-HT by blocking the reuptake pump. Increases 5-HT neurotransmission.
- Pharmacological profile: has an affinity for the receptors. Desensitizes especially 5HT-1A. It has slight antagonistic actions in the sigma receptors.

2.2.2. Pharmacokinetics

The original drug has a half-life of 22–36 hours. The half-life of the metabolite is from 62 to 104 hours. Also, inhibits CYP2D6 and CYP3A4 (weakly).

2.2.3. Drug and food interactions

- Sertraline may increase concentrations of tricyclic antidepressants (TCA).
- It can cause a fatal serotonin syndrome when combined with MAOIs.
- It can displace protein-based drugs (e.g., warfarin).
- It can increase the risk of bleeding when combined with anticoagulant.
- It can produce boxes infrequently weakness, hyperreflexia, and incoordination when combined with sumatriptan and other triptans, requiring close monitoring of the patient.
- By inhibition of CYP2D6 could interfere with the analgesic action of codeine, increasing concentrations of thioridazine, and cause dangerous cardiac arrhythmias.
- By inhibiting CYP3A4 could increase the concentrations of alprazolam, buspirone, and triazolam, and the concentrations of certain hypolipidemic inhibitors HMG CoA reduced (particularly simvastatin, atorvastatin, and lovastatin).
- It could increase concentrations of pimozide and prolong the QTc interval and dangerous cardiac arrhythmias.
- Tramadol increases the convulsion risk in patients taking antidepressants.

2.2.4. Side effects and toxicology

- Sexual dysfunction.
- Gastrointestinal: nausea, decreased appetite, diarrhea, constipation, dry mouth.
- CNS: insomnia or sedation, agitation, tremor, headache, and dizziness.
- Autonomic: sweating.
- Haemorrhaging is rare.

- Hyponatremia is rare.
- Hypotension is rare.

As we discuss with fluoxetine, the appearance of these adverse effects alone does not need withdrawal of the drug, but the decision should be individualized. If these adverse effects are very annoying to the child, we recommend decreasing the dose and wait, being able to rise again progressively in case of improving the side effects. In case of persistent effects despite decreasing the dose, consider withdrawing the drug.

Note: Patients with diagnosed or bipolar disorder or psychotic disorders may be more vulnerable to the pharmacological actions of SSRIs.

Toxicology: It is rare to be lethal in overdose alone; vomiting, sedation, abnormal heart rhythm, mydriasis, agitation; deaths have been reported with overdoses of sertraline, in combination with other drugs or alcohol.

2.2.5. Use in children and adolescents

- Posology: for children aged 6–12 years, the initial dose is 25 mg/day. From the age of 13, one can start the adult dose of 50 mg daily.
- How to start treatment: gradual increase in dose, 25 mg/7 days to reach the minimum effective dose.
- Maintenance phase: the dose should be carefully adjusted and maintain the drug for 6–12 months after clinical improvement.
- Long-term use: it is safe for an extended period.
- Treatment withdrawal: the dose should be gradually reduced to avoid withdrawal symptoms (dizziness, nausea, stomach cramps, sweating, tingling, and dysesthesia). Some patients tolerate a decrease of 50% of the dose in 3 days, another 50% over the next 3 days to complete withdrawal.

2.3. Citalopram

2.3.1. Pharmacodynamics

- Action mechanism: blocking reuptake pump 5-HT, serotonin neurotransmission increasing.
- Pharmacological profile: receptor affinity. Increases concentration of 5-HT receptors and desensitizes, especially, 5-HT1A.

2.3.2. Pharmacokinetics

The original drug has a half-life of 23–45 hours. It is a weak inhibitor of CYP2D6.

2.3.3. Drug and food interactions

- Citalopram can increase tricyclic antidepressants concentrations.
- It can cause a fatal "serotonin syndrome" when combined with MAOIs. One should not start treatment with citalopram at least until two weeks after stopping the MAOI.
- It can displace drugs with strong protein (e.g., warfarin) union.
- Once can cause weakness, hyperreflexia, and incoordination when combined with sumatriptan or other triptans, requiring careful monitoring of the patient.
- Possibly increases the risk of bleeding when combined with anticoagulant.
- By inhibition of CYP2D6 pathway could interfere with codeine analgesic and increases plasma concentrations of some beta-blockers and atomoxetine.
- By the same route could increase concentrations of thioridazine and causes dangerous cardiac arrhythmias.

