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Cognitive Behavioral Therapy and Clinical Applications

Edited by Ömer Şenormancı and Güliz Şenormancı

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Edited by **Ömer Şenormancı**
and **Güliz Şenormancı**

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Contributors

İrem Damla Çimen, Christina Hunger, André Marchand, Katia Levrier, Geneviève Belleville, Valérie Billette, Stephane Guay, Claude Belanger, David Gratzer, Faiza Khalid-Khan, Shawnna Balasingham, Kentaro Shirotsuki, Steliana Rizeanu, Malakeh Malak, Dagna Skrzypińska, Barbara Szmigielska, Alessandro Musetti, Roberto Cattivelli, Gianluca Castelnuovo, Francesco Vailati Riboni, Anna Guerini, Giorgia Varallo, Derek Richards, Angel Enrique, Jorge Palacios, Daniel Duffy, Emine Sevinç Sevi Tok

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Meet the editors

Ömer Şenormancı graduated from the Istanbul University, Cerrahpaşa Faculty of Medicine. After completing his psychiatry specialty training, he worked as a specialist at the Bakırköy Research and Training Hospital for Psychiatry, Neurology and Neurosurgery for 2 years. Between 2013 and 2016, he held the position of assistant professor at the Bülent Ecevit University, Faculty of Medicine, Psychiatry Department. He is currently working as an associative professor at the University of Health Sciences, Bursa Yüksek Ihtisas Training, and Research Hospital. He has given lectures on CBT, and he is a licensed therapist of the Turkish Association for Cognitive and Behavioral Psychotherapies (accredited by the European Association for Behavioural and Cognitive Therapy, EABCT). He has published numerous research articles and written book chapters on CBT.

Güliz Şenormancı graduated from the Marmara University School of Medicine. She worked as a psychiatry resident at the Bakırköy Research and Training Hospital for Psychiatry, Neurology and Neurosurgery. She is currently working as a psychiatrist at the University of Health Sciences, Bursa Yüksek Ihtisas Training and Research Hospital. She is a licensed therapist for CBT. She has published numerous research articles on CBT.

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Preface

The first Open Access cognitive-behavioral therapy (CBT) book, which was edited by Irismar Reis de Oliveira, was published in 2012 by InTechOpen. One of the editors of the present book was among the authors of that book. Besides being a very important reference, especially for underdeveloped countries, it played an important role in spreading "trial-based thought record" that is now widely known.

Although CBT practices are developed and new models are suggested, basic models of CBT are still widely used. It can be suggested that the new models and treatment approaches are variations of the basic model of Aaron T. Beck and that these developments indicate the strong theoretical basis of the basic model. All these innovations and developments are very valuable in terms of creating new treatment opportunities for our patients.

The main purpose of this book is to be useful in daily practice to clinicians, including less-discussed subjects that are frequently encountered in practice. For this, it was aimed to explain the formulation of the disorder in light of the basic CBT model in each chapter and then to present the treatment approach of the disorder with case examples. We believe that the case examples, which came from the authors' own practices, are the strength of the book.

In Chapter 1, E. Sevinç Sevi Tok reviews CBT principles in children for anxiety disorders and major depressive disorder. In Chapter 2, Irem Damla Çimen comprehensively reviews CBT for obsessive compulsive disorder in children and adolescents. In Chapter 3, Hunger-Schoppe Christina illustrates CBT for social anxiety disorder (SAD) by adding the social system model to CBT. In Chapter 4, Kentaro Shirotsuki delineates the video feedback techniques for SAD that is one of the key techniques for the disorder in a way to help readers to implement it effectively, and similarly, in Chapter 5, Katia Levrier, André Marchand, Valérie Billette, Stéphane Guay, and Geneviève Belleville delineate the imagery rehearsal therapy combined with CBT in posttraumatic nightmares for posttraumatic stress disorder. In Chapter 6, Dagna Skrzypińska and Barbara Szmigielska present dreams in CBT, which is a controversial topic, in detail. In Chapter 7, Caroline Dugal, Gaëlle Bakhos, Claude Bélanger, and Natacha Godbout clearly summarize CBT for couples. In Chapter 8, Alessandro Musetti, Roberto Cattivelli, Anna Guerrini, Anna Maria Mirto, Francesco Vailati Riboni, Giorgia Varallo, Gianluca Castelnuovo, and Enrico Molinari draw attention to CBT for obesity that is an important component of multidisciplinary treatment. In Chapter 9, Steliana Rizeanu reviews CBT for gambling disorder, and in Chapter 10, Malakeh Zuhdi Malak reviews Internet addiction and CBT. David Gratzer, Faiza Khalid-Khan, and Shawnna Balasingham (Chapter 11) and Derek Richards, Angel Enrique, Jorge Palacios, and Daniel Duffy (Chapter 12) review Internet-based CBT (ICBT). The last two chapters have both the information on ICBT from the worldwide literature and their own valuable case examples.

Finally, we would like to thank Renata Sliva, Publishing Process Manager, for the perfect organization during the development of the book.

Ömer Şenormancı, Associate Professor of Psychiatry
University of Health Sciences
Bursa Yuksek Ihtisas Training and Research Hospital
Department of Psychiatry
Turkey

Güliz Şenormancı, Psychiatrist
University of Health Sciences
Bursa Yuksek Ihtisas Training and Research Hospital
Department of Psychiatry
Turkey

Chapter 1

Cognitive Behavioral Therapy Principles in Children: Treatment of Internalizing Disorders

Emine Sevinç Sevi Tok

Additional information is available at the end of the chapter

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Abstract

Cognitive behavioral therapy (CBT) is an effectiveness-proven therapy method in the psychosocial treatment of childhood internalizing disorder. Considering the techniques included, even though anxiety and major depression are two different disorders, they are observed to occupy a quite common pool in terms of their similar nature, symptoms, etiologies, and high comorbidity rates. While these techniques are rationally similar to those in adult CBT, application ways, contents, session structures of the techniques, and styles of homework should be adapted to the developmental characteristics of children. In this book chapter, initially, several CBT programs for childhood internalizing disorders will be mentioned. After than, main points to take into consideration while adapting CBT, which was firstly designed for adults to children, will be emphasized. Lastly, information about main CBT techniques, whose effectiveness has been proven in the treatment of internalizing disorders, will be given.

Keywords: childhood internalizing disorders, cognitive behavioral therapy, childhood depression, childhood anxiety disorder, behavioral therapy, cognitive therapy

1. Introduction

In recent years, there has been a tendency toward gathering disorders under two main groups in order for the nature of mental disorders in childhood to be understood more easily, and to develop common therapy techniques. Externalizing disorders refer to mental disorders that include characteristics such as mainly opposition and aggressive behaviors, hyperactivity, and impulsivity [1]. Internalizing disorders are characterized by mood symptoms such as anxiety, fear, hopelessness, unhappiness, as well as social withdrawal, reduced self-esteem, loss of self-confidence [2]. The main disorders grouped

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under childhood internalizing disorders include anxiety disorder (specific phobia, social phobia, generalized anxiety disorder, panic disorder, and separation anxiety disorder), and major depressive disorder.

Anxiety disorder ranks first among the most common mental disorders seen in childhood, and has a prevalence rate varying between 8.6 and 17.7% [3–6]. Prevalence of childhood major depressive disorder before the age of 13 is reported as 2–3% [7–9]. Apart from the similarities of symptoms, etiologic descriptions and developmental characteristics of two disorders, another reason for grouping them together is the high comorbidity rates observed in clinical practice [2]. Accordingly, 69% of the children primarily diagnosed with anxiety disorder meet the depression criteria, and 75% of the depressive children are also diagnosed with anxiety disorder [10–12]. In prospective and retrospective studies performed on adults, it has been found that internalizing problems that start in childhood become permanent at the beginning of adolescence and continue the same way in adulthood [13–16].

Both research data and clinical practices show that cognitive behavioral therapy (CBT) has become a quite strong option in the treatment of childhood internalizing disorders. CBT is a therapy method that was firstly designed to fight cognitive distortion of depressive adults [17]. Then its field of application has extended significantly, and it has become a psycho-social therapy method that is primarily used in treatment of anxiety disorders, eating disorders, anger management problems, chronic pain disorders, marriage conflicts, psychotic disorders, and even personality disorders [18]. However, use of CBT in psycho-social treatment of children started almost in 1990s. The main reason of such a delay lasting about 20 years was the question whether the basic concepts of cognitive therapy, and rational analysis techniques that query thoughts were suitable for children. However, studies conducted over years showed that children were capable of understanding many abstract concepts when described in a concrete language by using metaphors and practical examples from daily life, and performing the tasks with "cognitive" content assigned to them during therapy without any difficulty. It has been proven that especially children that are eight or above can distinguish emotions, thoughts, and behaviors from each other in line with the basic mechanism of CBT, talk about their thoughts, capture their self-talks, and fulfill the self-monitoring tasks [19, 20].

During the last 30 years, CBT has been the most accepted therapy model in the treatment of childhood internalizing disorders [20]. Use of CBT in the treatment of childhood anxiety disorders started with the "Coping Cat" program designed by Kendall in 1990. Effectiveness of this program translated to many languages ("Coping Kuala"—see [21, 22]; "Coping Bear"—see [23]), and similar therapy programs based on Coping Cat has been supported with several study findings that have different research designs [24–35].

"FRIENDS" program developed by Barrett, Lowry-Webster and Turner for the treatment of childhood internalizing disorders in 2000 is another structured CBT program that was firstly created in group format followed by the individual format (for its effectiveness, see [36, 37]). The most significant feature of this program distinguishing it from Coping Cat is that it has been developed to treat not only anxiety disorders but also depression.

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Another CBT-based treatment program developed by Beidel, Turner, and Morris in 1998 to be used in the treatment of social phobia is "Social Effectiveness Therapy for Children (SET-C)." This program is designed for children between the ages of 8 and 12 and composed of 12 individual and 12 group sessions conduced simultaneously on the same weeks (for its effectiveness, see [38]). "Stand Up, Speak Out" is another effectiveness-proven therapy program designed for social phobia [39].

A structured therapy program also designed to be used in childhood anxiety disorder is the individual CBT program called "Thinking + Doing = Daring (TDD)" which was developed by Bögels in Holland in 2008. This manual which was prepared based on effectiveness-proven programs such as Coping Cat and Friends has a structure that consists of 20 sessions and includes basic CBT techniques (for its effectiveness, see [40]). Another therapy manual used in the treatment of childhood anxiety disorders is the CBT program called "Fear Hunter" which was designed by Sorias and her colleagues in 2009. This program consists of 13 child sessions and 3 family sessions and respectively, covers the basic CBT techniques (for its effectiveness, see [41]).

Though they are not as diverse as the manuals created for anxiety disorders, there are also effectiveness-proven CBT programs that have been developed for childhood major depressive disorder. In 1990, "Coping With Depression (CWD)" program was developed under the leadership of Clarke and Lewinsohn, and effectiveness of the program has been proven (for its effectiveness, see [42]). Program consists of 16 sessions including basic CBT techniques such as relaxation, cognitive restructuring, problem solving, and social skills training, and was designed in group format [43].

In the following years, Brent and Poling [44] developed a therapy program for depressive and suicidal children. They compared it with behavioral family therapy (SBFT) and non-directive supportive therapy (NST) to test its effectiveness, and emphasized in the findings that program was significantly more effective as compared to two conditions [45]. In 1996, Stark and Kendall developed the program called "Taking Action" that could be applied both in groups or with individuals, and generally targeted girls with depressive disorder [46]. In the program consisting of 18 children and 11 family sessions, individual workbooks were prepared for parents and children separately. Program mainly covered emotion training, coping skills, problem solving technique, and cognitive restructuring. After that, in 2006, Stark and his team published a new workbook and therapist manual, and developed a program called "ACTION" [47, 48]. Designed for girls aged between 9 and 13, the program consisted of 20 sessions.

In the following sections of the chapter, main points to take into consideration while adapting CBT which was firstly designed for adults to children with reference to both the mentioned therapy manuals and research findings will be covered, as well as the main CBT techniques whose effectiveness has been proven in the treatment of internalizing disorders.

2. Application of CBT in children

Children are quite different than adults both cognitively, emotionally, and behaviorally. Therefore, adaption of adult therapy techniques to children has always been a difficult and

quite sensitive issue. Even though the rationale of therapy and main frame of the techniques used do not change, issues such as adaptability of them to children in developmental terms, structure or duration of sessions are quite important.

2.1. Main characteristics of childhood CBT

One of the main points to take into consideration when dealing with CBT in children is a candid, understanding, and accepting communication. Such communication is emphasized as an essential factor of CBT in children regardless of the psychopathology. Additionally, it is important to maintain the structured and guiding nature of CBT in all sessions. However, a strict, forceful, or ignoring manner should always be avoided. On the contrary, it is required to present both the session structure and the techniques within the therapy in a quite flexible, playful, and co-operative manner to the child, and play an active and directive role as a therapist. Maintenance of such a gentle and accepting attitude, especially while working with techniques that would trigger anxiety and fears of the child such as exposure or problem solving is ultimately important for the course of therapy and motivation of child. At this point, therapist has a critical role for behaving in a creative and spontaneous manner [18, 49].

Apart from the quality of relationship between the child and therapist, considering the developmental characteristics of childhood, identification of therapy targets that would increase child's functionality and satisfaction with life in the most concrete and understandable way possible, but at the same time, inclusion of the child into the process are among other key points. This stage of the therapy is quite sensitive and significant, since especially depressive children have serious difficulties in determining accessible and positive life targets. Besides, more time should be allocated and examples should be used for identification and discrimination of emotions in childhood CBT as compared to adult therapy. Use of a scale up to a maximum of 10 when the child is asked to rate his/her emotions, and making use of visual templates such as "emotion thermometer" or "wheel of emotions" will enable the child to learn this technique more easily.

Considering the cognitive characteristics of children specific to the age periods, another element that is as much difficult as emotions to understand and express is thoughts or self-talks. Therefore, diversely the adult CBT, it will be useful to do more exercises on capturing and expressing thoughts as well as to make use of hypothetical examples while working with children. Another must-have therapy element while working with children is naturally games. Inclusion of games that will relax the child into sessions will make the therapy setup more appealing for the child, extend the short concentration time of child, and enable him/her to move away from incidents that are quite difficult for the child to talk about [18, 49].

CBT is a structured therapy technique; therefore, the order of skills and tasks to be worked on is certain. Use of acrostics for the child to remember that order will both make the therapy more fun, and cause the order to stay at the back of child's mind more easily [50].

2.2. Importance of family involvement

In line with both the results of controlled studies and clinical observations, today many clinicians and researchers agree on the fact that active involvement of family in child-oriented

CBT affects the results of treatment more positively [51–53]. Maintenance of such co-operation throughout the therapy and regular family meetings are critical in terms of checking if the nonfunctional behaviors of the child are reinforced or adaptive behaviors are not punished. It is a known negative factor that parents play a role in continuity of anxiety by reinforcing the escape/avoidance behaviors of the child [22, 54].

Additionally, it has been shown by many researchers that certain parent attitudes cause internalizing problems in children such as anxiety or depression. Protective and neglectful attitudes are the main parent attitudes that are associated with internalizing symptoms [52, 55–58].

Protective parenting is the most striking attitude in the studies. In these type of families, parents do not let the child to face any problem, and continuously and actively intervene in child's life. The child cannot learn how to cope with a real life stress that will emerge in the future and thinks that he/she does not have the strength and skills to cope with such challenging living conditions, since he/she has never directly faced with life problems as a result of such intervening parenting behaviors. Consequently, anxiety or depressive disorder will emerge inevitably.

Neglectful attitude of parent is also thought to be associated with child's anxiety. As a result of neglectfulness, the child will continuously face with every day challenges, make mistakes during the solution of such challenges since he/she lacks both physical and cognitive skills due to the developmental period, and experience repetitive failures without guidance. These failure and disappointment experiences will surely lead to internalizing symptoms in the child after some point. Moreover, because of the neglectful parenting style, the child may feel herself/himself as undesirable, loveless, alone, and insignificant. Considering the relationship between parenting behaviors and internalizing in children, another significant issue is the critical approach level of parents [59, 60].

Psychopathology history of parents is commonly researched issue in childhood psychopathology. Many studies have emphasized the presence of a considerable number of people diagnosed with internalizing disorder among the parents of children diagnosed with internalizing disorder [61, 62]. Similarly, studies have shown that the risk of anxiety or depressive disorder is significantly higher in children with anxious parents as compared to those with non-anxious parents [60, 63–67]. Therefore, even though the applied therapy program is child-oriented CBT, being in a close relationship and co-operation with the parents, and referral of the parent with psychopathology to the necessary services as well as facilitation of his/her access to treatment will increase the effectiveness of treatment. By this way, the parent with decreased symptoms will be able to establish a healthier communication with the child and serve as a positive model.

Family sessions can be involved in the therapy program in various ways during CBT of internalizing disorders. In some programs, the last 5 min of each session with the child can be allocated to parents, whereas some may require parent meetings in addition to this arrangement. Family meetings should mainly include the following: psychoeducation on the nature of childhood internalizing disorders, debriefing about the main rationale of CBT, a short

introduction of the therapy program to be used, discussion on parenting attitudes that trigger or alleviate internalizing symptoms, a short training on effective parenting methods, debriefing on effective reinforcement and punishment techniques, conversation on intra-family communication skills and ways to strengthen them, debriefing about how should the parents help their children during the process of doing homework given through the therapy, and practice of techniques in daily life [50, 68].

Another issue to be covered during parent meetings is the expectations. Some parents have great expectations from the treatment, such as CBT will change all the behaviors of child; there will not be any problems while he/she is doing his/her homework; there will be less conflicts with the siblings; or his/her room will always be tidy. At this point, it is quite important to underline which behaviors this therapy program will specifically focus on while informing the family about the content of program. Similarly, some parents who cannot observe the improvement, they have expected during the first few sessions may not bring the child to sessions at the very important point of therapy. While talking about contents of sessions during family meetings, emphasizing that the child will mostly learn about techniques developed to effectively cope with the symptoms in the first sessions, so they will be more theoretical, and the change will occur when the child starts to use these acquired skills in his/her own life will positively affect the rate of attendance to sessions.

2.3. Importance of homework

One of the essential components of the program for CBT is homework. Thanks to homework, clients might practice the skills they have learned in sessions in their daily life, and might gain the chance to apply the coping techniques taught by the therapist when they encounter with problems in life [69]. Another advantage of homework is the opportunity it provides for the therapist to understand which techniques the child has earned and which he/she has not [70].