2.3.4. Side effects

- Sexual dysfunction.
- Gastrointestinal: decreased appetite, nausea, diarrhea, constipation, and dry mouth.
- On CNS: insomnia, sedation, agitation, tremors, headache, and dizziness.
- Autonomic: sweating.
- Hematomas and bleeding (rare).
- Hyponatremia (rare).
- Syndrome of inappropriate secretion antidiuretic hormone (SIADH).

The advice for action in case of appearance of side effects is the same as that discussed in previous SSRIs.

2.3.5. Toxicology

- Citalopram overdose death can occur rarely.
- Can cause vomiting, sedation, heart rhythm disturbances, dizziness, sweating, nausea, and trembling.
- Rarely produces amnesia, confusion, coma, and convulsions.

2.3.6. Use in children and adolescents

- Posology: the right dose in children is 5–10 mg/day. In adolescents it may be administered to 10–20 mg/day.
- Phase maintenance: carefully adjust the dose. You can increase the dose to 5 mg/day after one or two weeks. In adolescents it can be increased to 10 mg/day after one or more weeks until the desired effectiveness. The maximum is 60 mg/day. It can be administered as a single dose in the morning or evening.
- For long-term use: it is safe for an extended period.
- Treatment withdrawal: no progressive reduction of the drug is needed. However, it is advisable to avoid potential withdrawal symptoms. Most patients tolerate doses decreased 50% in 3 days; another 50% reduction in 3 days, and then the dose may be suspended. If withdrawal symptoms appear during reduction, the dose should be increased to stop symptoms. Restart the reduction more progressively.

2.4. Escitalopram

2.4.1. Pharmacodynamics

- Action mechanism: enhanced release of 5-HT reuptake inhibiting pump.
- Pharmacological profile: receptor affinity. Desensitize 5-HT receptors, especially 1A autoreceptors.

2.4.2. Pharmacokinetics

The elimination half-life is 27–36 hours. Stable mean plasma concentrations are reached within weeks. It has no effect on the CYP450.

2.4.3. Drug and food interactions

- Tramadol increases the risk of convulsion in patients taking antidepressants.
- Can cause a fatal "serotonin syndrome" when combined with MAOIs; not starting an MAOI up to 14 days after it is suspended.
- It could theoretically cause weakness, incoordination hyperreflexia, and when combined with sumatriptan or other triptans, so careful monitoring of the patient is necessary.
- It can increase the risk of bleeding, especially when combined with anticoagulants.

2.4.4. Side effects

- Sexual dysfunction.
- Gastrointestinal (decreased appetite, nausea, diarrhea, constipation, and dry mouth).

- On CNS (insomnia, sedation, agitation, tremors, headache, and dizziness).
- Autonomic (Sweating).
- Hematomas and bleeding (rare).
- Hyponatremia (rare).

The advice for action in case of appearance of side effects is the same as that discussed in previous SSRIs.

2.4.5. Toxicology

Mortality is rare to the overdose of escitalopram alone or in combination with other drugs. Symptoms associated with overdose are nausea, vomiting, sedation, sweating, tremor, and rarely amnesia, coma, and convulsions.

2.4.6. Use in children and adolescents

- Dosage: recommended for children 5–10 mg/day and for adolescents 10–15 mg/day.
- Home treatment: gradual dose escalation. In children, we must start at a dose of 5 mg/day, reaching up to 10 mg/day. In adolescents, we will start with a dose of 10 mg/day, increasing the dose to 15–20 mg/day.
- Maintenance phase: the dose should be carefully adjusted. Maintaining treatment is recommended 6–12 months produced clinical improvement.
- Long-term use: it is safe for an extended period.
- Treatment withdrawal: no need to make a gradual decline but it is wise to carry it out to avoid a withdrawal syndrome. Many patients tolerate a decrease of 50% of the dose in 3 days, and then the other 50%. If withdrawal symptoms appear during the gradual decline of the drug, the dose can be increased until they disappear. Restart the reduction more progressively.

There are other antidepressants such as paroxetine and fluvoxamine that have not demonstrated superior efficacy to placebo in children and adolescents with depression.

3. Serotonin and norepinephrine reuptake inhibitors (SNRIs)

Although none of them is approved by European Medicines Agency or US FDA, some antidepressants not related with SSRI have also been used to children and adolescents for childhood and juvenile depression and anxiety disorders.

3.1. Venlafaxine

3.1.1. Pharmacodynamics

Venlafaxine is a selective serotonin and norepinephrine reuptake inhibitors (SSNRIs). Although, the exact mechanism of action is not well known, venlafaxine and its metabolite,

O-desmethylvenlafaxine (ODV) inhibit the reuptake of serotonin at low doses, serotonin and norepinephrine (NE) at higher doses, and have a weak inhibitory effect on the reuptake of dopamine at even higher doses. Venlafaxine has little affinity for histaminergic, cholinergic, and alpha-adrenergic receptors, not clinically significant.