While using homework actively is important, the way homework is presented to children also matters. Firstly, it is required to precisely distinguish homework given at schools from the homework given in therapy to be done between sessions. By this way, prejudice of the child toward these tasks will be prevented, and performance anxiety will be triggered as little as possible for cases with anxiety disorder. When examining the therapy programs, it is seen that various names are given to break down the "homework" perception that the child might have: "Show That I Can" or "Take Home Projects" are two examples [50, 71].

Especially, if the academic skills of the child fall short in this aspect, it is important not to focus too much on writing skills and grammar, and structure some of the activities and homework verbally, if required, thus enable the child to feel more comfortable and happy. Another point to take into consideration about homework is informing the parents about homework every week. Therapist should talk to the parents in advance to advice them to encourage and help the child, especially in tasks that are difficult to perform.

When literature is examined, it is seen that homework given to children with anxiety disorder mostly includes self-monitoring of anxiety, relaxation exercises, keeping records of thoughts,

problem solving exercises, and exposure exercises. Typical homework types observed in children with depression focus on activity scheduling, social skills training, problem solving skills, self-monitoring of mood and thought records [72].

2.4. Importance of rewarding

In treatment of all the mental disorders seen in childhood, rewarding that is based on operant conditioning is one of the essential therapy components of CBT. Unlike other techniques, the focus in rewarding is not reducing the internalizing symptoms; the primary aim of rewards is to enable the child to maintain the motivation and attendance to sessions, encourage him/her to do the homework given, as well as to create a factor that facilitates application of techniques such as exposure or social skills training. Behavior shaping, positive reinforcement, fading, and negative reinforcement are the most commonly used rewarding techniques in the treatment of internalizing disorders [20, 73].

There are some points that must be taken into consideration while using rewarding techniques in children. Firstly, it is quite important to create a reward pool that suits the needs and interests of each child. Besides, it should be known that social reinforcers are effective on children as much as the physical reinforcers. Therefore, the role of social reinforcers in the treatment must be noted; they should be used frequently during or between sessions, and the family must be informed about the matter [20]. Secondary reinforcement such as collection of coupons or points are considered as a main rewarding technique just as the spontaneous and short-term rewards [73]. Therefore, it is quite important to establish a rewarding system to be maintained throughout the program in childhood CBT, and integrate this planned system into structured therapy.

Teaching the child to reward himself/herself will increase the motivation of child about techniques and change in the long-term as much as being rewarded by the therapist or family. For this reason, if the child learns self-reinforcement during the sessions, symptoms of children with internalizing disorder such as negative mood, low self-esteem, and social withdrawal will be affected positively.

3. Main CBT techniques used in internalizing disorders and application examples

The main target of CBT is to change the bias and distortion in information processing processes that are thought to trigger internalizing symptoms, and prevent the non-functional coping patterns created by such cognitive impairment. Therefore, combination of behavioral techniques and cognitive techniques is used in the treatment of childhood internalizing disorders with CBT [73].

When CBT programs designed for the treatment of internalizing disorders are examined, it is observed that similar technique sets are used both in anxiety and depression. In a study conducted by Chorpita and Daleiden [74], effectiveness-proven programs that are applied

in a total of 322 randomized clinical studies were examined, and the techniques used were grouped by diagnosis, age, and gender. As a result, although the programs generally incorporate many different techniques, they have determined the techniques that constitute the framework of therapy manuals which are found to be effective for depression and anxiety. Accordingly, they have suggested that exposure, relaxation exercises, cognitive reconstruction, modeling, and psycho-education are used mostly in the treatment of childhood anxiety disorder. Manuals prepared for the treatment of depressive disorder mostly include psycho-education, cognitive restructuring, activity scheduling, problem solving, social skills training, and self-monitoring techniques. This structuring does not vary with age or gender, and these techniques are rather sorted similarly in all children CBT programs [74].

The most frequently used techniques in internalization disorders are described below.

3.1. Psycho-education

Psycho-education is considered as the first component of CBT in internalization disorders, and programs generally start with this technique. The main purpose of psycho-education is that child is informed about many different aspects (for instance, its nature, components, symptoms, and etiology) of anxiety or depressive disorder throughout the therapy [71]. While working with children, it is a common practice to nickname the disorder for externalization of the symptoms of disorder by the child [75].

After the informing stage, two main focus points of internalization disorders are examined; emotions and physical symptoms. Considering the developmental characteristics, realizing, naming, and expressing the emotions are quite complex for a child. At the same time, it will not be easy for a child with internalizing problems to talk about his/her own emotions. Therefore, hypothetical examples, emotion-oriented entertaining exercises and games should be used while working with children about emotions. Thus, the child feels comfortable, and a suitable environment is created to talk about emotions. Creating a list of emotions, creating situation cards and making guesses about what a person might feel against these situations, playing facial expression games about emotions, giving homework for the child to investigate emotions of the people around him/her like a detective and keep records of them, and teaching the child to rate his/her emotions with metaphors such as emotion thermometer are some examples of activities. As a result of psycho-education, the child can distinguish the emotional processes of himself/herself and others, and can express them accurately.

Physiological symptoms such as stomachache, shortness of breath, headache, and somatic complaints are often observed in internalizing disorders. Therefore, in order to cope with these, it is a prerequisite for the children to know about the nature of physiological symptoms, how and where they emerge, and how the anxiety or depressive mood is triggered or alleviated. As a result, the main rationale of psycho-education is that the child that can identify his/her own emotions and physical symptoms well and distinguish from other situations will be able to effectively cope with this intense mood [73, 76].

3.2. Relaxation techniques

Application of relaxation techniques in the therapy for childhood internalizing disorders improves coping skills of the child, and increases the self-efficacy by enabling the child to see himself/herself more strong against situations that create stress [49].

In the treatment of internalizing disorders, relaxation techniques are used to reduce the psychophysiologic arousal level in the presence of stimuli that trigger emotions such as fear, anxiety, anger, and despair. Therefore, main target of relaxation exercises is the child's recognition of his/her subjective muscle and body reactions against stress, and learning to control such physiological reactions [73, 76]. Relaxation techniques used in children can be applied in two different ways; deep breathing exercise and progressive muscle relaxation.

Children with anxiety or depressive disorder report that they feel shortness of breath when they are faced with a situation that causes negative affect, or they get out of breath since their inhalation time shortens. In such a case, the air panted fills only the upper part of lungs, oxygen that goes into the brain decreases, physical stress emerges, and the autonomic nervous system gets activated. Therefore, the breath inhaled deeply using diaphragm relaxes the alarmed nervous system to some degree, since it makes respiration rhythmic and regular [73].

In deep breathing exercise, the child is asked to close his/her eyes and take a deep breath from his/her nose, then exhale this breath slowly. The fact that inhaled breath fills the abdomen rather than the rib cage by pushing down the diaphragm is the most important part to be considered in education [77]. Teaching the diaphragmatic breathing may be quite difficult, especially if the target group is children. Therefore, laying the child on a mat and placing a weight on his/her belly such as a book, and making sure that his/her belly moves up and down would be a practical method that can be used.

Aim of the muscle relaxation technique, which is the second stage, is to decrease the muscle tightness related to anxiety, and prevent such tightness from further aggravating the internalizing symptoms. With this technique, activity of the parasympathetic nervous system increases, and a regression is enabled in the activity level of the triggered sympathetic system [78]. In the progressive muscle relaxation training, the main muscle groups of the body are introduced to the child, and then the child is taught to tense up and release them progressively. At this tense up-release stage, child learns about the changes in his/her body while his/her muscles are tensed. Besides, while the child learns about the muscle groups, he/she can recognize which parts of own body are affected during anxiety or stress, constitute an "early alarm system" of his/her own, and start to apply the relaxation techniques when he/she faces with a situation that causes a negative affect. As a result of this awareness, the child can adapt the muscle relaxation technique which might take long to himself/herself, and achieve a shorter and effective relaxation during anxiety by focusing only on the problematic muscle groups [73, 76]. For instance, if the child states that she feels tenseness on her shoulders, head, mouth, and hands among the muscle groups in the body under stress, she

can constitute a personal relaxation program that is focused on these areas only rather than a long relaxation exercise involving all muscles, and can be applied more practically since it is short.

While teaching progressive muscle relaxation technique, practicing the moves in the tense up-release exercise by using entertaining concrete examples both increases the child's willingness to apply the exercise and strengthens the memorability of moves [73, 76]. For instance, while working with hand muscles, the child might be asked to imagine a lemon in his/her hand and squeeze it to extract its juice, or while working with abdominal muscles, the child might be guided to pull his belly in by saying that a baby elephant is about to step on his/her belly, or while working with foot muscles, the child might be asked to imagine that he/she has stepped in a huge mud puddle and is trying to leave his/her feet marks [79].

Another method used in progressive muscle relaxation technique is called "cue-controlled relaxation." The aim of this method is to enable the children that do not want to attract attention of others when he/she needs to relax in social environments to move to relaxed mode without performing the exercise. For this purpose, at the end of the progressive muscle relaxation exercise performed during session, when the child is completely relaxed, a word that will remind him/her this relaxation mood is called out loudly. Therefore, the called out word is linked with the relaxation mood, and the child that cannot apply the technique due to an inappropriate environment can say this word to himself/herself and relax in any anxiety or anger situation to occur in the future [73, 76].

Effectiveness of the progressive muscle relaxation technique is realized when applied regularly. Therefore, this technique is given to the child as homework during therapy, and he/she is asked to practice this acquired skill throughout the whole therapy program. It would be a good idea to ask for the help of parents at this point. Doing the relaxation exercise with the child, if possible, or allowing the child to teach this technique to the parents will not only enable the exercise to be more reinforced but also make the exercise more entertaining and strengthen the parent-child interaction.

3.3. Attention shifting technique

Most of the children with anxiety disorder focus totally on the negative thoughts when a thought causing anxiety comes to their mind, and selective attention works up the anxiety further. Similarly, depressive children focus on the negative situations/incidents rather than experiences or memories that makes their valuable in life or feel good, and fill their mind with such thoughts continuously. Therefore, a technique is used to distract attention from the thought causing negative emotions to a neutral or relaxing mental activity, and help the child to feel himself/herself much better.

These mental activities might include neutral reasoning such as counting or finding names starting with the last letter, or thinking activities such as imagining to be somewhere that the child feels very happy and comfortable or thinking of the lyrics of a song that he/she likes.

It is assumed that the more detailed the scene pictured in the mind is, the quicker and easier the child will relax. Accordingly, it will be quite useful to work on this imagination during session, and help the child to elaborate it [73, 76].

3.4. Cognitive restructuring

The key component of all CBT manuals developed for the treatment of internalizing disorders is cognitive restructuring. In the cognitive behavioral theory, cognition, emotion, and behavior are conceptualized as inseparable elements; therefore, it is assumed that impairments in emotions and behaviors will improve by means of identification and restructuring of distorted or unreal cognition. Restructuring refers to replacement of nonfunctional thoughts with more constructive thinking styles, and in a sense, revision of thoughts [80].

Main targets of cognitive restructuring are recognizing, testing, and decreasing the mistakes made while interpreting what goes around and unrealistic/negative self-talks that emerge accordingly, then producing positive self-talks based on reason that can replace the negative ones, and coping with the unrealistic negative cognitive distortions. Frequently used techniques during cognitive structuring include Socratic questioning, evidence search, giving instructions to yourself, in-session behavior rehearsal and role-playing, thought record, and in-session rewarding system [73, 76].

Negative self-talks that are not adaptive (or automatic thoughts) are an expression of child's cognitive distortions. Cognitive distortion is a concept that is created as a result of incomplete or inaccurate information processing process, results in misinterpretation of the environment and/or others and/or oneself, and has a significant place in the etiology of childhood internalizing problems. Thereby, it is an important step of CBT for the child to get training on cognitive distortions and evaluate his/her negative self-talks within the scope of cognitive mistakes by using the Socratic questioning method during the cognitive restructuring stage. Once the negative self-talks are captured, the child tries to break this loop by using various motivating sentences or slogans to replace the non-adaptive self-talks via "giving instructions to yourself" technique [81]. Studies show that the most frequently seen cognitive distortions in children with internalizing disorder include catastrophizing, black and white thinking, overgeneralization, should statement, mind reading, magnifying/minimizing, and labeling [20].

Children need time to distinguish between emotion-thought-behavior due to their developmental characteristics; therefore, they need to do enough exercises to gain this skill. It is important to cope with overly negative/unrealistic thoughts more effectively and focus on the behavior and emotions that will emerge as a result of the positive/realistic thoughts, by working on exemplary situations [82]. Since talking directly on examples of their anxieties will discomfort the children, this exercise period is generally covered with hypothetical examples, and then child's own anxieties are addressed [73, 76]. Limiting the homework related to thought record to a maximum of four columns (situation-thought-emotion-behavior) will be suitable for the child's developmental period.

Use of evidence search method during Socratic questioning, and performance of this by the therapist loudly while working on hypothetical examples is a good opportunity to serve as a model. Some questions that might be asked during Socratic questioning are as follows: "Do you really think that it will happen?," "What evidence do you have to think like this?," "May there be another alternative?," "What is the worst scenario, and how you can cope with it?," "What is the best scenario in this situation?," "What would you advice if this happened to someone else?," "Has it happened before, and if so what happened?," etc. [81].

3.5. Self-monitoring

Self-monitoring is one of the cognitive elements of therapy, and generally used to facilitate the cognitive restructuring. The aim of the self-monitoring technique is to enable the child gain a self-awareness to identify his/her emotions and thoughts. Therefore, self-monitoring differs from other CBT techniques in that child monitors and evaluates his/her own behaviors by oneself.

While gaining the self-monitoring skill, the child must firstly gain awareness on whether the target reaction exists. Besides, keeping records on target behaviors is an important part of this technique. Thus, child can observe how often and when he/she performs such behaviors out of session, and notice the recurring patterns related to possible triggers on paper [83]. Focus of self-monitoring can also be emotions as well as behaviors. The target is to enable the child to observe his/her mood during the day, and realize which emotions are felt when and during which situations [50, 84]. Depressive children can be timid and shy for working on his/her emotions and thoughts. At this point, therapist should undertake a more active role and encourage the child.

3.6. Problem solving technique

For a depressive child, problem solving is a serious difficulty; the main reason of difficulty consists of decision-making difficulty, depressed mood, absence of energy, and intense despair emotions seen in depression [85]. A similar situation applies to the anxious child. The child that faces with a problematic situation experiences serious problems in analyzing the problem and thinking of solutions due to anxiety and panic [86]. As a result, the child with internalizing disorder tends to perceive the problems as a trouble, unsolvable, or a serious threat. Such a distorted perception prevents the child from acting, negative emotions appear as a result of such avoidance, and problem becomes more insolvable [87].

Another purpose of CBT is teaching the child necessary practical skills to cope with problems that he/she may encounter every day, exist in real life, cause trouble, and must be actively addressed and solved. Problem solving technique enables the child to think of more than one solution, consider the possible results of every solution, and be able to gain decision-making skills on which solution to be selected [87, 88].

The problem-solving technique learned in childhood CBT involves similar techniques with the technique used in adults [88]. In the first step of the problem-solving technique, which

consists of five steps in total, therapist encourages the child to see and accept problems as a part of daily life, and replace the avoidance reactions against these problems with more active coping behaviors. In the second step, operational definition of the problem is made with the child, and problem is formulated in detail. In the third step of technique, "brainstorming" is made regarding the alternative ways of solution, and a list is created for possible solutions. Each solution on the list is evaluated in detail with its pros and cons, the best way is selected for the solution of problem, and action is taken, in the fourth step. The last step is the evaluation stage; results of the way used for the solution of problem are evaluated [73, 76].

Firstly, problem-solving technique is theoretically explained to the child during therapy, then exercises are made using hypothetical examples in order for the child to externalize the problem and talk more comfortably, and lastly, real life events and problems in child's life are addressed. At this stage, the existing life problems of the child can be listed, and exercises can be started with the one selected by the child. Therapist undertakes an active role in the whole process, and shows how to address a problem by serving as a model. Rewarding the child in each problem that he/she solves successfully and achieves his/her target will increase motivation [50, 81, 89].

3.7. Modeling

Modeling is a concept based on social learning theory [90]. Its rationale is based on the assumption that people learn by observing many things rather than directly performing or directly being exposed to them [87]. Behavior that is desired to be taught to the child might be a behavior that is known but not performed by the observer for various reasons or an action that is lacking in the behavior repertoire of the child. For instance, if the child is depressed with lacks social skills or social phobic, communicating with others in the environment comfortably by using the appropriate words is mostly a social skill that is not in the repertoire of the child.

Rationale of the technique for anxiety disorder is described as follows; when a model that gives suitable reactions to the feared situation exists, the child will not show a fear reaction when faced with the situation that creates fear, and prefer the behavior that he/she takes as a model, and is more functional. With such perspective, therapist is able to be a good model in terms of anxiety reactions. Especially during the role-plays performed in the session, therapist offers the child reasonable examples of more functional reactions [73, 76]. In depressive children, modeling is rather focused on social skills training or problem solving skill, and used to show the adaptive behavior patterns by means of role-playing [91, 92].

Modeling can be carried out as implicit (imagination of someone that effectively copes with the situation that creates anxiety), symbolic (watching a film including someone that effectively copes with the situation that creates anxiety), live (the situation where model is present before the anxious child and the child directly observes the behaviors), or participatory (model is in interaction with the child and provides feedback) [20].

3.8. Exposure technique

The most important factor that feeds the continuous and resistant nature of childhood anxiety disorders is the avoidance behavior that the child has developed against the situation causing anxiety. Therefore, prevention of the avoidance behavior in anxiety disorders constitutes one of the most important targets of CBT in terms of treatment [49, 93]. Exposure can also be used in childhood depression even though it cannot be involved as the primary technique. Especially in the current conceptualization of activity scheduling technique, the importance of avoiding on "depresso-typic" behavior has been emphasized [94]. From such perspective, avoidance behavior feeds the continuous nature of childhood depressive behavior just as in anxiety disorders. Avoidance behavior is triggered by situations creating stress, and reinforced by the relaxation feeling afterward. Along with the avoidance, immobility, withdrawal, and inertia symptoms increase more and a vicious circle is created; as a result of such vicious circle, the child lacks the surrounding reward resources that might reduce depressive symptoms [95]. Consequently, especially if the child has started to avoid situations or activities that trigger cognitive distortions, or depression is accompanied with anxiety symptoms, exposure must be involved in the childhood depression treatment program [82].

Exposure faces the child with a situation that evokes fear in an imaginary or in vivo manner, and offers the opportunity to apply and test the skills learned during the therapy in order to cope with situations creating anxiety. This technique can be applied in systematic exposure or flooding forms, and adapted according to the developmental period of child or characteristics of the feared object/situation [73, 76]. For instance, it is not possible to carry out an exposure activity the same way with a child that is afraid of insects, a child that is afraid of sleeping alone, and a child that is afraid of the death of his/her parents. While it is possible to use *in vivo* exposure for some anxiety sources, imaginary exposure is the best choice in others.

In systematic exposure technique, first therapist and child make a list of events or situations that trigger anxiety. However, it is quite important to arrange a hierarchical order between events on the list starting from the one that creates least anxiety and ending with the one that creates most anxiety [20]. For this purpose, it will be useful to work carefully on the hierarchy, and ask for the help of parents in this process. Then, child starts to face the events on the list one by one. Mostly, the child is exposed to an imaginary situation during the session under the guidance and control of therapist before facing with it in real life. Therefore, he/she will have rehearsed the challenges that might be experienced in real life, and how he/she will cope with them in a safe environment [73, 76]. For instance, a child with social phobia might be asked to make a presentation in front of the therapist before making a presentation in the class. Thus, child starts the technique with a task that is similar to the situation where he/she will experience anxiety intensely but creates less trouble. In another instance, the child might be afraid of sleeping alone and might state in the session that he/she is frightened by the tree branches seen from the window across his/her bed during the imaginary exposure. Taking precautions about this might enable the child

apply the technique more comfortably in real life. Coping techniques such as relaxation and distraction exercises as well as modeling and reinforcement methods are also added to the exposure sessions [81].

Even though most of the tasks in exposure steps are quite simple situations to face with, these encounters might not be easy at all for children with intense anxiety. Therefore, supporting, encouraging, not forcing, and never reinforcing avoidance of the child in all steps are the main tasks of both the therapist and family. Another important point to be noted in systematic exposure technique is that it is required not to move on to the situation on the upper step before the child has exactly managed to cope with a situation on any step [96].

In flooding, the child is directly faced with the situation causing anxiety in an imaginary or experiential manner without any hierarchy. This recurring and long-continued confrontation continues until the child states that his/her anxiety drops down to a certain level. Flooding technique must be used with response prevention; therefore, any avoidance behavior is prevented until the end of child's exposure process. However, since flooding causes a quite intense anxiety in the person as compared to systematic exposure technique, its use is very limited in children in practice. And when it is going to be applied, it must be ensured that child understands the rationale of technique well and knows the procedure in detail; such detailed information is quite important in terms of effectiveness of the treatment [20].

3.9. Social skills training

Social withdrawal is observed in most of the depressive and anxious children (especially, social phobia and generalized anxiety disorder) [97]. For instance, a child with social phobia might feel intense anxiety to communicate with others, and not know how to start communication either. Similarly, a depressive child might feel withdrawn due to maladaptive cognition and self-talks, and miss the social support and reinforcers that he/she might receive from the environment due to lack of social skills.

In social skills training, verbal and motor behaviors that are necessary to improve the suitable communication ways in interpersonal relationships are taught. Before starting the training, it is important to identify the lacking verbal or motor behaviors well, and establish co-operation between the child and family in the meantime. If the child has performance anxiety, main factors preventing the performance must be identified, and additional techniques must be included in the social skills training, if necessary. Social skills training is applied in children generally through techniques such as modeling, role-playing and homework. While applying these techniques, therapist must be quite active, and awareness of the child must be increased by constantly providing feedback [85].

Main focus topics of social skills training in children are weak peer relationships and conflicting parent relationships. For this reason, apart from modeling of therapist and performance of role-playing activities, exemplary behavior videos concerning the topic might be watched

or peer observations might be made. After modeling activities, the practice must be criticized together with the child, and key dialogs or behaviors associated with positive results must be emphasized.

3.10. Activity scheduling

Another technique found in CBT programs planned for the treatment of childhood depression is technical activity planning. In this strategy, therapist finds the pleasing activities that will increase the functionality of child and enable him/her to receive the natural reinforcers in life, and encourages the child to perform them. The main behavior pattern that is frequently observed in depressive children is avoidance. Along with the avoidance behavior, depressive symptoms such as withdrawal, inertia, immobility increase further, and thus a reduction is observed in child's self-confidence and self-efficacy perceptions. Therefore, activity planning has become the primary technique in CBT manuals on childhood depression.

At activity planning stage, the child is first asked to keep an activity diary to understand his/her daily routine better, and the list is examined together with the child in the next session. Then, the current joys of the child and interests in his/her life before depression are researched. This might be done with the child or help of parents might be asked. All these activities are listed, and child is encouraged to take action by including rewarding into the process. The point to take into consideration here is avoiding establishing very high targets for the child considering the current state, developmental characteristics and social skill level of the child, and forcing him/her at this direction [43, 46]. The activities that can be performed must be gradually included in the daily routine of child, and some new activities to be performed at certain times of the week must be targeted for the next session.

Activity scheduling and homework as well as putting these into practice are techniques that can be applied throughout the whole therapy program. For this reason, activity records kept by the child, and proving that there is always something that can make him/her feel good by this way will positively affect the emotions related to depression such as despair, self-esteem, and self-sufficiency [46, 89, 98].

4. Conclusion

CBT is an effectiveness-proven therapy method in the psychosocial treatment of childhood internalizing disorder. Considering the techniques included, even though anxiety and major depression are two different disorders, they are observed to occupy a quite common pool in terms of their similar nature, symptoms, etiologies, and high comorbidity rates. While these techniques are rationally similar to those in adult CBT, application ways, contents, session structures of the techniques, and styles of homework should be adapted to the developmental characteristics of children.

Author details

Emine Sevinç Sevi Tok

Address all correspondence to: eminesevinc.tok@ikc.edu.tr

Department of Psychology, Izmir Katip Çelebi University, Izmir, Turkey

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Chapter 2

Cognitive-Behavioral Therapy of Obsessive-Compulsive Disorder in Children and Adolescents

Irem Damla Cimen

Additional information is available at the end of the chapter

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Abstract

While obsessive-compulsive disorder (OCD) is present under the category of anxiety disorders in DSM-IV TR, it is classified under "Obsessive Compulsive Disorder and Related Disorders" in DSM 5. There is no different diagnostic system for children and adolescents. OCD has serious adverse effects on family, school, and social lives of children and adolescents, but adolescents with OCD often hide their symptoms and delay seeking help due to several reasons such as inability to recognize their symptoms as disease manifestations, embarrassment, fear of being stigmatized by other people, and believing that what the experience is transient. The age of onset has significance in terms of the disease progression. Therefore it is very important to detect OCD at its early stage, because the majority of the adult patients develop the disease during childhood or adolescence.

Keywords: obsessive-compulsive disorder, child, adolescent, review, psychiatric disorders

1. Introduction

Obsessive thoughts and behaviors are mentioned since ancient times and mentioned on holy books. In Middle Ages, it was thought that people who have religious and sexual unwanted thoughts were taken over by the devil and to be punished by burning. In the seventeenth century, Shakespeare defined a character called Lady Macbeth; she had contamination obsession and hand washing compulsion. In the nineteenth century, Esquirol mentioned from a case report named Matmazel F. Matmazel F was rubbing her fingers and washing her hands constantly because she was thinking that she might be infected with something, and she could not stop herself. Morel used the term of "obsession" first time in 1866. In the twentieth century, Janet stated that the sense of incompleteness is the base of obsessive-compulsive

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disorder. Janet handled this disorder under the title of psikasteni and exhibited that rituals could be improved by behavioral technics. S. Freud also stated the psychodynamic basis of the disorder [1].

There are two basic classification systems in psychiatric disorders as the Diagnostic and Statistical Manual (DSM) and the International Classification of Diseases (ICD). Obsessive-compulsive disorder (OCD) has been included in ICD-5 first time among adult mental disorders in 1939, but for children OCD has been included in DSM-II among childhood mental disorders in 1968 and in ICD-9 in 1978 [2–4]. In DSM-IV, differences in childhood OCD patients "like they could not know their obsessions and compulsions" are extremely unreasonable were highlighted [5]. While obsessive-compulsive disorder (OCD) is present under the category of anxiety disorders in DSM-IV TR, it is classified under "Obsessive Compulsive Disorder and Related Disorders" in DSM 5 and hoarding compulsions separated from OCD in DSM 5 into a new disorder, as "Hoarding Disorder." But in the ICD 10 classification system, OCD is located under "neurotic, stress-related, and somatoform disorders" [6–8].

Obsessive compulsive disorder and related disorders include:

- Obsessive-compulsive disorder (OCD)
- Body dysmorphic disorder
- Hoarding disorder
- Trichotillomania
- Excoriation (skin-picking) disorder
- Substance-/medication-induced obsessive-compulsive and related disorder
- Obsessive-compulsive and related disorder due to another medical condition
- Other specified obsessive-compulsive and related disorders and unspecified obsessive-compulsive and related disorders [8]

OCD is a disorder that is characterized by the presence of obsessions and/or compulsions [8]. Obsessions are intrusive and unwanted thoughts, urges, or images which are recurrent and persistently experienced and caused anxiety or distress. Patients usually try to ignore or suppress these thoughts, urges, or images or try to neutralize them. Compulsions are behaviors or mental acts which are repetitive and performed in response to an obsession or applied as rigid rules. These behaviors or mental acts are performed in order to prevent or reduce anxiety and distress or feared event or situations. These behaviors or mental acts are unrelated with feared events in reality. For this to be diagnosed, it should take a lot of time, for example, more than 1 h per day and cause clinically significant distress or impairment in functioning like social, occupational, or other important areas. Symptoms of OCD must not be related with any substance's physiological effects, medical conditions, or mental disorders. In DSM 5 diagnostic criteria, OCD could be specified as if with good or fair insight, with poor insight, and with absent insight/delusional beliefs or tic related [8]. Although there is no different diagnostic system for children and adolescents than the adults, it has been stated that young

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children may not be able to articulate the purposes of their compulsive behaviors or cognitive actions [8]. Children usually have less insight about the irrationality of their obsessions and compulsions. And at some developmental stages of children, it is hard to distinguish some normative behaviors from OCD. At this point, behavior's impact in child or adolescent's functioning is important; normative behaviors usually do not affect functioning [9].

2. Etiology

The etiology of OCD is certainly unknown, but multiple factors like genetic, biological, cognitive, and behavioral are found effective [10]. Also it involves interactions between genetic and environmental factors [11]. Environmental factors such as traumatic life events and stress were found to be effective in 50% of OCD cases [12, 13]. In a twin study, OCD concordance was found approximately 90% in identical twins and 47% in dizygotic twins [14]. And in a twin study, genetic factors were found related with OCD symptoms [15]. In early onset OCD patients, OCD may be almost twice as high through the relatives as late onset OCD patients. This shows that familiarity in early onset OCD patients is higher [16].

OCD is a neuropsychiatric disorder, and basal ganglia dysfunction has been associated with obsessive-compulsive symptoms. In literature there are some studies that found association between OCD and neurological disorders like epilepsy, brain injury, Tourette's syndrome, and Sydenham's chorea [16–19]. Repetitive behaviors in a patient with Sydenham cores were first described by Sir William Osler. During the course of Sydenham's chorea, usually obsessive-compulsive symptoms occur [18, 20]. In literature it was reported that immunologically based group A beta-hemolytic streptococcal infection is an another etiological factor. This disorder is called as Pediatric Autoimmune Neuropsychiatric Diseases Associated to Streptococcal Infections (PANDAS). This disorder leads to an autoimmune inflammation in the striatum and other brain areas and shows some neurologic symptoms like hyperactivity, choreiform movements, and tics. In addition to these, in a certain period, increase of obsessive-compulsive symptoms is observed. This makes researchers to think that Tourette's syndrome, Sydenham's chorea, and OCD have a common etiology [21]. OCD's neural basis is thought to include the circuits of the orbitofrontal cortex, striatum, and thalamus and the neurotransmitters as serotonin, dopamine, glutamate, and gamma-amino-butyric acid [22, 23].

In recent neuroimaging studies, amygdala and prefrontal cortex's role has been found important in mechanism of regulating emotional responses like fear and anxiety [24]. Some evidences showed that there is a reward dysfunction in OCD [25]. Similar to addictive behaviors, compulsive behaviors that cause relief from anxiety and have a rewarding effect were hypothesized. Reward process has been associated with ventral striatal orbitofrontal circuitry and in neuroimaging studies; it was shown that OCD patients had an altered metabolism in this area frequently, and this results supported the hypothesis [26].

As psychoanalytic theory, unresolved oedipal complexes cause anxiety, and this takes place a factor in OCD etiology. According to this theory, as a result of encountering anxiety, people

have a regression to anal period, and some defense mechanisms are commonly used like isolation, doing-undoing, reaction formation, and displacement [27].

There is a little evidence about the cognitive mechanisms of OCD; it is thought that these mechanisms are similar in adults and children. According to cognitive theory, the basis of obsessions is catastrophic interpretation of unwanted and distressing thoughts, impulses, and images. Obsessions are creating anxiety, and by rituals, ruminations, or avoidances, this anxiety is tried to be reduced. For obsession treatment these misinterpretations must be corrected. Also in a study, maternal cognitive biases are found more relevant with younger children's OCD severity; personal cognitive biases are more relevant in adolescents [28].

3. Epidemiology

People with OCD seek medical help when their daily functionality is seriously compromised or they experience severe anxiety, and it has been reported that these individuals start seeking professional help after an average of 7 years from the onset of these symptoms. It was found that adolescents with OCD often hide their symptoms and delay seeking help due to several reasons such as inability to recognize their symptoms as disease manifestations, embarrassment, fear of being stigmatized by other people, and believing that what they experience is transient [29, 30]. Furthermore, because adolescents hide their symptoms, it is difficult to determine the actual prevalence of the disorder, and when they seek professional help, they may be misdiagnosed as depression or anxiety disorder due to not mentioning their symptoms [31].

In the past few decades, knowledge of OCD has increased, but studies were mostly done in adult population and less studied in children. Although the first study about the prevalence of OCD in children was reported in 1970, there are few population-based studies presented about the prevalence of OCD in children and adolescents recently [32]. The prevalence of OCD in children and adolescents has been reported between 0.5 and 3% [33, 34]. In a recent study, in 16 European countries, median prevalence of OCD was found 0.7% [35].

It is predicted that OCD is the fourth frequent psychiatric disorder after phobies, substance use disorder, and depression. Studies in different countries and cultures show that OCD prevalence is independent from cultures [27]. Previous epidemiological and clinical studies show that OCD is more frequent among males prior to adolescence and during childhood, the difference between the sexes diminishes to a similar rate as the age advances, and the prevalence rate does not differ between sexes during adolescence and adulthood, and the rates are equal in both sexes at this time [36–46]. Although it was reported in the literature as early as 2 years of age, OCD usually begins at late childhood and early adolescence in youth. Age at onset of the OCD is averagely 10 years old, but age of diagnosis is around 13 years old [47]. Childhood-onset OCD's onset age is approximately 8–11 years old in boys and 11–13 in girls [48].

OCD has adverse effects on family, school, and social lives of children and adolescents [49, 50]. The age of onset has significance in terms of the disease progression. Several studies have detected that OCD often starts at late adolescence and early adulthood period [51, 52].

Studies with adolescents showed that OCD development risk is higher at late adolescence than early adolescence [53]. It is very important to detect OCD at its early stage, because studies indicate that 50% of the adult patients develop the disease during childhood or adolescence [47, 54–56].

4. Clinical features

It is generally considered that in children obsessive thoughts are less common compared to adults; solely compulsive behaviors in the absence of obsessive thoughts are more frequent, while solely obsessive thinking is less common [45]. However, there are studies in literature showing that all children with compulsive aspect of the disease also have accompanying obsessions [57]. Some studies have reported that unlike adults, children may add their families in their rituals, and they cannot describe triggering factors and stressors as well as adults [42].

According to literature, the most common obsessions among children and adolescents include "fear of contamination, dirt, contracting disease"; "fear of aggressiveness, doing harm-receiving harm"; and "need for symmetry, order and precision", while the most common compulsions are "grooming," "repeating, and checking" [36, 37, 58, 59]. A study including 44 adolescents, 43 early onset adults, and 45 late onset adult OCD patients reported that religious and sexual obsessions are more common in adolescents than in adult patients, obsessions about contamination are more common in adolescents, and grooming compulsions are more frequent in early onset adults than adolescent patients [60]. Onset of OCD is rare before 6 years old. But in cases that began before 6 years old, symptoms usually began with rituals or hand washing and checking [27]. Childhood OCD in boys is 1.5–2 times more than girls [61]. In boys disorder is more severe, and neurological symptoms and comorbidities are more common [27].

Studies that involved children and adolescents diagnosed with OCD reported the frequency of poor insight with the range of 20–45%. Poor insight in children and adolescents with OCD is associated with severity of symptoms and loss of functionality and has a great influence on duration and success of treatment [62, 63]. Poor insight in OCD causes patients not to recognize their symptoms as a problem and results in reduced treatment motivation and treatment success. Therefore OCD patients with poor insight may be misdiagnosed or may not seek treatment [62, 64].

5. Assessment

The Children's Yale-Brown Obsessive Compulsive Scale (CY-BOCS) is mostly using tool and often referring as the "gold standard" measurement for assessment of pediatric OCD. It involves two subscales for Obsessions Severity and Compulsions Severity, and total score is estimating with these two subscales [65, 66]. Also there are some other assessment tools

like the Children's Florida Obsessive Compulsive Inventory (C-FOCI), Leyton Obsessional Inventory-Child Version, the Anxiety Disorders Interview Schedule for DSM-IV: Child and Parent Version (ADIS-C/P) which could be used for OCD assessment in pediatric population [67–69].

6. Comorbidities

Among children with OCD, 85% of patients have at least one, and 21–75% have at least two or more additional psychiatric diseases [70–73]. The most commonly reported accompanying diagnoses include anxiety disorder and depression [71, 72, 74]. Several studies involving children and adolescents have reported that attention deficit hyperactivity disorder, Tourette's disorder, oppositional defiant disorder, and generalized anxiety disorder are frequent comorbidities [75–78]. In addition to these accompanying disorders, eating disorders, especially anorexia nervosa, can be frequently observed concurrently with OCD in females [79]. Other studies have found association between early onset OCD and somatoform disorders, tic disorder, impulse control disorder, and high resistance to treatment [80–83].