3.1.2. Pharmacokinetics

Venlafaxine is well absorbed. Food does not affect the absorption of venlafaxine. Bioavailability is 45% following oral administration. Venlafaxine is metabolized by cytochrome P450 2D6 and cytochrome P450 2C19 to ODV, the major metabolite, which is clinically active. Renal elimination is the main route of excretion. The half-life is about 5–11 hours.

3.1.3. Drug and food interactions

Venlafaxine is a moderate inhibitor of cytochrome P450 2D6. Tramadol increases the risk of seizures in patients taking antidepressants. Venlafaxine could inhibit the metabolism of tramadol, reducing his analgesic efficacy and increasing the risk of serotonin syndrome.

3.1.4. Side effects and toxicology

- Sustained elevation of blood pressure is dose-dependent (rarely occurs below 255 mg/day doses) related to inhibition of NE reuptake. In patients with sustained blood pressure raises during venlafaxine therapy, dose reduction, or discontinuation should be considered. Monitoring blood pressure and heart rate is recommended when using venlafaxine.
- Sexual dysfunction, especially abnormal ejaculation and orgasm.
- Gastrointestinal: nausea, dry mouth, constipation. Consider reducing the dose if these symptoms are annoying.
- Central nervous system: sedation, dizziness, nervousness, anxiety, insomnia, somnolence, and tremor. Consider reducing the dose if these symptoms are annoying.
- Mydriasis: patients at risk of angle-closure glaucoma should be monitored.
- In young people, venlafaxine could lead to decrease appetite and weight loss.
- While all antidepressants have the black-box warning about increased suicidal behaviors, venlafaxine is the only one that have demonstrated in RCT and meta-analysis to be associated with higher rates of self-harm events in patients with higher levels of suicidal thoughts. Close monitoring of suicidal ideation and behaviors is necessary during treatment with this drug.

3.1.5. Use in children and adolescents

Venlafaxine is FDA approved for major anti-inflammatory in adults; meanwhile extended-release venlafaxine is approved for the treatment of adults with generalized anxiety disorder, panic disorder, and social phobia besides major depressive disorder.

Two multicenter, randomized, double-blind, and placebo-controlled trials have evaluated the efficacy and tolerability of venlafaxine extended release (ER) for children and adolescents with major depressive disorder. The primary main outcome was the Children's Depression Rating Scale-Revised (CDRS-R) total score. Analysis of each trial independently showed no statically significance between venlafaxine ER and placebo. In the age subgroup analysis, the pooled data showed greater improvement with venlafaxine ER among adolescents (ages 12–17) but not among children (ages 7–11). This study also found that hostility and suicide-related events were more common in venlafaxine ER-treated participants than in placebo-treated participants. There were no completed suicides.

The treatment of resistant depression in adolescents (TORDIA) study was a RCT of treatment resistant adolescents (ages 12–18) with major depressive disorder, who had not responded to a 2-month treatment with an SSRI. Then they were randomized to another SSRI alone, alternate SSRI plus cognitive behavioral therapy (CBT), venlafaxine alone, or venlafaxine plus CBT. Combination of CBT and a switch to another antidepressant had a higher rate of clinical response than medication alone. Changing to an alternate SSRI or venlafaxine had no different response rates. Venlafaxine groups have shown increase in blood pressure and frequency rate, rarely of clinical impact.

Venlafaxine ER has been also studied for anxiety disorders. An RCT of 320 youth (ages 6–17) diagnosed with generalized anxiety disorder shown statistically significant improvement in both the primary outcome and the response rate compared to placebo. Statistically significant changes in weight, blood pressure, pulse, and cholesterol levels were observed in the venlafaxine ER group.

3.1.6. Dosage and administration in children and adolescents

- Venlafaxine dosing schedule among children is similar to adults.
- Home treatment: the recommended initial dosage is 37.5 or 75 mg daily administered in 2 or 3 doses or as a single dose daily when using extended-release capsules. To minimize nausea and other gastrointestinal symptoms, venlafaxine should be taken with food.
- Maintenance phase: the dosage can be increased by 75 mg daily every 4–7 days. A total of 225 mg daily is the maximum dose recommended. Maintaining treatment is recommended 6–12 months produced clinical improvement.
- Long-term use: it is safe for an extended period.
- Treatment withdrawal: no need to make a gradual decline but it is wise to carry out to avoid a withdrawal syndrome. We advise to a decrease of 37.5 mg every 6 days. If withdrawal symptoms appear during the gradual decline of the drug, the dose should be increased until they disappear and then start the reduction again.