7. Differential diagnosis

There are many diagnoses that can be confused with OCD. For example, some anxiety disorders must be considered like generalized anxiety disorder, specific phobia, and social anxiety disorder. In generalized anxiety disorder, recurrent thoughts are usually about real-life concerns as finances and family, but in OCD these thoughts are irrational. Anxiety of patients with specific phobia is more limited with specific objects or situations, and they do not have rituals or compulsions. In social anxiety disorder, fear is limited with social situations. Major depression can be confused with OCD, but obsessions in major depression are usually appropriate with patients' mood, not intrusive or distressing and not related with compulsive behaviors. Some disorders that are under the category of OCD and related disorders like body dysmorphic disorder, trichotillomania, and hoarding disorder can interfere with OCD. In body dysmorphic disorder, obsessions and compulsions are only with physical appearance; in trichotillomania there are no obsessions, and compulsive behaviors are only hair pulling. Hoarding disorder patients have difficulty in discarding or parting with possessions. In consequence objects extremely accumulate, but in OCD obsessions are not typically related with dispose of objects. Although obsessions and compulsions in anorexia nervosa are limited to body image or weight, this disorder can be confused with OCD. Tic disorders also can be misdiagnosed as OCD. Tics are not related with neutralizing obsessions, and tics are less complex than compulsions. Not only OCD but also psychotic disorder patients can have irrational thoughts or delusional beliefs. But OCD patients do not have other psychotic symptoms and recognize that the intrusive thoughts are a product of their own mind. Obsessive-compulsive personality disorder does not have specific obsessions or compulsions but have a resistant perfectionist or controller personality structure. OCD can be confused with some medical conditions because of the results of compulsions like eczema, rashes, and constipation [8, 9, 84].

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8. Treatment

8.1. Cognitive behavioral therapy

Cognitive behavioral therapy (CBT) is recommended for the first-line treatment in mild to moderate OCD, but in moderate to severe OCD cases, it is recommended to support CBT with medication [85].

CBT is a kind of psychotherapy which is developed on the basis of learning theories in psychology and the principles of cognitive psychology. The purpose of this therapy is to change emotions and incompatible behaviors by using psychotherapeutic methods based on these principles [86]. Behavioral therapies began to be used in the treatment of emotional and behavioral problems of young people in the 1950s. These behavioral approaches are based on the theories of Thorndike, Watson, and Bandura, and classical and operant conditioning have been used to treat behavioral disorders seen in infants and children. Cognitive therapies were developed by Aaron Beck in the 1970s and started to be used in the treatment of child and adolescent cases in the 1980s [87].

According to CBT, the mental condition of a person is the result of the mutual interaction of the environment, relationships, the biological structure, emotions, cognition, and behaviors. Psychotherapeutic methods can only be applied to cognition and behaviors of a person [86]. According to learning theory, compulsions reduce distress that triggered by obsession so that negative reinforcement occurs over time (**Figure 1**) [88].

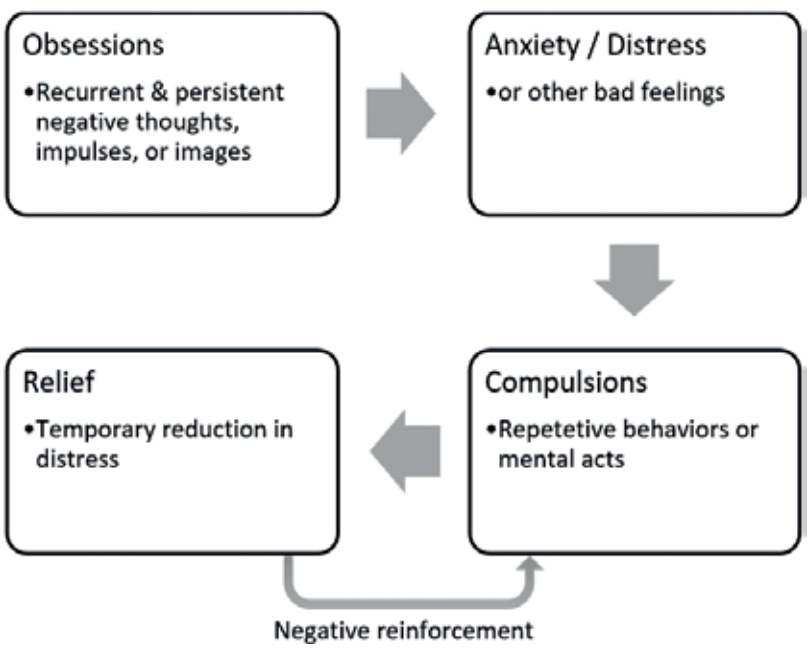

Figure 1. The obsessive-compulsive cycle used by Piacentini et al. [89] to describe OCD's mechanism.

In the CBT, children and adolescents learn to confront with their fears step by step. By learning how to behave against what the OCD tells them, they would understand that their fears do not reflect reality [90]. According to cognitive theory, cognitive processes determine the feelings and behaviors of people. Cognitive processes provide one's interpretation of the external world, surrounding events, own life, and relations with other people. When the basic assumptions and beliefs involved in the cognitive structure that determines the person's view of the world and its interpretations are distorted or functionally improper, a person begins to experience problems [91]. Hence, problems that disturb the person are not due to the events and experiences themselves but due to perception and evaluation of the events and experiences [92]. Instead of these problematic forms of interpretation, cognitive therapy tries to reveal more compatible and appropriate perception and evaluation structures for a situation [93]. Additionally, cognitive therapy emphasizes that improper cognitive structures are an important factor in emerging and maintaining mental disorders. The basic cognitive features of OCD are an overestimation of thoughts and feelings, exaggerated sense of responsibility, perfectionism about controls of thoughts and behaviors, and catastrophic interpretation of possible outcomes of thoughts and impulses, and these features lead to misinterpretations [21]. Cognitive therapy firstly tries to establish connections among emotion, behavior, and thought [94]. According to the cognitive theory, cognition is examined in two sets: automatic thoughts and schemes (**Figure 2**) [86].

Cognitive therapy deals with automatic thoughts. These thoughts are spontaneous and located in the stream of mind. Also, they are cognitions that are mostly specific to environment and situation that accompanied to moments of emotional distress. Contrary to emotions automatic thoughts are rarely noticed. These thoughts could be verbal or imaginary. There are unsaid

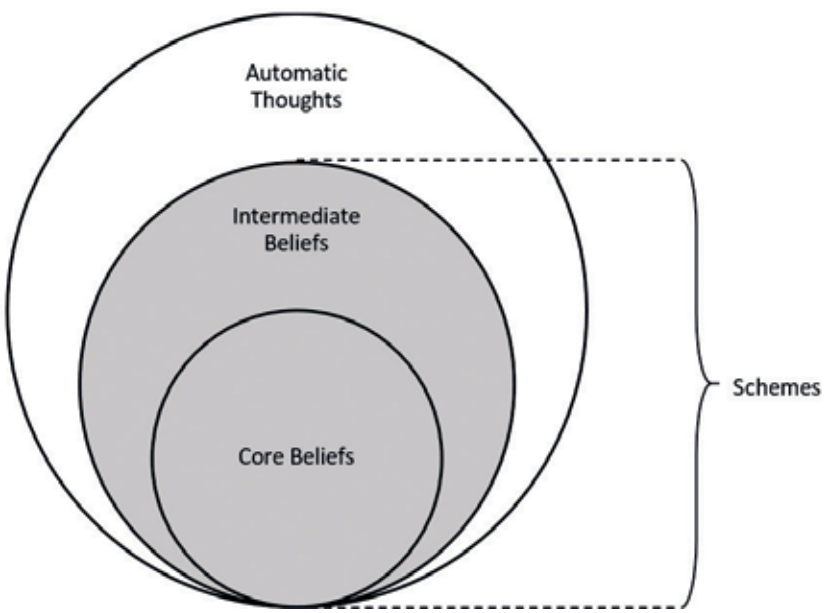

Figure 2. Cognition structure [86].

intermediate beliefs, rules, and assumptions regulating one's behavior underlying automatic thoughts. These are permanent rules and anticipations about the behavior of himself/herself and others, their life, and things that happened to them. Nonfunctional intermediate beliefs lead the therapist to core beliefs that are the deepest cognitive structures. Core beliefs consist of people's early life experiences and their identification with the people around them. These beliefs are reinforced by similar experiences and learnings by time [95]. According to Piaget, the child enters the concrete operational stage around the age of 7–8. Most of the children at the concrete operational stage have the logical processes to take advantage of the cognitive debate. There may be difficulties in cognitive therapy in children who have not reached the concrete operational stage [95]. Children and teenagers often apply to therapy by caregiver's decision. So the first thing to do by the therapists is to introduce themselves and to explain to the child who they are, what they do, and how they can help [93].

The most effective behavioral techniques are a combination of exposure and response prevention. Exposure to anxiety-producing stimulus is advised to a person, and decrease of anxiety is expected after repeated practices. During exposure, the person must prevent rituals and avoidance behaviors. At this stage, response prevention is used. Practices can be in real or imaginary ways. A list should be made of the anxiety-inducing stimuli before practice. Practice starts with easy tasks in the list, and the difficulty of the tasks is increased step by step [27, 96].

CBT session consists of symptom control, review, and getting feedback of homework done; determines the agenda items; configures session content; and determines the new homework, [97]. CBT usually continue 10–14 weeks, with weekly sessions taking 45–90 min [98]. Among the basic principles of the CBT, the first step is psychoeducation. In psychoeducation session, the incidence and prevalence of OCD, age-dependent normal obsessive-compulsive behaviors, OCD's symptoms and disorder's nature in child and adolescent age group, OCD's mechanism, and the impact of factors like developmental level and temperament are given. Also in this session, knowledge of underlying reasons of OCD and basis of cognitive and behavioral therapy, especially exposure and response prevention, and social learning theory, when the medical treatment is needed, are given.

The second step is the diagnostic assessment. There must be a detailed assessment of child's/adolescent's problem and history of coping methods and medical, developmental, family, and school features. Social and cultural characteristics must be considered. Different sources of information such as the clinical interview, parents, questionnaires, and information from school must be integrated. Specific OCD symptoms and comorbidities should be asked. A formulation should be made including protective, precipitating, predisposing, and maintaining factors linked to child/adolescent's situation. The decision should be given about whether an additional medical treatment is necessary. A family assessment involving the capacity to support the child/adolescent of the family should be undertaken. Which family members have become involved in rituals, avoidance behaviors, and obsessions and family functioning must be questioned.

In the third step, emotions, behaviors, and cognitions should be assessed. Anxiety should be explained and normalized in ordinary fear-inducing situations. Furthermore, thoughts,

feelings, and behaviors should be assessed. Detailed list of obsessive ideas and rituals should be done by standardized instruments. Insight level should be questioned. A list of triggers to obsessional fears and compulsive behaviors/rituals and avoided situations should be generated. Cognitive and behavioral rituals used to reduce discomfort should be identified. By using scales appropriate for the age such as "fear thermometer" or "SUDS ratings" anxiety levels should be rated, and child/adolescent should rate how difficult to resist OCD symptoms. For exposure and response prevention, targets should be identified.

The next step is intervention stage. At this step, OCD and intervention rationale should be explained. OCD could be explained by age-appropriate metaphors. With positive reinforcement like praise, awards, and "certificates of achievement," engagement to therapy should be increased. OCD symptoms are tried to be externalized by giving a nickname to OCD, using "boss back OCD" strategy, being child/adolescent's ally in fighting OCD and figuring out strategies for fighting OCD. Constructive self-talk might be helpful for coping, and cognitive reconstruction would be useful for unhelpful assumptions underlying the obsessions. In the exposure trials, a child/an adolescent creates a hierarchic list of anxiety situations. Mutually agreed targets are chosen from the list, and those targets are worked together. A direct exposure method is implemented on the agreed targets, and enough exposure time is allowed for habituation. In this process, anxiety levels are rated. Graded exposure including imaginal exposure, exposure to cartoons or images of the feared trigger, is used in the session [99]. The exposure trial is continued until distress ratings decrease by 50% [100]. By agreeing on realizable daily homework tasks, chances of success are maximized.

For ritual prevention, a plan will be made as delaying, shortening, doing differently or performing the ritual slowly. Also, self-monitoring and recording rituals are a part of the exposure process. During response prevention, child's/adolescent's anxiety is measured by the fear thermometer. Then relapse prevention is used. The distinction between "lapse" and "relapse" is explained to child/adolescent and parents. For any future OCD symptoms, a rehearsal is made for remembering and using CBT techniques. Family members are included in the intervention as "coaches" for supporting children during exercises, and it is important to work with the school [99]. When CBT is implemented, escape, avoidance, and security search behaviors must be considered because these behaviors are the factors leading to anxiety [101].

Child/adolescent is trained for some anxiety management strategies like breathing and relaxation techniques [102]. CBT could be implemented in groups. Studies show that group CBT programs are more comfortable for patient children because of seeing other children with the same problem [90]. The developmental characteristics as a level of autonomy and dependence of the child should also be considered when CBT is applied [101]. The level of language development during therapy can cause problems. They may not express their feelings verbally. For this reason, first of all, emotional words and concepts should be studied with comics, pictures, heroes, and narratives [93]. And cognitive behavioral play therapy can be applied while working with very young children [101].

8.2. Medical treatment

In OCD's pharmacological treatment, fluoxetine, sertraline, and fluvoxamine as selective serotonin reuptake inhibitor (SSRI) and clomipramine as nonselective serotonin reuptake inhibitor have the approval of US Food and Drug Administration for child and adolescents. Which serotonergic drug is the first choice is unknown. But clomipramine's effect was found superior than SSRIs [103]. Clomipramine is considered as the gold standard medication in pharmacological treatment of OCD; however, 46–74% of adolescent OCD patients have been reported to benefit from this drug [104]. Studies indicate that selective serotonin reuptake inhibitors (SSRIs) are superior to placebo for treatment of childhood OCD [103].

Some supportive strategies can be applied in case SSRI treatment is not adequate. These supportive methods include options like addition of CBT, risperidone, clonazepam, clomipramine, aripiprazole, or memantine to the treatment [105, 106]. Medication augmentation is recommended for cases which have moderate impairment persists in at least one functioning area despite adequate monotherapy. Treatment resistance can be described as failing ≥2 adequate SSRI monotherapy treatment, 1 SSRI and a clomipramine trial, and failure of adequately delivered CBT [85].

In augmentation strategy especially clomipramine and the atypical antipsychotics are commonly used [107, 108]. And also some other drugs like stimulants, gabapentin, sumatriptan, pindolol, inositol, opiates, St. John's wort, N-acetyl cysteine, memantine, and riluzole, without evidence-based results, have also been tried [109].

Adding clomipramine to an SSRI (often fluvoxamine at low doses like 25–75 mg/day) could be a useful augmentation strategy. But practitioner must be careful about adding clomipramine to fluvoxamine or to other CYP-450 2D6 inhibitors like fluoxetine or paroxetine to prevent potentially toxic serum clomipramine levels which would cause cardiological side effects and must follow up with electrocardiography. In augmentation therapy, mostly atypical antipsychotics are chosen. This strategy can improve oppositional behaviors which are caused by increased anxiety level [85]. Riluzole is a "glutamatergic modulator" which effects on glutamate release and increases the level of α-amino-3- hydroxy-5-methyl-4-isoxazolepropionic acid trafficking and amino acid transporters that stimulates neuroglia [110]. Riluzole has FDA indication only in amyotrophic lateral sclerosis, but there are no indications for childhood conditions. Recently, riluzole was studied in a few open-label trials for generalized anxiety disorder, major depressive disorder, bipolar depression, and OCD in adults, and these results showed riluzole's beneficial effects, and it was well tolerated [111]. In an open-label trial of riluzole of childhood OCD, four of six patients' OCD symptoms had improved significantly. In this study riluzole was well tolerated, and there were no any side effects seen in children [112].

In a study that includes 17 children and adolescents between aged 8 and 18 years with a primary diagnosis of OCD, effectiveness of D-cycloserine (DCS)-augmented CBT for children and adolescents was investigated. Results of this study showed DCS-augmented exposure, and response prevention produced significant improvements in OCD severity relative to a

placebo control in severe and difficult-to-treat pediatric OCD [113]. Lamotrigine is an antiepileptic drug and also a mood stabilizer that decreases extreme glutamate release [114, 115]. Thus Lamotrigine could be a good augmentation agent in refractory OCD cases. Except those studies, there is a case report that aripiprazole was used with clomipramine, which showed remarkable improvement [116].

9. Conclusion

OCD is an important psychiatric disorder in childhood and adolescence. At this age OCD is common, but the diagnosis is often missed. For this reason OCD usually shows chronic progress and serious loss of function. OCD could be confused with other diseases, or comorbidities could be seen. These conditions make it difficult to treat the disease. Although the disease has not completely recovered by the treatment, symptoms can be improved, or functionality may improve somewhat.

OCD could not be as well-defined as adults. Therefore more clinical studies are needed. These studies lead to a better understanding for etiology, treatment, and course of OCD. With the new treatment approaches, OCD could be treated at early age period, and chronicity could be preventable. Thus the incidence of OCD in adulthood may decrease, and it may increase patients' quality of life.

Author details

Irem Damla Cimen

Address all correspondence to: damlamanga@gmail.com

Darica Farabi Public Hospital, Child and Adolescent Psychiatry Clinic, Kocaeli, Turkey

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Chapter 3

Cognitive Behavioral Therapy for Social Anxiety Disorder: Intrapersonal and Interpersonal Aspects and Clinical Application

Christina Hunger-Schoppe

Additional information is available at the end of the chapter

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Abstract

Research on social anxiety disorder (SAD), and its treatment, widely focuses on intrapersonal aspects. There also exists an increasing body of literature concentrating on its interpersonal dimensions. This chapter will present an overview about both intrapersonal and interpersonal approaches to SAD. This will be followed by a clinical application including dyadic and group session fostering the intra- and interpersonal perspective in cognitive behavioral therapy, in addition to the derivation of the patient's individual model of SAD based on *Clark and Wells* model of treating SAD.

Keywords: cognitive behavioral therapy, social anxiety disorder, social phobia, disorder, model, interpersonal, intrapersonal

1. Introduction

1.1. Social anxiety disorders

SAD is among the most prevalent mental disorders (lifetime prevalence, 7–16%) [1]. It is characterized by fear of negative evaluation (e.g. rejection, humilation, embarrassment) or offending others lasting six or more months, accompanied by actively avoiding social situations, or staying with them with intense fear or anxiety. The fear is out of proportion to the actual threat posed by the social situation, depending on the sociocultural context. The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) updated SAD criteria with a special focus on separating social interactions (e.g., conversations), felt observation (e.g., dinner), and performance

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situations (e.g., oral exams); "humiliation" and "embarrassment" are subsumed under the broader term "negative evaluation," the core fear in SAD; and including patients' sociocultural context allows for the better evaluation of the "excessive or unreasonable" fear described in the former version of the DSM [2, 3]. SAD is associated with considerable psychosocial and occupational handicaps and with an increased risk of comorbid mental impairment and suicidality [4, 5]. Remission rates are low (e.g., 20% in the first 2 years) compared with affective disorders and other anxiety disorders [6]. Thus, effective treatments are in high demand.

Cognitive behavioral therapy (CBT) for SAD appears effective in a range of formats demonstrating a general effect size of $d = 0.70$ [7]. Effect sizes however vary considerably. The following parameters have shown substantial influence on CBT's efficacy: *setting*, with larger effect sizes in individual versus group settings; *data collection*, with larger effect sizes in observer ratings (e.g., $d = 1.93$, Liebowitz Social Anxiety Scale (LSAS)) versus self-reports (e.g., $d = 1.23$, LSAS-SR); *number of measures* and *treatment duration*, with larger effect sizes on composite measures in short treatments (e.g., $d = 2.14$ on the Social Phobia Composite, in a 4-month treatment) versus single measures in long treatments (e.g., $d = 1.23$–1.32 on the LSAS-SR, in an 8-month treatment); and *calculation of outcome*, with larger effect sizes calculated by odds ratios of remission and response (e.g., 36–86 and 56–86%, respectively) versus calculation of pre-post differences [8–13].

2. Intra- and interpersonal aspects of social anxiety disorders

On a theoretical and therapeutic level, SAD can be described and treated with a focus on individually impaired internal processes and modes of behavior. This includes the amplitude of emotional life (e.g., unease, nervousness, panic) and somatic experiences (e.g., sweating and hot flashes) in specific social situations. Core cognitive processes refer to dysfunctional beliefs and self-focused attention, limiting the perception of external stimuli. It also includes modes of behavior depending on how strongly the patient avoids the feared situations. On the other hand, SAD can also be described and treated with the focus on the affected social system. This includes problems while interacting with others (e.g., arguing) and one's overall experience within the social system (e.g., belonging, cohesion, flexibility, accord). The convergence of both foci makes SAD an intra- and interpersonal disorder: symptoms of fear arise when the affected person experiences that he or she may attract critical attention from others; these symptoms in turn constrain the person's ability to successfully build and maintain social relationships [14].

Intrapersonal models. Cognitive behavioral models on SAD are largely intrapersonal models. There is a common ground between the models of the first generation. *Beck, Emery, and Greenberg* [15] explain SAD by distorted cognitive schemata (e.g., "No matter what I do, I'll make a mistake!") resulting from negative interaction with significant others in early childhood to youth. Once generated, these schemata are activated in stressful and challenging situations in the kind of unconditional negative core beliefs (e.g., "I am inept!") and conditional beliefs (e.g., "If I show myself, I'll behave stupid!"). Successful treatment of SAD should change these problematic negative cognitive schemata. There however still is the question why some schemata do not change though people are exposed to lots of positive situations.

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Clark and Wells added characteristics of information processing to explain the maintenance of SAD: (1) self-focused attention, (2) safety and/or avoidance behavior, and (3) fearful anticipation before an event and negative rumination after it. *Rapee and Heimberg* [16] emphasize the anticipated while overestimated performance standards that others have stimulating fear of scrutiny and contributing to SAD. Differences between these models refer to the attentional focus that is understood as a person's shift to monitoring internal versus external cues. In the first model, treating SAD primarily means to direct the patient's attention toward inward to increase the person's sense of self so that safety behaviors are identified, understood, and finally dropped. In the second model, treatment is aimed at training socially anxious individuals to direct their attention away from the mental representation of the self toward the task at hand and to indicators of nonnegative reactions from others [16].

The second generation of cognitive behavioral models of SAD argues that the former approaches are too unspecific considering disorder-specific characteristics and with regard to the importance of the self in understanding SAD. *Hofmann* [17] agrees with the former models in hypothesizing that people with SAD anticipate social standards too high while heavily doubting to achieve them which results in an increased apprehension when entering social situations and heightened self-focused attention. The new component in his model refers to the affected person's strategy to purposefully fail so that others' expectations of them do not increase. People with SAD are described of perceiving their inability to meet expectations in tandem with the deficiency in setting social goals as well as planning and implementing actions for goal attainment. All models so far agree in hypothesizing that socially anxious people have intact social skills, but anxiety, negative cognitions, and avoidance behaviors impede social interactions. Consequently, treating SAD primarily highlights the work with defining and achieving social goals and with improving the patients' perception of their social skills rather than training them in specific skills. *Moscovitch* [18] and Stopa [19] criticize the former models having approached the self too little in understanding SAD. According to Moscovitch [18], they imprecisely concentrated on the negative evaluation as the feared consequence rather than the feared stimulus that occurs in SAD. The feared stimulus refers to the characteristics of the self that the person with SAD perceives as being deficient. It is these self-attributes themselves rather than the social situation, which are the most direct and sensible targets to work with. Self-attributes are understood quite stable compared to the activation of self-schemata at certain times and in certain social situations as proposed by the above-described models. These self-attributes can be divided into four dimensions: (1) perceived deficiency in social skills ("I will make a mistake!"), (2) perceived visibility of anxiety ("I will blush!", "I will sweat!"), (3) perceived deficiency in physical appearance ("I am ugly!"), and (4) perceived personal deficiency ("I am damn stupid!"). Treating SAD thus means the functional analysis of these self-attributes and dimension-specific exposure aiming at the discovery of the person's authentic, non-concealed selves to others in the service of correcting their maladaptive perception of themselves . According to *Stopa* [19], maladaptive self-perception grounds in limited retrieval of multiple self-representations rather than the understanding of the self as a whole and self-attributes to be feared stimuli. The complexity of the self emerges in its conceptualization unfolding three categories: (1) content refers to information about the self (e.g., many negative statements in SAD) as well as the way in which that information is represented (e.g., logical versus figural verbalization) and is addressed by the former cognitive

behavioral models when referring to mental representations of the self; (2) process refers to the strategies used to evaluate the self (e.g., higher accessibility to negative information in SAD) and is addressed by the former cognitive behavioral models when speaking of attentional biases; and (3) self-structure refers to the organization of self-knowledge (e.g., priority of negative information in SAD). Consequently, treatments of SAD should create preferential access to more positive and functional self-representations by inhibiting access to negative self-representations.

Interpersonal models. Interpersonal models understand social behavior as an interactive process involving at least two social interaction partners who are sensitive to and shaped by the behavior of the other person. The relational literature is extensive, and with the focus on SAD, Alden et al. offer three relational models to illustrate key concepts in adaptive relational functioning. The *circumplex model* [20, 21] allows the description of social interactions on two dimensions, affiliation and dominance, which can be organized to create a circular space. Interactions are perceived more satisfactory when interaction partners display correspondence on affiliation (e.g., friendly actions of one person are faced with friendliness from the interaction partner), and reciprocity on dominance (e.g., dominant behavior meets submissive behavior) [22]. Increasing complementarity has been shown to interact with positive reciprocal social interactions [23–25], while decreasing complementarity is associated with greater interpersonal distress [26]. Kiesler [27] adds the description of an interpersonal transaction cycle which refers to the phenomenon that expectations about the other person influence one's initial behavior and can stimulate a response that in turn confirms the preconceptions in a self-fulfilling prophecy. For example, if a person with SAD expects the other person to negatively evaluate their social interaction, the other person will be more likely to do so. Close relationships, however, need intimacy. In the *intimacy model*, Reis and Shaver [28] understand intimacy as feeling "validated, cared for, and closely connected with another person" (p. 385). It implicates self-disclosure and responsiveness as the two core dimensions which together facilitate rapport in interactions between unacquainted strangers [29] and closeness in partnerships [30]. The *risk regulation model* [31] emphasizes the so-called audacious trust, i.e., the belief that the partner loves one even at times when behavioral cues are less clear, to simulate felt security which in turn is understood as a precondition for commitment in close relationships. Interestingly, and reminiscent of the underpinnings in Stopa's [19] model described above, trust is associated with greater activation of brain structures responsible for regulating social pain accompanied by lower self-report of social pain [32].

Glancing at relational functioning in SAD, interpersonal models strive for the consideration of prosocial concepts (e.g., trust, belonging, security, and responsiveness), extending the well-established research on dysfunctional social interactions. Alden et al. offer a three-level perspective: (a) the macro-level addresses rather loses contacts, (b) the meso-level involves friendships and acquaintanceships, and (c) the micro-level encompasses intimate relationships.

Macro-level (loose contacts): interpersonal models understand SAD to be stimulated by contextualized relational schemata (e.g., "If I show myself in this situation, others will criticize or even reject me!"). Like the cognitive behavioral models, they result from negative interaction with significant others in one's early years. They involve increased negative expectation when

interacting with others resulting in some sort of self-protective or avoidance behavior. As a consequence, the individual fails to connect with others and to establish healthy and intimate relationships which in turn maintains and even fosters social anxiety. However, the main difference and additional specification, respectively, refer to how agency is attributed to the affected person. Interpersonal models deal with the way people with SAD can elicit negative evaluations to a greater extent compared to the cognitive behavioral models. Russel et al. [33] found that people with SAD displayed increased submissive behavior in feared situations, whereas where they experienced emotional security, they showed complementary affiliative behavior. Such research demonstrates that people with SAD recognize when they can connect and that they adjust their behavior depending on the social context.

Meso-level (friendships and acquaintanceships): the intimacy model suggests that reciprocal self-disclosure is crucial for the development of friendships. Meleshko and Alden [34] found socially anxious people less likely to reciprocate the level of intimacy displayed by their interaction partner which resulted in less interest in future contact with them. Vonken et al. [48] found that partners' negative reactions of people with SAD and their perception of dissimilarity together explained substantial variance in the rejection of socially anxious people. It thus can be inferred that it is both the socially anxious person and the interaction partner who participate in the establishment of a negative interpersonal cycle in which both individuals reciprocally attempt to avoid negative emotions while gradually distancing from another, reducing their partner's interest in them and thereby impeding the development of a closer relationship. Similarly to Russel et al. [33], Alden et al. [35] however also found that people with SAD are able to be open with others when they do not anticipate negative reactions.

Micro-level (intimate relationships): as proposed by the above-described interpersonal models, intimate relationships require a complex set of behaviors (e.g., self-disclosure), processes (e.g., complementarity), and cognitions (e.g., felt trust). Research on SAD demonstrated reduction of perceived closeness in socially anxious individuals when confronted with a partner's anticipated negative critique. Contrariwise, the opposite was found for nonsocially anxious individuals [36, 37]. It also appears that people with high SAD symptoms use fewer positive interaction skills (e.g., compliments, empathy, nonverbal behavior) and display more negative communication (e.g., blaming) compared to people with low SAD symptoms. There were no differences in behavior of the partners of socially anxious and nonsocially anxious people [38]. According to the circumplex model described above, individuals with SAD are more likely to choose a partner with a dominant and cold interaction style. However, detailed research on partners' characteristics of socially anxious people still is missing.

Summary. The main difference between the intrapersonal (cognitive-behavioral) and interpersonal (social system) models refers to how they define the *central driver of the development and maintenance of SAD*: (1) cognitive behavioral models center cognitive biases and negative core beliefs, whereas social system models emphasize interpersonal functioning; (2) cognitive behavioral models perceive social anxiety characterized by negative self-schemata or fear of personal deficiencies, whereas social system models understand social anxiety as a strategic problem resulting from a variety of reciprocal interactional experience; (3) cognitive behavioral models are engaged with an individual that is highly concerned with failing to live up its

own, whereas social system models deal with an individual that fears to fail up to the expectations of others; and (4) cognitive behavioral models refer to interactions with close persons as well as with complete strangers, whereas social system models have a greater focus on relationships with important others. This becomes obvious when analyzing the understanding of *safety and self-protective behavior*, respectively. Both the cognitive-behavioral and social systems models emphasize these strategies in the light of avoiding scrutiny while exacerbating distorted mental processes in the long term. They however propose different explanations as to why this is the case: most cognitive behavioral models refer to the prevention of habituating to anxiety and correcting their maladaptive perception of how others, even strangers, evaluate them; most social system models refer to the disruption of relationships and the ability to enter meaningful social relationships .

3. Treatment of a social anxiety disorder: a case study

3.1. Setting and treatment conditions

The therapy consisted of mainly weekly hours of therapy, in sum 25 h. Dyadic sessions took 60 min, and group sessions lasted 120 min.

3.2. Patient data

Diagnosis (ICD-10). Social phobia (F40.1), moderate depressive episode (F32.1)

Anamnesis. The 23-year-old medical student reported excessive anxiety, above all when being confronted with fellow students or authorities in performance situations (e.g., blood draw, state exam). He feared to behave unskillfully or to say something stupid and that others evaluate him negatively. Consequently, he tried to avoid such situations or got through them while suffering from extreme anxiety. At his first view in the outpatient clinic, he reported to stay at home all the day and presented intense worries about his future because of feeling much insecurity how to go on with his studies. He had stopped to follow joyful activities and his pleasure, felt much "blues," could not sleep, felt exhausted, had difficulties to concentrate, and make any decision. This state already lasted 8 months.

The patient never was in psychotherapy or pharmacotherapy before. Psychosomatic disorders in his family were unknown. The patient reported minor alcohol use in positive social situations (e.g., a beer with a friend on Saturday evening). He denied the use of any additional legal or illegal drugs, at present and in the past.

Life history. The patient described himself to be the third oldest child of a six-person family (father: engineer; mother, house wife; sisters: +8 years and +6 years; brother: −5 years). The very busy, successful, and well-known father was not often seen at home since the patient's 17th birthday. The development of a secure and trustful father-son contact thus firstly started 9 years ago. The mother was described as a very caring and calm person. The patient felt good contact to his siblings. Age differences however made it hard to establish secure and close ties.

The patient grew up in a highly performance- and achievement-oriented family. He was almost always best at school ("Merit is not my problem!") and developed a couple of good friendship in elementary school and in puberty. In the development of these relationships, time was very important so that the patient got into contact and became intimate with his friends step by step. At all times, he concurrently felt much shyness and great nervousness when being confronted with strangers. He chose the medical studies by his own interest and felt much enthusiasm if there were not "these painful heart attacks."

Currently, the patient lived in a shared apartment with fellow students. He did sports, liked cooking, and spent his weekends with his family and friends at home.

3.3. Test diagnostics: before therapy started (independent blind diagnostician)

SCID diagnostics [39] demonstrated the criteria for SAD and a moderate depressive episode. *Standard diagnostics*: The *Symptom Checklist (SCL-K-9)* [40, 41] showed a superior psychological symptom pressure (T = 72). The *Brief Symptom Checklist (BSI)* [42] showed superior depression (T = 66), social uncertainty (T = 62), and phobic anxiety (T = 64). *Disorder-specific diagnostics*: The *Liebowitz Social Anxiety Scale (LSAS-SR)* [43] total score was at 105 (cutoff, 30), the *Social Interaction Anxiety Scale (SIAS)* at 46 (cutoff, 35), the *Social Phobia Scale (SPS)* at 29 (cutoff, 24) [44, 45], and the *Beck Depression Inventory (BDI)* [46] at 17 (mild depression).

3.4. Analysis of behavior and life conditions (macro- and microanalysis)

Macroanalysis. The patient's areas of problem can be interpreted against the context of his life history. A parental home in which the patient felt less secure bonds (e.g., marital quarreling, absence of the father, felt significant age difference between sisters and brothers) but much pressure to perform (e.g., praise for A grades, neglect of B grades, harsh critique for C grades) accounted for strong feelings of humiliation when anticipating failures or negative evaluations. As a consequence, the patient developed dysfunctional core beliefs (e.g., "Excellent performance is essential to be noticed and to survive well in contact with others!") and interpersonal deficits (e.g., lack of perception and inadequate expression of needs; lack of spontaneous contact, communication, and interaction with strangers and authorities). The patient decreasingly experienced positive social contacts and his self-worth strongly reduced. Finally, he limited his social contacts to only those people he had met in childhood and youth and which have grown over years in his hometown. As a consequence, he suffered from depressive decompensation and panic attacks at his university place.

Microanalysis. The *microanalysis* is displayed in **Table 1**.

3.5. Therapy goal and treatment plan

The therapy goals and treatment plan are listed in **Table 2**.

Organic (O)	Increased arousal in general, due to negatively priming experiences of distress in the patient's life history when being confronted with social interaction and/or performance situations
Attitude (A)	"Excellent performance is essential to be noticed and to survive well in contact with others!"
$Situation_{extern}$	Contact with an authority
$Situation_{intern}$	Anxiety, tension
Reaction	
Cognitively	"Watch it: Don't look incompetent! Don't make a mistake! Don't sweat!"
Emotionally	Anxiety, due to anticipated failure or negative evaluation; shame, due to the inability to perform better; helplessness
Physiologically	Accelerated heart beat; sweating, above all hands and axillary
Behaviorally	Low voice to mutism, restlessness (e.g., wriggling, rightly drawing clothes) to freezing (e.g., immobility), glimpsing, and avoidance of eye contact
Consequences	
Short term	
C+	Being cared for by significant others (e.g., mother)
C;/+	Getting into contact with strangers and becoming friends with others at the university place
C;/−	Tension, failure, negative evaluation
C−	Self-criticism, feelings of shame, and guilt ("I have to perform better!")
Long term	
C+	Staying in contact with those who are well known since years
C;/+	Pass exams, feelings of self-efficacy and competency, development of an integrative social network
C;/−	Ambivalence in the negotiation of a self-determined moderate conduct of life
C−	Accelerated vigilance of social environmental stimuli, decreased capacity to discriminate between performance situations and daily life situations without pressure to perform, experience of insufficiency, and consolidation of shame and guilt feelings (vicious circle)

Table 1. Microanalysis.

3.6. Course of treatment

The therapy started with dyadic sessions (patient, therapist) in which the development of a *stable therapeutic relationship* was of major importance and facilitated by the therapist's complementarity behavior. The therapist paid much attention to value the patient as a person and to validate his behavior in the good as well as his bad times to assure the therapeutic alliance. She also empowered the patient to test the therapeutic bond by facilitating autonomous decision-making, e.g., in the creation of homework assignments. The patient thus perceived increased self-worth, commitment for treatment success, and responsibility for his life already at the beginning of therapy though still being in a state of carefulness.