3.2. Desvenlafaxine

3.2.1. Pharmacodynamics

Desvenlafaxine (O-desmethylvenlafaxine), the major metabolite of venlafaxine, is a selective serotonin and norepinephrine reuptake inhibitor. As venlafaxine and desvenlafaxine inhibit

the reuptake of serotonin at low doses, serotonin and norepinephrine at higher doses, and have a weak inhibitory effect on the reuptake of dopamine at even greater doses. Desvenlafaxine has no clinically significant affinity for histaminergic, cholinergic and alpha-adrenergic receptors.

3.2.2. Pharmacokinetics

Bioavailability is approximately 80% and is unaffected by food. Desvenlafaxine undergoes simple metabolism via conjugation mediated by UGT isoforms and oxidative N-demethylation via cytochrome P450 3A4 to a minor extent. CYP2D6 is not involved. Approximately 45% of the total oral dose is excreted by urine as unchanged desvenlafaxine. The half-life is about 11 hours.

3.2.3. Drug and food interactions

Compared to other SSNRIs, desvenlafaxine has a low risk of drug-drug interactions since there is minimal metabolization by cytochrome P450 pathway.

3.2.4. Side effects and toxicology

- Sustained elevation of blood pressure, dose-dependent, related to inhibition of NE reuptake. Monitoring blood pressure and heart rate is recommended when using desvenlafaxine. In patients with sustained blood pressure raises during desvenlafaxine therapy, dose reduction or discontinuation should be considered.
- Sexual dysfunction, especially abnormal ejaculation and orgasm.
- Gastrointestinal: nausea, dry mouth, constipation.
- Central nervous system: sedation, dizziness, nervousness, anxiety, insomnia, somnolence, and tremor.
- Mydriasis: patients at risk of angle-closure glaucoma should be monitored.

3.2.5. Use in children and adolescents

Desvenlafaxine is FDA approved for the treatment of major depressive disorder in adults. There is no clinical study in the literature about the use of desvenlafaxine in the pediatric population.

3.2.6. Dosage and administration in children and adolescents

- Desvenlafaxine is presented in 50 and 100 mg extended-release tablets.
- Home treatment: the recommended initial dosage is 50 mg as a single dose daily.
- Maintenance phase: the dosage can be increased by 50 mg daily every 4–7 days. Clinical studies have not observed additional efficacy with dosages greater than 50 mg but side effects were more common. A total of 200 mg daily is the maximum dose recommended. Maintaining treatment is recommended 6–12 months produced clinical improvement.

- Long-term use: it is safe for an extended period.
- Treatment withdrawal: the dosage should be decreased gradually to prevent withdrawal symptoms like dizziness, gastrointestinal discomfort, headache, nervousness, or agitation. Many patients tolerate a decrease of 50% of the dose in 3–7 days and then the other 50%. If withdrawal symptoms appear during the gradual decline of the drug, the dose should be increased until they disappear and then start the reduction again.

3.3. Duloxetine

3.3.1. Pharmacodynamics

Duloxetine is another selective serotonin and norepinephrine reuptake inhibitor (SSNRIs). The major difference to venlafaxine is that duloxetine has comparable binding affinity to both norepinephrine and serotonin transport sites. Duloxetine has no significant affinity for dopaminergic, histaminergic, cholinergic, and alpha-adrenergic receptors.

3.3.2. Pharmacokinetics

Duloxetine is well absorbed and unaffected by food. Protein binding is greater than 90%. Duloxetine is metabolized by cytochrome P450 2D6 and 1A2 to the metabolites, which are not active. Renal elimination is the main route of excretion (70%) followed by fecal excretion (20%). The half-life is about 12 hours [8–17].

3.3.3. Drug and food interactions

Duloxetine is a moderate inhibitor of cytochrome P450 2D6. Tramadol increases the risk of seizures in patients taking antidepressants. As result of a pharmacokinetic interaction, duloxetine could increase plasma levels of thioridazine, which may result in increased risk of ventricular arrhythmias.

3.3.4. Side effects and toxicology

- Increase of heart frequency, dose-dependent. Monitoring blood pressure and heart rate is recommended when using duloxetine. In patients with sustained effects, dose reduction or discontinuation should be considered.
- Sexual dysfunction especially decreased sexual desire and problems with erection.
- Gastrointestinal: nausea, dry mouth, constipation, decreased appetite.
- Central nervous system: fatigue, sedation, dizziness, somnolence.