	Therapy goal	Treatment plan
1.	Development of a **stable therapeutic relationship**	Above all, complementarity behavior of the therapist (i.e., valuing, validating, assuring)
2.	Preventing depressive decompensation, **stabilization of mood, and promotion of activities**	Development and stabilization of social and professional resources (e.g., sport, cooking, family, friends, medical knowledge, and skills), applying sleeping, eating, and movement protocols (i.e., circadian rhythm)
3.	Formulation of an **individual model of the disorder** and explanation of the social anxiety	Cognitive behavioral therapy, including individualized analyses of behavior in social evaluation situation (e.g., blood draws, exams)
4.	Identification and **cognitive restructuring of irrational beliefs**	Training to identify cognitive schemata that increase anxiety while anticipating negative social evaluation and decrease self-worth and training to control such situation (e.g., reality checks, decatastrophizing).
5.	**Reduction of safety/avoidance behavior**	Individualized exposure to social anxiety including guidance for self-constitution
6.	Development of a **positive self-concept**	Interventions to increase self-worth and self-confidence
7.	Promotion of **skills to cope with intra- and interpersonal conflicts**	Training of social skills: e.g., perception and expression of individual intra- and interpersonal needs, interests, and ideas; showing constructive criticism ("to argue"); accepting both praise and criticism; and making use of it

Table 2. Therapy goal and treatment plan.

Preventing depressive decompensation: it also was of major importance to develop and stabilize the patient's social and professional resources (e.g., sport, cooking, family, friends, medical knowledge, and skills). Sleeping, eating, and movement protocols, and their evaluation in the dyadic sessions, help the implementation of an appropriate circadian rhythm. It emerged that it was very tough for the patient to allow himself and perceive positive feelings in social situation without anticipated high-performance standards (e.g., in leisure time). Group session started in this first one-third of therapy, and the positive feedback from the other group participants helped the patient to stabilize his self-worth and to spare time without the pressure to perform. This was the reason why he had the heart to spontaneously bring home-baked cookies to the third group session and notably allowed to be evaluated by the group members and therapist. He noticed how he promptly felt insecure and anxious while anticipating criticism. The reflection of his original motivation, i.e., "I made cookies because I like baking" versus "I made cookies because I will be loved by others," empowered him to accept the group members' feedback and above all to grasp their otherwise less perceived positive reactions.

The analysis of the patient's goal to restore a healthy and individualized circadian rhythm moved the patient to the reflection of his needs and dreams (i.e., "I would like") in differentiation to those assumed from his parents and society (i.e., "I should be"). The similarly caring and demanding therapist behavior assisted the patient to find and perform an individual day-to-day routine with sufficient bedtime in between and to overcome several trials and errors en route. He created a morning ritual with several ingredients such as organic herbal tea

and home-baked sweet rolls for breakfast in the sunroom, including the reading of *The Times* magazine. Most impressively for him however was his self-permission of this ritual taking 1 h before starting with "the rest of my day." He then started at 8.45–9.15 am with his day and was very surprised as well as much relieved that those asked in the reality checks organized the starting of their day equally in a small city where most people live only 15 min from their work place. The sweet rolls' flavor additionally attracted his roommates so that finally they joint his morning time. In times of experimenting with new recipes, the patient finally discovered that both positive and negative feedbacks meant to him and that sometimes criticism accounted better for social closeness (e.g., "When I disliked the rolls' taste, my roommates' critique made me even stronger—because I feel connected in our joint feeling of bad taste"). This experience strengthened the patient very much. He now felt how to wow himself as well as to wow others "when I do what I like to do and do not think that much about what I think I should do."

After the emotional stabilization and relapse prevention, the patient and therapist derived an *individual model of the SAD* including the patient's explanatory model of the social anxiety in interaction and performance situations with anticipated negative evaluation (see macro- and microanalysis). This model included biographical material, the functionality of the set of problems and information about the development and maintenance of the social anxiety, and was enriched according to Clark and Wells' cognitive behavioral models (**Figure 1**). The patient and therapist choose a recent and concrete social situation in which the patient showed anxiety and got through the event instead of avoiding it. First, the therapist asked for the negative cognitions and wrote them into the model template on a flip chart. Secondly, she asked for anxiety symptoms, i.e., how the patient felt when thinking the negative thoughts. Thirdly, the patient was asked for his security behavior. Finally, self-perception was introduced as the central model component by the therapist, directing the patient's attention toward inward on the one hand and the anticipated impression by others in this social situation on the other hand.

The central position of the self-focused attention became clear when the patient presented and discussed this individualized model with the other patients in the group session ("I rather concentrate on *my* mistakes and forget to face *others*!"). The patient recognized that this was the central feature in the maintenance of his social anxiety ("If I do not dare to look the others into their eyes, I will never know whom I am sitting vis-à-vis!"). This was followed by the drafting of an individualized anxiety graph, again in the dyadic setting. The situation was a blood draw in the context of conducting a medical exam, with the patient's fellow students and assistant medical director at present. The patient recognized that the perceived anxiety did not grow sky high like fooled by anticipatory anxiety. This caused much relieve, and social anxiety reduced anew. Additionally, the demonstration of negative effects of self-focused attention and safety behavior in role plays with strangers generated another two findings for the patient: Firstly, his safety behavior did not help him to reduce his social anxiety but rather contributed to its increase, while unexpectedly he felt more relaxation in social contacts with the stranger in times without its performance. Secondly, and again unexpectedly, the stranger reported that the patient's safety behavior made him unsecure and performed social distance rather approach. Similarly, the patient described that he had misinterpreted the stranger's increasing low voice in terms of social rejection. He made the corrective experience that self-confident

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Figure 1. Individualized disorder model of SAD.

behavior from one person, like him, stimulates self-confident behavior from the other person, like the stranger in the role play, and that such an assuring social interaction incorporates the reduction of misperception with respect to negative social evaluation. This reciprocally reinforced feelings of safety and social bond when interacting with others. Watching the patient's video from this role play and its discussion as well as the patient's experience with the others in the group session, again, contributed to the fostering of the new recognitions and feelings and, thus, the patient's self-worth.

These successful therapeutic steps were accompanied by the patient's increasing distancing and humorous attitude toward his safety and avoidance behavior. He noticed that safety and avoidance behavior, among others, was responsible for his decreased self-determined life

in which "I had gone crazy." The distancing from his social anxiety, which simultaneously decreased more and more, strongly supported him in the *identification and cognitive restructuring of irrational beliefs*. Finally, and again subsequent to a role play, he formulated "I have social anxieties, but they do not have me any longer!", "I have an influence on how much anxiety and relaxation are tolerable when interacting with others!", and also "I have social anxieties, and so do others!".

The increased feeling of control over his life made it easier for the patient to get engaged into the following *rational of exposure*. The patient formulated approach goals (Grosse Holtforth, Grawe, Tamcan, [47]) in the preparation phase of the exposure procedure (short term, e.g., "to pass the state exam," "to pass the conductance of medical exams," and "to stay in contact with the professor"; long term, e.g., "to live a life of my own," "living appropriately independent from my parents while still staying in good contact with them," and "differentiating between what I like to do and what I think I should do but do not necessarily have to do"). Individualized body exercises served the increased vigor and corporeal tension so that the patient could easily step out of his anxiety-related rumination before the exposure and also in his daily routine. Subsequent to the identification and restructuring of the irrational beliefs, the patient developed alternative ways of thinking and behaving in contrast to his safety and avoidance behavior (e.g., "The professors often do not know who I am and where I come from," instead of "I always feel as if I have this post-it on my forehead, the rural goose!, which is well seen by everybody!"). He used a scaling from 0 ("no anxiety") to 100 ("terrifying panic") for self-observation during the self-conducted exposure in his daily environment and recognized that his anticipatory anxiety (e.g., "10: The assistant medical director and the fellow students will see my stupidity and incompetency and will reject me!") often exceeded the situation with his highest felt anxiety ("8–9: They will give me a D for my medical skills!"). He experienced the positive power of active behavior reducing anxiety (e.g., "attending the appointment with the professor and/or fellow students") and the negative power of avoidance increasing anxiety and anticipated negative evaluation (e.g., "staying in the car, facing all possible scenario of failure in a certain social interaction or performance situation"). This experience and its reflection with others in the group sessions helped him to reduce social anxiety (before exposure, 10; after three exposures, 3). He continuously confronted himself with numerous anxiety situations that he had avoided in previous times. Step by step he faced them with increased calmness and initiated social contacts even with strangers in both interaction and performance situations. Finally, he passed the state exam successfully and in an appropriate biopsychological arousal.

In summary, the patient initiated and practiced meaningful intra- and interpersonal changes in line with his self-formulated therapy goals over the course of 1 and a half year of therapy. On the intrapersonal level, he reported the following experience of most importance "that I have had the heart to face myself and others and to look into their eyes so that now I can evaluate them better and how they face me." On the interpersonal level, he attributed the highest importance to the following experience "that I now have the power to tell others when I feel anxious of being negatively evaluated and that I can ask them whether they feel the same." In summary, he concluded that his social anxiety had decreased from "over 100%" to "about 35%."

3.7. Therapy outcome and test diagnostics: at the end of therapy (independent blind diagnostician)

SCID diagnostics demonstrated a remission of the SAD and depressive episode. The patient showed a well understanding for the complexity of his symptomatology and confrontation with otherwise too much anxiety causing social interaction and performance situations. Safety and avoidance behavior was no longer seen. *Standard diagnostics*: The *Symptom Checklist (SCL-K-9)* showed the psychological symptom pressure on average ($T = 57$, $D = -14$, $p < 0.05$). The *Brief Symptom Checklist (BSCL)* also showed all values on average. *Disorder-specific diagnostics*: The *Liebowitz Social Anxiety Scale (LSAS-SR)* total score was at 42 (cutoff, 30; $LSAS_{prä} = 105$), the *Social Interaction Anxiety Scale (SIAS)* at 17 (cutoff, 35; $SIAS_{prä} = 46$), the *Social Phobia Scale (SPS)* at 11 (cutoff, 24; $SPS_{prä} = 29$), and the *Beck Depression Inventory (BDI)* at 2 (no depression; $BDI_{prä} = 17$).

Author details

Christina Hunger-Schoppe

Address all correspondence to: christina.hunger@med.uni-heidelberg.de

Center for Psychosocial Medicine, University Hospital Heidelberg, Heidelberg, Germany

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Chapter 4

Video Feedback Techniques Used in Social Anxiety Disorders

Kentaro Shirotsuki

Additional information is available at the end of the chapter

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Abstract

The effectiveness of video feedback in socially anxious individuals including the improvement of distorted self-perceptions has been reported. However, socially anxious individuals might overestimate their appearance on video as more negative or less positive. Such misjudgments might be caused by excessively high negative interpretations and lack of positive interpretations in patients with social anxiety disorder (SAD). The results of this study suggest that a person's interpretations of his or her appearance on video interfere with the effectiveness of video feedback. The significance of these findings and techniques for improving cognitive interventions using video feedback are discussed.

Keywords: social anxiety disorder, video feedback, self-perception

1. Introduction

Social anxiety disorder (SAD), which is the most common type of anxiety disorder, is characterized by fear of negative evaluation by others [1, 2]. SAD impairs social, academic, occupational, and economic functioning of individuals with the disorder [3]. SAD patients and highly socially anxious individuals have many similar psychological and physiological features that only differ in intensity [4, 5]. Moreover, it has been suggested that there are overlaps between shyness, social anxiety, and SAD [6]. Therefore, it is reasonable that SAD symptoms gradually improve the quality of life and functioning in individuals, including those who are socially anxious or who have SAD.

The cognitive and the cognitive behavioral models of SAD suggest that negative cognitions maintain social anxiety symptoms [7, 8]. Clark and Wells [7] indicated that SAD patients develop a series of negative assumptions and overestimate how negatively other people evaluate their performance in one or more social situations. Rapee and Heimberg [8] suggested

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that the distorted self-perception about performance is one type of negative cognition that maintains social anxiety symptoms in SAD patients and socially anxious individuals. Moreover, previous studies have reported that SAD patients and socially anxious individuals show lower self-ratings than other ratings of their performance [9–11].

There are two subtypes of SAD, the generalized type and the performance only type [12]. Individuals diagnosed with the generalized type experience excessive fear in almost all social situations, including performance and social interactions. Individuals diagnosed with the performance only type experience excessive fear only in performance situations, such as making a presentation in front of the class, with no major anxiety associated with social interaction per se, such as talking with friends or strangers. Furmark et al. reported that individuals with the generalized type exhibit more social distress and impairment [13]. These impairments might include holding a cup firmly, avoiding eye contact, or speaking softly. People with SAD use such safety behaviors to reduce their anxiety, but these behaviors can exclude opportunities to learn what happens in social situations and might cause further anxiety due to decreased coping efficacy. Their physical symptoms might involve displays of physiological arousal in social situations that include shaking, sweating, heart throbbing, and other manifestations of anxious arousal. People with SAD also tend to exaggerate the extent to which these symptoms are visible to others, which leads to more concerns about negative evaluation from others.

Many previous studies have indicated that cognitive-behavioral therapy (CBT) techniques are effective in the psychological treatment of SAD [14–16]. According to Rodebaugh et al. [16], typical CBT techniques for the treatment of SAD include exposure, applied relaxation, social skills training, and cognitive restructuring. In a meta-analytic review, they reported that the most recommended treatment component of CBT programs is exposure and cognitive restructuring [16].

Video feedback is also included in most CBT treatment programs. After exposure and cognitive restructuring sessions, individuals with SAD try to watch videos of themselves, before receiving cognitive preparation. Clark et al. reported the high efficacy of individual CBT [17]. Their program consisted of developing personal safety behaviors and self-focused attention with patients by shifting the focus of attention to social situations. Based on Clark and Wells' model, patients try to identify the relationship between their own cognition and SAD symptoms on psycho-education sessions. Additionally, video feedback was used to modify distorted self-imagery. Participants try to improve the discrepancy between their negative, distorted self-images and their objective social performance.

In video feedback sessions, individuals with SAD watch themselves doing actual social tasks, such as public speaking and conversation tasks. They often recognize their performance to be worse than their actual performance. Then, therapists try to improve the discrepancy between subjective and objective perceptions of social performance. For example, Shirotsuki et al. attempted to examine the effects of an individual CBT program that included exposure, cognitive restructuring, and video feedback techniques [18] using video feedback of speech tasks. The results indicated that the program was effective for improving social anxiety symptoms and self-perception during speech tasks, suggesting that individuals with SAD can improve their negative self-perceptions and negative estimations before a speech task. Previous research has also

shown that both individual and group CBT programs are highly effective for treating SAD symptoms [19–25] and have several similarities, in spite of differences in treatment style between them. For example, cognitive restructuring, video feedback, attention training, and exposure technique are the main components in both treatment modalities [26].

In recent years, therapeutic intervention programs that include mindfulness have been developed. Mindfulness is defined as "paying attention in a particular way—on purpose, in the present moment and nonjudgmentally" [27]. Research on the applications of mindfulness to SAD is progressing with many studies reporting that mindfulness-based therapy is effective for treating social anxiety symptoms [28]. The improvement of trait mindfulness might affect factors maintaining SAD, such as post-event processing, fear of negative evaluation, avoidance behavior, and self-focused attention [29–32]. Kocovski et al. indicated that trait mindfulness predicts subsequent changes in social anxiety and that social anxiety predicts subsequent change in trait mindfulness [33]. Rasmussen and Pidgeon suggested that higher levels of trait mindfulness predict lower levels of social anxiety symptoms [34]. These approaches have not been used in video feedback research. Perhaps, mindfulness-based psychotherapy combined with video feedback technique could improve treatment efficacy.

Computerized cognitive behavior therapy using the Internet has also been developed internationally. Computerized cognitive behavior therapy (CCBT) programs involve the effective delivery of evidence-based treatments over the Internet, using computers, tablets, and smartphones. CCBT is a self-help treatment. Self-help cognitive behavior therapy (CBT) can provide a useful approach to the treatment of psychological problems. A meta-analysis examined the efficacy of technology-assisted interventions for individuals with SAD [35]. This meta-analysis divided studies into Internet-delivered cognitive behavior therapy (ICBT; 21 trials), virtual reality exposure therapy (VRET; 3 trials), and cognitive bias modification (CBM; 13 trials) and reported that ICBT had a small advantage ($g = 0.38$) over active control conditions. Moreover, while the efficacy of CBM was limited, substantial evidence regarding ICBT and preliminary evidence for VRET suggest that both could effectively reduce SAD symptoms, which is suggestive of the potential of technology-assisted interventions for SAD. The results showed that ICBT and VRET were effective in reducing SAD symptoms, with VRET having comparable effects and ICBT being more effective than active control groups. The best-known CCBT program for SAD is the SOFIE program, which was developed in 2003 [36] and is the first Internet-based CBT program with demonstrated efficacy. The program consisted of nine modules delivered within 9 weeks, which was subsequently changed to a 15-week version. The components of the SOFIE program were psycho-education, cognitive restructuring, exposure and attention-shifting exercises, and social skills relapse prevention.

2. Video feedback (VF)

VF, which is based on the cognitive model of SAD [7], involves providing highly socially anxious individuals and people with SAD with video playback of their social performance following the participation in a social task, such as making a public speech or a one-on-one conversation [37]. Participants then watch the situation using the video recording. It is anticipated that the review of the recording would correct their distorted self-evaluations, including

the underestimation of their own social skills [38]. It is suggested that the experience of viewing video recordings of their own social performances would enable socially anxious individuals to correct their underestimation of their social abilities. This, in turn, is expected to lead to reduced symptoms of anxiety when anticipating in future social events [39–41]. Moreover, objective information about the self is expected to result in changes in the negative self-image and lead to confidence about social performance. (See **Figure 1** for an illustration of an actual video feedback session).

Warnock-Parkes et al. [42] suggested five broad categories of interference that results from video feedback [43]: (a) reexperiencing feelings when watching the video, (b) selectively searching for behaviors that could be interpreted negatively, (c) discounting the accuracy of the video image, (d) mistaking safety behaviors for social deficits, and (e) reactivating habitual patterns of self-criticism. Warnock-Parkes et al. [42] suggested that patients with social anxiety disorder have these processing biases that would make it difficult for them to see the videos differently from their habitual negative self-perception. It is important to reduce processing biases to identify the effects of video feedback.