3.3.5. Use in children and adolescents

Among adults, duloxetine is usually used for the acute and maintained treatment of major depressive disorder, acute treatment of anxiety disorders, fibromyalgia, and neuropathic pain, especially when is associated with peripheral neuropathy.

Two multicenter, randomized, double-blind, and placebo-controlled trials have evaluated the efficacy and safety of duloxetine for children and adolescents with major depressive disorder and compared to fluoxetine. The primary main outcome was the Children's Depression Rating Scale-Revised (CDRS-R) total score. In these studies, neither duloxetine nor fluoxetine demonstrated a statistically significant improvement compared with placebo. Headache and nausea were the main treatment-emergent adverse events. Weight decrease was more common among duloxetine and fluoxetine groups compared to placebo. Suicidal behavior did not occur in acute treatment, while seven cases occurred during extended treatment. There were no completed suicides. No patients had sustained elevation in systolic or diastolic blood pressure during the 36-week study.

Another randomized, double-blind, and placebo-controlled trials have evaluated duloxetine for children and adolescents with generalized anxiety disorder. They found that duloxetine was statistically better than placebo on Pediatric Anxiety Rating Scale (PARS).

3.3.6. Dosage and administration in children and adolescents

- Duloxetine is presented in 20, 30, and 60 mg capsules.
- Home treatment: the recommended initial dosage is 30 mg as a single dose daily in the morning.
- Maintenance phase: the target dose is 30–60 mg in both adolescents and children. Clinical studies have not observed additional efficacy with dosages greater than 60 mg but side effects were more common. A total of 120 mg once a day is the maximum dose recommended. Maintaining treatment is recommended 6–12 months produced clinical improvement.
- Long-term use: it is safe for an extended period.
- Treatment withdrawal: the dosage should be gradually decreased over at least 2 weeks to prevent withdrawal symptoms like gastrointestinal discomfort, headache, nervousness, or agitation. If withdrawal symptoms appear during the gradual decline of the drug, the dose should be increased until they disappear and then start the reduction again.

4. NaSSRI

4.1. Mirtazapine

4.1.1. Pharmacodynamics

Mirtazapine is a piperazinoazepine with an anxiolytic effect. Mirtazapine acts as an antagonist at central presynaptic alpha-2-receptors. This antagonism inhibits negative feedback to the presynaptic nerve and enhances the release of both norepinephrine and serotonin. Mirtazapine is also a weak antagonist of 5-HT1 receptors and a potent antagonist of 5-HT2 (particularly subtypes 2A and 2C) and 5-HT3 receptors. Mirtazapine could also cause sedation through H1

receptor antagonism. It has minimal activity at dopaminergic and muscarinic receptors and NE and 5-HT reuptake are not affected.

4.1.2. Pharmacokinetics

Mirtazapine is completely absorbed but, due to first-pass metabolism, bioavailability is about 50%. Protein binding is about 85%. Duloxetine is metabolized by cytochrome P450 3A4, 2D6 and to a lesser extent by 1A2 to many different metabolites, several of whom are active, but plasma levels are low. Kidneys excrete about 75% of mirtazapine. Half-life is about 20–40 hours.

4.1.3. Drug and food interactions

Mirtazapine is a weak CYP2D6 inhibitor. CYP3A4 potent inhibitors could increase plasma levels of mirtazapine. Adding another serotonin antidepressant may produce serotonin syndrome

4.1.4. Side effects and toxicology

- Mirtazapine is usually well-tolerated.
- The most common adverse effects are sedation and weight gain due to increased appetite.
- Gastrointestinal: dry mouth, constipation.
- Central nervous system: dizziness.

4.1.5. Use in children and adolescents

Mirtazapine is an FDA approved for the acute and maintenance treatment of major depressive disorder in adults.

Few studies till date have evaluated mirtazapine in children and adolescents. There is not strong data with double-blind and placebo-controlled trials. In a recent network meta-analysis, Cipriani and colleagues reported two randomized, placebo-controlled trials funded by a pharmaceutical company in 170 patients aged 7–17. Mirtazapine was not significantly different to placebo on any outcome rating.

4.1.6. Dosage and administration in children and adolescents

- Mirtazapine is available in 15, 30, and 45 mg tablets.
- Home treatment: the recommended initial dosage is 15 mg as a single dose daily at night before bedtime, due to its sedative effects.
- Maintenance phase: the target dose is 30–45 mg in both adolescents and children. 45 mg daily is the maximum dose recommended.

- Long-term use: it is safe for an extended period.
- Treatment withdrawal: the dosage should be gradually decreased over at least 2 weeks to prevent withdrawal symptoms like gastrointestinal discomfort, headache, nervousness, or agitation. If withdrawal symptoms appear during the gradual decline of the drug, the dose should be increased until they disappear and then start the reduction again.