Several studies have reported that video feedback techniques improve distorted self-perceptions when used as a psychological intervention for social anxiety [9, 11, 39]. Rapee and Hayman showed that high and low socially anxious individuals improved their distorted self-perceptions after video feedback [9]. Harvey et al. demonstrated that 7 min of cognitive preparation before video feedback enhanced the effect of video feedback on distorted self-perceptions [39]. Rodebaugh also reported that cognitive preparation enhanced self-perceptions about speech performance [11]. On the other hand, Smits et al. failed to find any difference between exposure and exposure with video feedback [40]. They suggested that their technique might have targeted probability bias by providing performance feedback, which interferes with the necessary reappraisal of cost bias.

Orr and Moscovitch summarized previous VF studies [37]. They described that experimental research on social anxiety and VF has typically examined the efficacy of VF on its own (i.e., with neither a pre-VF preparation phase nor a post-VF review phase) [37, 41] or only with the

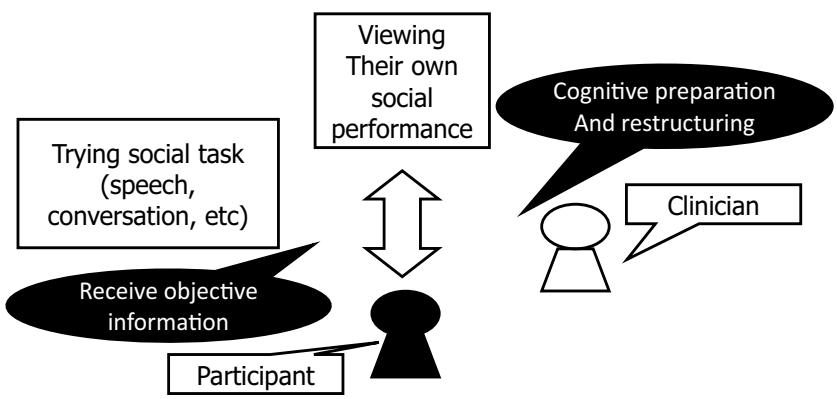

Figure 1. Image of the state of actual video feedback.

addition of a pre-VF cognitive preparation phase [39, 40, 43]. In addition, Orr and Moscovitch examined the effect of cognitive review (CR) with video feedback and cognitive preparation (CR) [37]. The results showed that participants in the CP, VF, and CR conditions demonstrated marginally significant reductions in anxiety from Speech 1 to Speech 2. Furthermore, only those who received CP, VF, and CR demonstrated significant improvements in self-perception and performance expectations relative to the only exposure condition. In CR, participants received open-ended questions asking them to provide elaborate written answers (e.g., "How does this feedback make you feel?" or "What is the significance of this feedback to your sense of self?"). However, certain studies have also indicated that neither VF alone nor VF with cognitive preparation succeeded in facilitating significant reductions in social anxiety symptoms above and beyond exposure alone [9, 40, 44]. It is suggested that the null findings pertaining to the reduction of social anxiety in previous VF studies could be at least partially related to the absence of a post-VF review period, during which time participants would be encouraged to elaborate the processing and encoding of feedback information. Orr and Moscovitch indicated that the post-VF review period, which encourages individuals to elaborate, could lead to the processing of new information about themselves and facilitate improvements in self-perception, leading to the subsequent reductions in social anxiety symptoms [37].

3. Cognitive biases in SAD

It has been suggested that the negative interpretation bias in social situations and social information might interfere with the effectiveness of video feedback in SAD. Certain studies have reported the effects of negative interpretations on social anxiety symptoms. Foa et al. found that individuals with social phobia rated negative social events as more probable and costly than nonclinical anxious controls [45]. Stopa and Clark showed that patients with generalized social phobia were more likely to interpret ambiguous social events negatively and to catastrophize in response to unambiguous, mildly negative events relative to other anxiety disorder groups or a nonpatient control group [46]. Constans et al. reported that socially anxious individuals showed a less positive interpretation of ambiguous interpersonal events [47]. In summary, the interpretation bias regarding social situations seen in individuals with social anxiety is characterized by more negative and less positive cognitions.

It is possible that socially anxious individuals negatively evaluate their appearance on video. This negative interpretation could interfere with the effectiveness of video feedback. In addition, SAD patients may also lack positive interpretations about their appearance on video. Therefore, it is possible that SAD patients and high socially anxious individuals interpret their video as more negative and less positive. However, the relationship between negative and positive interpretations of their appearance on video and social anxiety symptoms has not been investigated to date.

Based on the above considerations, Shirotsuki et al. examined differences in efficacy between video only (VW) and video with cognitive interventions (VW + CI) [44]. They divided participants into a video only group (VW group) and a video with cognitive intervention group (VW + CI group). Only VW + CI group was instructed to watch a video of their speech

objectively after the speech tasks. The results showed that there was a significant interaction (group × times) on self-perception. In addition, the VW + CI group showed significantly higher ratings for self-perception than the VW group after watching the video. These findings suggest that cognitive intervention before video feedback is an important factor in enhancing the effects of video feedback. Moreover, just watching videos has only a limited effect on improving self-perceptions about speech tasks.

4. Case examples

Shirotsuki has described a 23-year-old man named A with SAD [48] who was treated with VF.

A was helping the family business by working in their factory as a self-employed person. At the factory, he was often required to communicate with customers about repairing their products. A felt excessive anxiety on these occasions. Because of his anxiety, he often spoke fast and could not sufficiently express what he intended to say. Therefore, he avoided talking with customers as much as possible. He was also taking the prescription medications Paroxetine and Landsen. A CBGT program was conducted for A on eight occasions to treat his SAD. Psychological education was given in the first therapy session; exposure focused on speech, cognitive restructuring, and video feedback (VF) were conducted at the second, third, and fourth sessions, respectively; and exposure using conversation settings, cognitive restructuring, and VF were conducted at the fifth, sixth, and seventh sessions, respectively.

After making a speech for the first time, A had the following impression; "I thought it would be all right to make a speech even in front of an audience if the topic were pre-decided. However, somehow, I became awkward and felt I might be the worst speaker." After implementing the program, he thought "It seems like I am improving, but cannot feel the improvement." Video feedback was given during the fourth therapy session. "A" seemed rather nervous about observing the videos, similar to the other participants. After the observation, he thought "I was not as bad as I thought I would be." Regarding his speech, he thought "I could make the speech rather smoothly because I was relaxed. I will also do my best in the future." This case study suggests that A felt confident about his own behavior as a result of VF. After finishing the CBCT program, A was able to talk to people that he was acquainted with without excessive feelings of tension. He could also become involved with first-time customers without being too defensive.

Shirotsuki et al. have presented another case study that illustrated the treatment process of a SAD patient who participated in a CBGT program and was reinstated in his former office after treatment [49]. The patient was in his 40s and was feeling difficulties about working in his office because it had a negative environment. He was also afraid of his colleagues because they often reproached him. As a result, he gradually became uncomfortable in the office. Moreover, he became scared of getting involved with people because he was afraid that he might make others feel unpleasant. Furthermore, he thought that he might be smelling bad. His depressive symptoms increased, and as a result, he took a leave of absence and attended therapy to treat his anxiety and depression. A CBGT program was initiated because his anxiety about

involvement with other people increased. The patient was afraid that he might be acting strangely or making the audience unpleasant before VF during the CBGT program. After watching his own video, he was able to see that he was not as unpleasant as he had thought. On the other hand, he mentioned a sense of burden when watching videos of himself. Although he knew that he could see himself objectively, he was somewhat afraid that he might look strange, and this sense of anxiety increased before VF. Therefore, a discussion was held before watching the video to reduce his anxiety. However, the anxiety was not completely alleviated by the discussion.

As a result of the CBGT program, the client's anxiety, avoidance, and cost bias in social situations had been decreased. In addition, negative self-perception improved as a result of speech and conversation exposure. Along with the improvement in SAD symptoms, the client gradually began the process of reinstatement. These findings indicate the effectiveness of CBGT program and the process of reinstatement of SAD patients. These case examples suggest the reality of video feedback sessions. In most cases, the clients reported benefits as well as difficulties in viewing the video. Although VF sessions are highly effective, participants simultaneously feel a heavy burden. Clinicians need to recognize both these aspects of VF and take steps in advance to reduce the feeling of resistance.

5. Future direction

Firstly, it is important to clarify the influence of factors interfering with VF. Certain studies have reported the effect of negative self-images and interpretations. Individuals with SAD and highly socially anxious people often provoke negative self-images before conducting video feedback. These cognitions might interrupt the shift in their thoughts to an objective and balanced view. Shirotsuki suggested that highly socially anxious people might have negative and positive interpretations about their appearance on video, which might interfere with the efficacy of VF sessions [50]. In addition, high social anxiety results in negative interpretation about social information. When conducting video feedback, activated negative interpretation biases interrupt receiving neutral information from video images. Certain studies have suggested that estimated social cost was activated by watching video images. Therefore, the relationship between these cognitions and SAD symptoms needs to be examined in the future.

Secondly, conducting VF with individuals having SAD would burden the participants because they feel uneasy and strange about themselves. In clinical settings, it is often said, "It is very hard to watch myself." They feel uncomfortableness about viewing their video because some people watch only negative information on the videos and remember a negative image. It is necessary to reduce this burden to improve the effectiveness of VF. Future studies need to identify effective interventions for reducing the psychological burden of VF.

In **Figure 2**, the psychological process during VF sessions is described. After conducting social tasks, highly socially anxious individuals and individuals with SAD have negative self-images. These images lead to focusing on negative information during video watching. Therefore, they become unable to change their negative self-perceptions and as a result continue to maintain

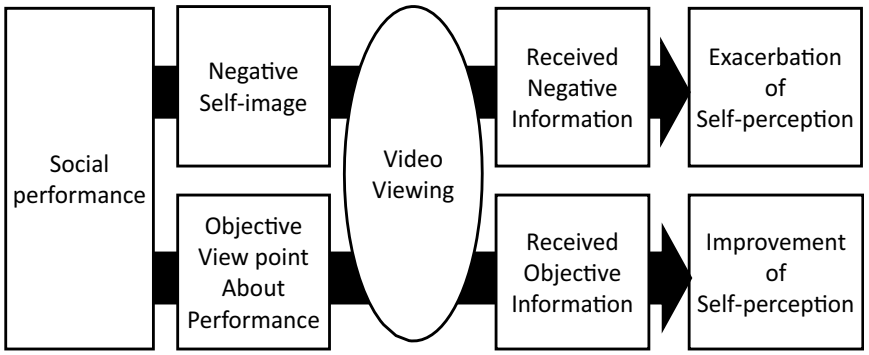

Figure 2. Psychological process in video feedback.

their previous self-image. On the other hand, they can prepare appropriately before watching the video and develop an objective self-image. This is expected to make them receptive to receiving objective information during video feedback.

Research on interventions that are conducted before and after VF sessions suggests that it is important to conduct cognitive preparations before VF. Second, mindfulness-based psychotherapy could improve the efficacy of VF as suggested by research on the efficacy of mindfulness-based psychotherapy for SAD symptoms. Conducting mindful breath training and mediation before VF affects improvements in self-perceptions. Additionally, the burden of VF might be mediated by mindfulness training. Third, Internet-based CBT programs that include video feedback techniques could be developed. Internet-based CBT is an effective treatment modality in spite of certain difficulties. CCBT consist of complete self-help and clinician-guided treatment programs. In most cases, it is important to assist the participants during exposure or video feedback sessions. By using Internet services (e.g., Skype or web camera), video feedback could be easily given during Internet-based CBT.

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Author details

Kentaro Shirotsuki

Address all correspondence to: kenshiro@musashino-u.ac.jp

Faculty of Human Sciences, Musashino University, Tokyo, Japan

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Chapter 5

Imagery Rehearsal Therapy (IRT) Combined with Cognitive Behavioral Therapy (CBT)

Katia Levrier, André Marchand, Valérie Billette,
Stéphane Guay and Geneviève Belleville

Additional information is available at the end of the chapter

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Abstract

In cases of post-traumatic stress disorder (PTSD), nightmares can often persist, even after a cognitive behavioral therapy (CBT) for this disorder. Imagery rehearsal therapy (IRT) is a CBT that targets the treatment of nightmares directly. **Objectives:** the present study describes the feasibility and the efficacy of combining IRT with first-line, trauma-focused CBT for PTSD. **Method:** two individuals with PTSD took part in this experimental case study protocol. The efficacy of the combined treatment was evaluated using semi-structured interviews, self-report questionnaires, and daily self-monitoring diaries. **Results:** after three IRT sessions for Participant 1 and five IRT sessions for Participant 2, combined with CBT for PTSD, both participants experienced a slight decrease in sleep difficulties and in the intensity of their PTSD symptoms post-treatment. More particularly, one participant demonstrated a significant decrease in the level of distress associated with his post-traumatic nightmares (PTNM). **Conclusions:** these results demonstrate that it is possible and promising to combine IRT with CBT for PTSD.

Keywords: PTSD, IRT, nightmares, CBT

1. Introduction

1.1. Theoretical and research basis for treatment

Post-traumatic stress disorder (PTSD) is a frequently occurring trauma- and stressor-related disorder, present in 3.5% of the U.S. adult population [1]. To meet the diagnostic criteria for PTSD according to the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders*

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(DSM-5), it is first necessary to have been exposed to a traumatic event, and, as a result of that exposure, to experience symptoms from each of the following four symptom clusters: intrusion (e.g., disturbing recurring flashbacks or dreams); avoidance of memories of the event; negative alterations in cognitions and mood; and alterations in arousal and reactivity (e.g., irritability and sleep disturbance).

To date, the recommended treatment by the International Society for Traumatic Stress Studies is trauma-focused cognitive behavioral therapy (CBT) [2]. This treatment involves several strategies, including: psycho-education on PTSD reactions; training in relaxation strategies to counteract anxiety; cognitive restructuring by challenging, for example, maladaptive trauma-related appraisals; and exposure. Exposure requires the victim to confront his or her fears, which can be done in two ways: (1) through repeated exposure to the trauma memory, either in imagination or through the writing of a narrative; and (2) in vivo exposure to situations associated with the trauma. The rationale is to help change the victim's perception of a situation and his or her reaction to this specific and problematic situation.

The efficacy of trauma-focused CBT is widely documented compared to other types of psychological treatments, such as psychodynamic psychotherapies, or supportive techniques (e.g., [3]). However, in a multidimensional meta-analysis by Bradley et al. [4], including 26 studies and 44 treatment conditions, the authors raised the question on the type of exclusion criteria used in these studies when looking at their efficacy, such as comorbid disorders. Then, in a review by Bisson and Andrew [5], their findings remind that the high numbers of drop-out remained an issue. Considering these results, we may say there is still room for improvement of trauma-focused CBT.

1.2. Nightmares in PTSD

It is estimated that 19–71% of trauma victims diagnosed with PTSD have frequent nightmares, compared to only 2–5% of the general population [6]. These percentage ranges are due to lack of consensus on the definition of a nightmare. The *DSM-5* defines nightmares as "repeated occurrences of extended, extremely dysphoric, and well-remembered dreams that usually involve efforts to avoid threats to survival, security, or physical integrity…" and can only be diagnosed as such if the nightmares do not occur exclusively during the course of another mental disorder. In the *International Classification of Sleep Disorders* (*ICSD-2*) [7], the definition is more inclusive, calling upon "recurrent episodes of awakenings from sleep with recall of intensely disturbing dream mentations[1], usually involving fear or anxiety, but also anger, sadness, disgust, and other dysphoric emotions." Some experts in the field also propose their own definition, as illustrated by Zadra and Donderi [8], who describe nightmares as "very disturbing dreams that awaken the sleeper."

The presence of nightmares seems to be related to the prevalence and severity of PTSD [9]. A recent prospective longitudinal cohort study in combat Veterans indicated that the report of pre-deployment nightmares was associated with an increased risk for the development of

[1]Mental activity.

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PTSD symptoms [10]. Furthermore, one review reported that of victims experiencing nightmares within 1 month of the trauma, 33% went on to develop PTSD, whereas 9% did not [11]. As a result, nightmares may contribute to PTSD symptom maintenance.

Also, the treatment of nightmares is complex because of the varying conceptualization of nightmares. On one hand, they represent one of the symptoms of the PTSD intrusion cluster and are conceptualized as a normal reaction following a traumatic event [12]. As a result, it is commonly believed that CBT for PTSD will be sufficient to effectively treat them (e.g., [3]). On the other hand, nightmares have an independent diagnosis in the *DSM-5* [1] and in the second edition of the *International Classification of Sleep Disorders* (*ICSD-2*) [7].

Furthermore, different fields of study (i.e., sleep and dream field vs. PTSD field) conceptualize post-traumatic nightmares (PTNM) differently. In the PTSD field, several models have been developed to explain PTSD emergence, and PTNM are considered an intrusive symptom of this disorder. For example, in the Foa and colleagues model, the authors argued that an entire memory network is created at the time of the trauma. PTNM could be one element of this network, which is reactivated during sleep by ongoing hyperarousal. However, in the dreaming field, PTNM are related to different dream theories and authors reflect on the purpose and function of dreams. For example, Hartmann advances that dreaming is an adaptive function to emotionally adjust to trauma.

Finally, authors also diverge on whether PTNM are a comorbid disorder, rather than a symptom of PTSD [13]. Some authors conceptualize PTNM in two steps after a traumatic event: immediately following a traumatic event, PTNM are considered a trauma-induced symptom of PTSD (B criterion), whereas later, PTNM are perceived as learned behavior and, therefore, would become distinct from PTSD symptoms. According to Krakow and Zadra [14], nightmares persist because the victim is not able to process information related to the event and to the nightmare. The person fears and, therefore, avoids them. As a result, the recollection of the trauma is not incorporated in memory. In addition, as the victim begins to fear going to bed and develops poor sleep hygiene (e.g., drinking alcohol before going to bed or napping during the day), or as nightmares interrupt sleep, sleep becomes fragmented, potentially leading to sleep loss, and ultimately insomnia [12].

Considering nightmares in two steps (i.e., first as a PTSD symptom, then as a learned behavior and comorbidity) offers the opportunity to treat them differently. In fact, the first step represents the traditional view, and nightmares can be treated with conventional CBT for PTSD, while the second step allows targeted treatment for nightmares as a comorbidity.