5. MAOI

5.1. Nonselective

5.1.1. Tranylcypromine

5.1.1.1. Pharmacodynamics

5.1.1.1.1. Action mechanism

Tranylcypromine irreversibly blocks monoamine oxidase (MAO) from breaking norepinephrine, serotonin, and dopamine. This presumably boosts noradrenergic, serotonergic, and dopaminergic neurotransmission. As the drug is structurally related to amphetaine, it may have some stimulant-like actions due to monoamine release and reuptake inhibition [14].

5.1.1.1.2. Pharmacological profile

Tranylcypromine is a nonhydrazine monoamine oxidase inhibitor with a rapid onset of activity. It increases the concentration of epinephrine, norepinephrine, and serotonin in storage sites throughout the nervous system and, in theory, this increased concentration of monoamines in the brain stem is the basis for its antidepressant activity [14].

5.1.1.1.3. Pharmacokinetics

Tranylcypromine achieves an initial peak within approximately 1 hour and a secondary peak within 2–3 hours. It has been suggested that this apparent biphasic absorption in some individuals may represent different absorption rates. Following discontinuance of tranylcypromine, the drug is excreted within 24 hours. On withdrawal of tranylcypromine, MAO activity is recovered in 3–5 days (possibly in up to 10 days). Concentration of urinary tryptamine, an indicator of MAO-A inhibition return to normal, however, within 72–120 hours [14].

5.2. Selective

5.2.1. Moclobemide

Moclobemide is a reversible inhibitor of monoamine-oxidase-A (RIMA) and has been extensively evaluated in the treatment of a wide spectrum of depressive disorders and less extensively studied in anxiety disorders.

There is a growing evidence that moclobemide is not inferior to other antidepressants in the treatment of subtypes of depression, such as dysthymia, endogenous (unipolar and bipolar), reactive, atypical, agitated, and retarded depression as with other antidepressants limited evidence suggests that moclobemide has consistent long-term efficacy.

5.2.1.1. Pharmacodynamics

5.2.1.1.1. Action mechanism

Moclobemide is a substrate of CYP2C19. Few clinically significant drug interactions between moclobemide and teother drugs have been reported in spite of the fact that it acts as an inhibitor of CYP1A2, CYP2C19, and CYP2D6. Switch to another antidepressants could be quick as its half-life in plasma is short, 24 hours. As it is well-tolerated, therapeutic doses can be reached rapidly upon onset of treatment. After one week following dose adjustment plasma levels are reached. Patients with severe hepatic impairment require dose adjustment, not those with renal dysfunction.

5.2.1.1.2. Pharmacological profile and pharmacokinetics

A positive correlation between the plasma concentration of moclobemide and its therapeutic efficacy has been found. Due to negligible anticholinergic and antihistaminic actions, moclobemide has been better tolerated than tri or heterocyclic antidepressants.

5.2.1.1.3. Side effects and toxicology

Side effects such as dizziness, nausea, and insomnia were more frequent with moclobemide than with placebo. Sexual dysfunction and gastrointestinal side effects are much less frequent with moclobemide than with SSRIs. Gastrointestinal side effects and, especially, sexual dysfunction were much less frequent with moclobemide than with SSRIs. After multiple dosing the oral bioavailability of moclobemide reaches almost 100% [15].

5.2.1.1.4. Drug and food interactions

Moclobemide has propensity to induce hypertensive crisis after ingestion of tyramine-rich food like cheese, so dietary restrictions are mandatory.

5.2.1.1.5. Use in children and adolescents

No use in children and adolescent has been reported in clinical trials.

5.2.1.1.6. Tricyclic antidepressants

Tricyclic antidepressants (TCAs) have had a substantial role in the pharmacotherapy of children and adolescents over the past three decades. However its efficacy has been unproven in major depression. Considering the current epidemiologic estimates of the prevalence of child

and adolescent mental disorders, as many as 10% of children in the USA, may have a potentially TCA-responsive disorder [12]

Most common tryciclic antidepressants are: Amitriptyline, clomipramine, doxepin, opipramol, trimipramine, imipramine and nortriptyline.

5.3. Amitriptyline

5.3.1. Pharmacodynamics

Amitriptyline is a tricyclic agent with sedative effects. Amitriptyline is thought to be a potent inhibitor of noradrenergic reuptake at the adrenergic nerve endings [17].

5.3.2. Pharmacokinetics

Amitriptyline is completely but slowly absorbed by the gastrointestinal tract after oral administration, and peak plasma concentration are usually reached within 4–8 hours. Amitriptyline has hepatic extensive elimination, and its systemic bioavailability ranges from 33 to 66% after oral administration [18]. In 24 hours, about one-third to one-half of the drug will be excreted. The plasma half-life ranges from 10 to 28 hours.

5.3.3. Drug and food interactions

Amitriptyline is widely distributed throughout the body and extensively bound to plasma and tissue proteins. It has got a highly lipophilic compound [17].

5.3.4. Side effects and toxicology

Amitriptyline most common side effects are blurred vision, constipation, and dry mouth which are due to anticholinergic effects. Due to the blockage of histamine receptors, it may cause sedation. In high doses, amitriptyline has cardiac effects such as dysrhythmia, prolonged conduction time, and sinus tachycardia [18].

5.3.5. Use in children and adolescents

No clinical trials on children and adolescents have been conducted with this drug.

5.4. Clomipramine

Clomipramine (Anafranil) was the first drug to obtain Food and Drug Administration (FDA) approval for treating OCD. It is a tricyclic antidepressant (TCA) with a potent ability to inhibit serotonin reuptake; it also inhibits the reuptake of norepinephrine, and has dopamine-blocking effects [19].

5.4.1. Pharmacokinetics

Clomipramine is completely but slowly absorbed by the gastrointestinal tract after oral administration, and peak plasma concentration are usually reached within 4–8 hours. It has

hepatic extensive elimination, and its systemic bioavailability ranges from 33 to 66% after oral administration [18]. In 24 hours about one-third to one-half of the drug will be excreted. The plasma half-life ranges from 10 to 28 hours.

5.4.2. Side effects and toxicology

The most common side effects of clomipramine are blurred vision, constipation, and dry mouth which are due to anticholinergic effects. It may cause sedation. In high doses, clomipramine has cardiac effects such as dysrhythmias, prolonged conduction time, and sinus tachycardia [18].

5.4.3. Use in children and adolescents

No clinical trials have been conducted in children and adolescents.

6. Other antidepressants

6.1. Vortioxetine

6.1.1. Pharmacodynamics

Vortioxetine has a dual mechanism for depression. First, it inhibits serotonin reuptake by inhibition of serotonin transporter. Second, Vortioxetine is a partial agonist of 5-HT_{1B}, 5-HT_{3}, 5-HT_{7}, 5-HT_{1D}, and HT_{1A}.

These actions modulate serotonin neurotransmitter system and, to a lesser extent, in other systems like dopamine, norepinephrine, histamine, gamma amino butiric acid (GABA) and glutamate.

6.1.2. Pharmacokinetics

Vortioxetine is well absorbed and unaffected by food. Bioavailability is about 75%. It is mainly metabolized by cytochrome P450 2D6 to two metabolites, which are not active. Renal elimination is the main route of excretion (59%) followed by fecal excretion (26%). The half-life is about 66 hours.

6.1.3. Drug and food interactions

- Tramadol increases the risk of seizures in patients taking antidepressants.
- It can cause a fatal "serotonin syndrome" when combined with MAOIs. One should not start treatment with vortioxetine at least until two weeks after stopping the MAOI.
- It can displace drugs with strong protein (e.g., warfarin) union.
- CYP450 2D6 potent inhibitors like bupropion or quinidine could increase plasma concentrations of vortioxetine.

6.1.4. Side effects and toxicology

- Gastrointestinal: nausea is the most common side effect. Other effects like decreased appetite, diarrhea, constipation, and dry mouth could also occur.
- Central nervous system: dizziness, bruxism and abnormal dreams.
- Skin: itching and, rarely, night sweats.
- Flushing (rare).
- Vortioxetine has no sexual side effects.

6.1.5. Use in children and adolescents

At this moment, some phase II clinical trials are being developed to test efficacy and tolerability of vortioxetine in pediatric patients.

6.2. Bupropion

Bupropion is a dopamine and norepinephrine reuptake inhibitor that belongs to a second-generation group of antidepressants. Bupropion has shown good results for treating major depressive disorder according to measures like the Hamilton Depression Rating Scale, and the Clinical Global Impression Severity and Impairment Scales. Its efficacy is similar to most other common antidepressants and it has an acceptable profile and good tolerability. Bupropion has shown to have a minimal effect on sexual function, and similar or even lower rates of somnolence than placebo, and it has shown lower rates of weight gain and sedation than some other commonly used antidepressants. Bupropion has indication to treat MDD in the USA, Canada, and many countries in Europe, although none of the studies has been conducted to address its safety and effectiveess in children and adolescents [11].

6.2.1. Pharmacodynamics

Chemically, bupropion is a **monocyclic phenylbutylamine** of the **aminoketone group**, which could be associated with an effect of profile different from that of other antidepressant drugs. It is also known as amfebutamone. Its primary action mechanism is neuronal reuptake inhibition of norepinephrine and dopamine without significant serotonergic effects. Bupropion lacked anticholinergic and direct sympathomimetic activity and its cardiac depressant activity is at least 10 times lower than that shown with tricyclic antidepressants.

6.2.2. Pharmacokinetics

Administration of bupropion is oral and it has been absorbed by the intestine. It has got a low molecular weight and a good liposolubility. Its half-life, in the modified release formulation, is 21 hours. The drug is metabolized in the liver and it is excreted through the kidney. The stale plasma concentration of the drug and its active metabolites are reached at 5–7 days after initiation of its administration. It is metabolized in the liver by the cytochrome P450

(CYP) 2B6, that catalyzes the hydroxylation of the side chain to form an active metabolism, the hydroxybupropion. It is excreted through the kidney.

6.2.3. Drug and food interactions

Drugs that inhibit the CYP450 2B6 such as clopidogrel and ticlopidine (antiplatelet) and valproate may have an effect of reducing the proportion between hydroxybupropion and bupropion, observing up to 68% reduction in the case of clopidogrel and up to 90% in the case of ticlopidine. Due to the important contribution of hydroxybupropion in the clinical efficacy of bupropion, it may be affected by this interaction. Concurrent use of bupropion with tobacco, alcohol, phenobarbital, and carbamazepine, furthermore, could induce the production of its active metabolite, the hydroxybupropion.

6.2.4. Use in children and adolescents

No use in children and adolescent has been reported in clinical trials.

6.3. Reboxetine

6.3.1. Pharmacodynamics

Reboxetine is a selective norepinephrine (noradrenaline) reuptake inhibitor with indication to treat depression in many European countries, but the application of approval was rejected in the USA. Reboxetine mainly acts by binding to the norepinephrine transporter and blocking reuptake of extracellular norepinephrine. The drug is indicated for the acute treatment of depressive illness or major depression and for maintaining the clinical improvement in patients initially responding to treatment [16].

6.3.2. Pharmacokinetics

Reboxetine has potent antidepressant activity, low affinity for alpha-adrenergic and muscarinic receptors, and low toxicity in animals. Humans rapidly absorb reboxetine (tmax about 2 hours) with a terminal half-life of elimination (t1/2) of 13 hours, allowing twice-daily administration. Food does not affect bioavailability. Elimination is principally renal of therapeutic actions and is usually not immediate, but often delayed 2–4 weeks. If it is not working within 6–8 weeks for depression it may require a dosage increase or it may not work at all [16].

6.3.3. Drug and food interactions

Multiple dosing, gender, or liver insufficiency had no significant effects on the pharmacokinetics. Elderly (particularly frail elderly) patients and patients with severe renal impairment may need dose reduction. Reboxetine shows no clinically relevant interaction with lorazepam and has no inhibitory effects on the major enzymes involved in drug metabolism [16].

6.3.4. Use in children and adolescents

No use in children and adolescents has been reported in clinical trials.

7. Conclusions

Fluoxetine has shown reduced depressive symptoms in young people under 18 in randomized clinical trials, although the extent up to this reduction is clinically significant and remains uncertain. In spite of this, fluoxetine is still considered the best option when a pharmacological treatment is indicated. In the therapeutic plan of young people with major depressive disorder, clinical guidelines recommend psychotherapy (especially cognitive-Behavioral therapy or interpersonal therapy) as the first-line intervention, and fluoxetine only in moderate-to-severe depressed patients who cannot access psychotherapy or have not responded to nonpharmacological approaches. Antidepressants are not well studied in this population, and further research is needed on antidepressants in young people. In all cases when a patient is started on antidepressants, he/she should be carefully monitored in prevention of risk of suicidal thoughts or attempts [10].

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In the present volume, we collected state-of-the-art chapters on diagnosis, treatment, and social implications. The first section describes diagnostic processes. It describes a reevaluation of projective techniques, a new clinical tool in psychotraumatology, the foundations of the framing technique, and an overview on integrative approaches. The second section focuses on new developments in the field with special emphasis on culture-specific contexts. From parenting of adolescents in India to the influence of poverty on mental health issues in Mexico, as well as the use of marijuana and Internet addiction, some of the most important fields are highlighted. The third section concentrates on therapy. It shows how to react to bullying and reviews the use of antidepressants in children and adolescents.

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