1.3. Emergence of treatments directly targeting nightmares

New psychological treatments for PTNM are emerging and being tested. Recently, the Standards of Practice Committee (SPC) of the American Academy of Sleep Medicine (AASM) commissioned a task force to assess the literature on the treatment of nightmares disorder. They presented their results in a Best Practiced Guide [15] and listed six specific CBTs for nightmares: imagery rehearsal therapy (IRT), systematic desensitization, lucid dreaming

therapy (LDT), exposure, relaxation and rescripting therapy (ERRT), sleep dynamic therapy, and self-exposure therapy. Although each therapy approaches the treatment for nightmares differently, all conceptualize nightmares as a learned response that can be modified by specific cognitive and behavioral strategies.

Imagery rehearsal therapy (IRT) is one treatment that has gained important empirical support to treat this problem. Its rationale is to select a repetitive nightmare, to transform and write it into a new positive or neutral dream, and finally to rehearse it in imagination. Thirteen group studies and a few case studies have already shown the efficacy of IRT in decreasing the frequency of PTNM. The change mechanisms of IRT are still understudied, although Germain et al. [16] have proposed that IRT decreases nightmares by increasing the victim's perception of control over them, and various methods of implementation exist.

A few studies reported the use of IRT with patients diagnosed with PTSD [17], but no studies have tried to incorporate this specific treatment for nightmares into a first line, trauma-focused CBT for PTSD [18]. In addition, there are no guidelines to include nightmare treatment in first-line treatment for PTSD, nor in which order treatments should be delivered. Should IRT be administered before the CBT for PTSD (first-step treatment) in order to facilitate sleep restoration and, therefore, accelerate trauma recovery? Or should IRT follow PTSD treatment, as a second-step treatment, in cases where the nightmares persist? It would be interesting to record the difficulties from a theoretical and practical point of view, and to observe which treatment should be prioritized in order to reduce all PTSD symptoms.

The first objective of this chapter is to present the feasibility of combining both CBT for PTSD and IRT for PTNM in the same interventional procedure. The second goal is to explore different sequences of treatment.

2. Method

2.1. Case introduction

Two participants, Adam and Eric (pseudonyms), were referred for treatment at the Trauma Studies Centre at the Institut Universitaire en Santé Mentale de Montréal, which specializes in the treatment of trauma victims. Evaluations were conducted by doctoral psychology students and therapies were administered by an experienced psychologist. Both participants experienced a traumatic event and met PTSD criteria (i.e., a CAPS global score of 65 or more). They experienced sleep difficulties (i.e., a PSQI global score of 5 or more) and had at least four nightmares per week, which were not an exact replica of the traumatic event at the baseline assessment. They had not received CBT for insomnia, for nightmares, or for their post-traumatic symptoms over the course of the past year.

Adam (Participant 1) was a married 45-year-old Caucasian male. He worked as a doctor and had been on sick leave for several months. He experienced a skateboarding accident 2 years prior to the initial evaluation. He was referred by a psychiatrist. Several pharmacological options had been tried in the past but were not effective.

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Eric (Participant 2) was a 54-year-old Caucasian male, divorced, with three children. He lived alone and received welfare. He was born in Italy but his parents immigrated to Canada when he was 3 months old. He experienced a sexual assault in his home, by three men from the family of a woman he was dating, 10 years prior to his initial evaluation. He did not report any other potentially traumatic events. During the treatment, he followed a prescription for Venlafaxine (225 mg a day) and Quetiapine (150 mg a day).

2.2. Presenting complaints

2.2.1. Participant 1: Adam

At the time of the first evaluation, Adam met DSM-IV-TR criteria for PTSD following a serious skateboarding accident. Adam reported that in the month prior to the evaluation, he experienced intrusion symptoms (intrusive and distressing memories of the traumatic event, flashbacks, and physiological reactions). He also reported recurrent nightmares (four/five times a week) after which he could not go back to sleep. He described his nightmares as repetitive, with the same ending (a sudden fall from the sky). He reported persistent avoidance of stimuli associated with his traumatic event (e.g., thoughts, conversations, and spending time with the friend who was present for the event), and numbing symptoms (e.g., diminished interest in significant activities; and he did not expect to have a normal lifespan due to his physical problems). He also avoided his nightmares by programming his alarm clock to wake him up before the anticipated time of his nightmares. He presented persistent symptoms of increased arousal, more particularly sleep difficulties, difficulties concentrating (e.g., Adam had to write down the questions asked by the clinician before answering them), and outbursts of anger (e.g., he had cue cards suggested by his psychiatrist to help him manage his anger).

Finally, according to the SCID-I, he had comorbid social phobia in the past and was in partial remission for a major depressive disorder (MDD). Due to his profession as a doctor, he reported other potentially traumatic events but did not present any post-traumatic reactions in relation to them.

2.2.2. Participant 2: Eric

Eric met the DSM-IV-TR criteria for PTSD following a sexual assault. At the first evaluation, Eric reported that during the last month he experienced intrusion symptoms, such as intrusive and distressing memories of the traumatic event, and flashbacks. He felt an intense distress and physiologic reactivity after exposure to traumatic reminders (e.g., being with several people in the same room; being alone with only men; and being with people wearing the same religious objects as those who assaulted him). He used distractions (e.g., going out for a walk) to avoid thinking about the assault. He avoided going out in the evenings. Since the event, he also avoided romantic relationships with women. He felt a certain detachment from others, and mentioned his "life ended on the date of the assault" and, therefore, did not plan anything for his future. He reported difficulty concentrating and being hypervigilant (e.g., when walking, he would slow down or change direction to avoid having people walk behind him).

On the SCID-I, he also met criteria for a major depressive disorder (MDD) from the age of 45. He also reported several hospitalizations of 2 or 3 days' duration for suicidal ideation and suicide attempts in the past. Suicidal ideations were always present but he tried to put them aside by taking a walk.

Eric reported being marijuana dependent for 5 years, then stopping use for 1 year, but relapsing 6 months prior to the assessment. At the time of the first evaluation, he was following treatment from an addiction center. He was in complete remission for cocaine abuse after 3 years of use, but admitted that he still smoked marijuana on a daily basis.

2.3. History

Adam's PTSD symptoms started after a skateboarding accident and subsequent hospitalization 2 years before the first evaluation. He explained that he collided with his friend, with whom he was skateboarding. The collision threw him into the air and he landed on his back. He described feeling at that moment an intense pain; he was breathless; he experienced reactions of dissociation. Someone offered to call Adam an ambulance, but Adam refused. Rather, Adam decided to go back to his hotel by car, which he recalled being a very painful experience. The next morning, Adam did not recall any of the details following the fall. Adam was then hospitalized for 4 days for several fractures, including one in his back. He described his stay as negative, experiencing feelings of helplessness at not being able to move anymore. He expressed that his stay was so difficult that he decided to sign a refusal of treatment. During the pre-treatment evaluation at our center, he reported that his PTSD symptoms had had many consequences for his life: he no longer worked; he experienced marital problems and attended couple's therapy; he had to manage physical problems with his back; and he felt he no longer had any friends, other than those of his wife.

Eric's PTSD symptoms started immediately after his traumatic event. At the time, he had been dating for 1 year a woman of another ethnic origin, whose family disapproved of their relationship. When members of her family asked him to stop seeing her, he refused. A few weeks later, three men attacked him at gunpoint in his apartment and sexually assaulted over several hours. Eric explained that during the event he feared for his life and that of his girlfriend. After the event, he never heard from his girlfriend again. He specified that he had not talked about the event for 10 years.

2.4. Assessment

Before their pre-treatment evaluations, both participants were asked to be stable on any medications for at least one month. After signing a consent form, participants were assessed with structured clinical interviews (to determine diagnosis at baseline, to check inclusion criteria, and to gather background information). Once selected for the study, participants were given questionnaires and explanations to complete self-monitoring booklets every day.

Adam and Eric followed two different protocols according to their clinical profile. Adam had 3 weeks of IRT, followed by 7 weeks of imaginal exposure, 9 weeks of exposition in vivo and

one session of relapse prevention. He was re-evaluated (interviews and questionnaires) after IRT, after imaginal exposure, post-CBT and at three and six months after treatment. Since Eric presented only occasional nightmares at the time of the first evaluation, and since they were not his primary complaints, he was not offered initial nightmare treatment. However, he began reporting recurrent and distressing nightmares at the seventh CBT session. Consequently, 5 IRT sessions were added to the original 20 sessions of CBT for PTSD. Thus, he had 3 weeks of psychoeducation about PTSD symptoms, 6 weeks of imaginal exposure, 14 weeks of exposure in vivo and 5 sessions of IRT. He had evaluations (interviews and questionnaires) as follows: at 3 weeks (after the psychoeducation), at 10 weeks (after imaginal exposure), at the end of his CBT (post-CBT at 23 weeks), at the end of the 5 IRT sessions (post-IRT), and 4 months after treatment.

2.4.1. Diagnostic interview

The *Structured Clinical Interview for DSM-IV-TR Axis I Disorders* [*SCID-I*; [19]] is a semi-structured interview used to determine if a participant presents a DSM-IV-TR Axis I [20], or major mental disorders, in research. It presents good psychometric properties [21].

2.4.2. PTSD measures

The PTSD Checklist – Specific [*PCL-S*; [22]] is a 17-item self-report measure of the 17 DSM-IV symptoms of PTSD. Participants rate each item from 1 (= *not at all*) to 5 (= *extremely)* to indicate the degree to which they have been bothered by that particular symptom over the past month. It demonstrates good psychometric properties in English [22]. *The Clinician-Administered PTSD Scale* [*CAPS*] is a structured interview to make a categorical PTSD diagnosis. It also provides a measure of PTSD symptoms severity when adding for each item a frequency score from 0 (= *none of the time*) to 4 (= *most or all of the time*), and an intensity score from 0 (= *none*) to 4 (= *extreme*). Psychometric properties are strong [23].

2.4.3. Sleep measures

The Nightmare Distress Questionnaire [*NDQ*; [24]] is a 13-item self-report questionnaire retrospectively evaluating the waking degree of distress associated with experiencing nightmares. It is a 5-point Likert scale from 0 (= *never*) to 5 (= *always*). It demonstrates good psychometric properties. Since the last two items in the questionnaire evaluate the respondent's interest in following a course of therapy, and participants were already enrolled in therapy, we did not consider these two items in the total score. *The Pittsburg Sleep Quality Index Questionnaire* [*PSQI*; [25]] includes 19 self-rated questions and 5 questions rated by the bed partner or roommate if one is available. The total score varies from 0 to 21. It also demonstrates good psychometric properties in English [26]. *The Pittsburgh Sleep Quality Index Addendum for PTSD* [*IQSP-A*; [27]] is a self-report questionnaire designed to assess the frequency of seven PTSD-specific sleep disturbances during the month preceding completion of the questionnaire. A global score is obtained from the sum of all seven items, and has a range of 0 to 21. It demonstrates good psychometric properties [27].

2.4.4. Ancillary measures

The Beck Depression Inventory [*BDI*; [28]] measures the presence and severity of depression with 21 items in the last 2 weeks. Finally, *The Beck Anxiety Inventory* [*BAI*] includes 21 self-report items evaluating the anxiety severity. Good psychometric properties were demonstrated [29].

2.4.5. Self-monitoring booklet

Participants were asked to make daily self-observations on a 10-point Likert scale from 0 (= *not at all*) to 10 (= *a lot*) for the following: sleep quality, the presence or absence of nightmares, nightmare frequency, the level of distress related to these nightmares, the global distress they felt the day before, and three questions on PTSD symptoms (one to evaluate intrusive recollection symptoms, one for avoidance, and one to identify hyperarousal reactions).

All questionnaires were administered in French. Initially, Eric did not receive all the questionnaires described above because of his involvement in another study protocol. As a result, Eric did not receive the BDI, BAI, PCL-S and NDQ during his conventional CBT.

2.5. Case conceptualization

Adam's sleep and more particularly, his nightmares were a significant impediment to his daily functioning. He recalled at least four nightmares a week and, sometimes, more than one nightmare a night, that woke him up. He described them as repetitive, with the same ending (a sudden fall from the sky), and without being an exact replica of his traumatic event. The nightmares also generated a lot of distress with the consequences of not being able to go back to sleep and trying to avoid them by setting his alarm to wake him before the onset of the nightmare. We, therefore, offered him the opportunity to focus on his nightmares for the initial three sessions and to approach his PTSD symptoms in a second step.

Eric's primary symptoms were PTSD manifestations with occasional nightmares, and were first treated with CBT for PTSD. At the end of this treatment, the intensity of his global PTSD symptoms decreased but Eric still met DSM-IV-TR criteria for PTSD. In general, his symptoms of intrusive recollection decreased but the frequency of his nightmares increased, and they occurred at least three times a week. He described them as repetitive, with the same theme (three people chasing him until he was stuck in a corner), with the setting changing from one nightmare to another. He described them as being very real, to the point that they made him feel very distressed and, as a consequence, woke him up. No sexual content was reported. Regarding his remaining PTSD symptoms, daily avoidance of activities, places and men in general were recorded. He did not report any sleep loss but mentioned severe difficulties concentrating. Therefore, to deal with his nightmares, five IRT sessions were added after 2 weeks of baseline CBT.

To reduce PTSD symptoms, an empirically validated treatment protocol [2] was adapted following expert recommendations [30, 31]. Twelve sessions were added to the original treatment of Foa et al. [2]. The treatment was designed to last 20 sessions and included the following components: psychoeducation on PTSD symptoms and diaphragmatic relaxation learning;

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imaginal exposure; in vivo exposure; and relapse prevention (one session). However, the number of sessions was not fixed and we left open the option to add four sessions depending on client needs (e.g., level of avoidance). A treatment manual for the psychologist and a participant manual were available. This treatment was validated in previous studies [32, 33].

As presented in the introduction of this article, IRT is one of the most promising nightmare treatments [15] and was offered to both participants. IRT sessions were individual meetings of 90 minutes. The course of therapy was derived from strategies outlined in Krakow and Zadra [14], and was initially tested by offering it to another participant in order to adjust it. The content of sessions 1 and 2 were identical for both participants. However, session 1 was split into two sessions for Eric. Also, Eric had two additional sessions in order to give him extra practice. Despite differences in the number of sessions for the two participants, both treatments (IRT and CBT for PTSD) encompassed the same rationale. The sessions were delivered by an experienced psychologist, specialized in CBT and in the treatment of PTSD. She was also trained to deliver IRT. The IRT sessions were conducted as follows:

Session 1 IRT focus (for Eric, sessions 1 and 2): Psycho-education on sleep related to PTSD, and an introduction on IRT rationale. The functions of nightmares and the beginning of a vicious cycle were introduced to the participant. The psychologist emphasized that nightmares initially present as a PTSD symptom, which, theoretically, help to regulate emotions and the traumatic memory of the event. However, they cause distress because of the different emotions they generate (e.g., anger, guilt, etc.); the nightmares then create sleep difficulties as they awaken the sleeper. At that point, the nightmares prevent the person from functioning well during the day and no longer fulfill their initial function. As the nightmares become a learned habit, it becomes necessary to treat them directly. The psychologist underlined that nightmare was negative imagery, occurring during sleep, and that their content could be modified. She specified that there are currently no scientific reason to believe that they are unconscious psychological conflicts, as many people believe. As a result, the IRT rationale was introduced as a psychological treatment to unlearn this habit by modifying a recurrent nightmare and rehearsing it during the day. During the session, the participant also practiced pleasant imagery to familiarize himself with this technique. At the end of the session, guidelines to select a nightmare for the next session were given. The psychologist explained they should not be a replica of the traumatic event; ideally their content should be repetitive and should generate a medium level of anxiety. At the close of the session, the participant is asked to practice an exercise of pleasant imagery during the week.

Session 2 IRT focus (for Eric, session 3): IRT practice. This session was devoted to learning how to change the selected nightmare into a positive or neutral dream. Instructions for its modification were introduced. The psychologist helped the participant to identify the "hot spot," that is to say when the nightmare's content caused the most distress for him, and to change the nightmare just before this identified moment. The psychologist encouraged the participant to take control over his nightmares by modifying it in any way he wanted (e.g., changing the setting, adopting super powers, etc.), and to incorporate as many details as possible (e.g., emotions, physical sensations, etc.) in order to facilitate incorporating the new ending into memory. Then,

the participant rehearsed the new dream with the psychologist. Finally, he was encouraged to rehearse the new dream at least twice a day in the time before the next session. Once this strategy was acquired, the participant was directed to continue his practice for the rest of the treatment.

For Adam, the whole treatment lasted 20 sessions (three individual IRT sessions at the beginning, and 17 individual CBT sessions for PTSD). For Eric, the whole treatment lasted 29 sessions (24 individual and CBT sessions, and 5 IRT sessions at the end).

3. Results

3.1. Course of treatment and assessment of progress

The impact of the treatment was measured by daily self-monitoring, clinical evaluations, and questionnaires. Concerning the data collected through self-monitoring, we displayed graphically only the weekly average level of distress related to their nightmares. As we expected the levels to fluctuate according to the number of interventions, we chose to apply a third-order polynomial regression to better fit our data. The results are presented on an individual basis.

3.2. Participant 1: Adam

It was decided in advance that the psychologist would meet with the participant every 2 weeks, to offer support until stability was reached on the following daily self-monitoring variables: the frequency of the nightmares, the level of distress related to the nightmares, and the level of sleep quality. These measures were considered indicative of the participant's progression during the course of treatment. Therapy did not begin until stability for these three measures was reached.

The weekly average levels of the distress related to his nightmares by week, at baseline, and during the treatment are reported in **Figure 1**. Overall, we can observe some variability in the level of distress throughout treatment; however, the trend suggests a decrease in the level of distress, especially at the end of treatment. Indeed, at baseline, the distress varied from 5.71 to 7.14; after the IRT sessions (session 3), the distress decreased on average to 7.26; after imaginal exposure (session 9), it decreased on average to 6.25. At the end of the treatment, it reached 4.29. Therefore, the combined treatment appeared to have been effective in reducing the distress associated with the traumatic nightmares.

The situation appears to be different for the frequency of the nightmares. At baseline, Adam reported having from 3 to 5 nightmares a week. During IRT sessions, their numbers varied from 4 to 6 nightmares a week; during imaginal exposure, from 4 to 10; and finally, at the end of the whole treatment, he recorded 4 nightmares a week.

For sleep quality as recorded with the daily self-observations, at baseline, Adam's perception of his sleep quality ranged from an average of 0.71 to 1.47. During IRT sessions, the quality did not improve (from 0.43 to 1.71). During imaginal exposure, it improved slightly and varied from 1.14 to 2.14. At completion of the CBT, his sleep quality had reached 2.86.

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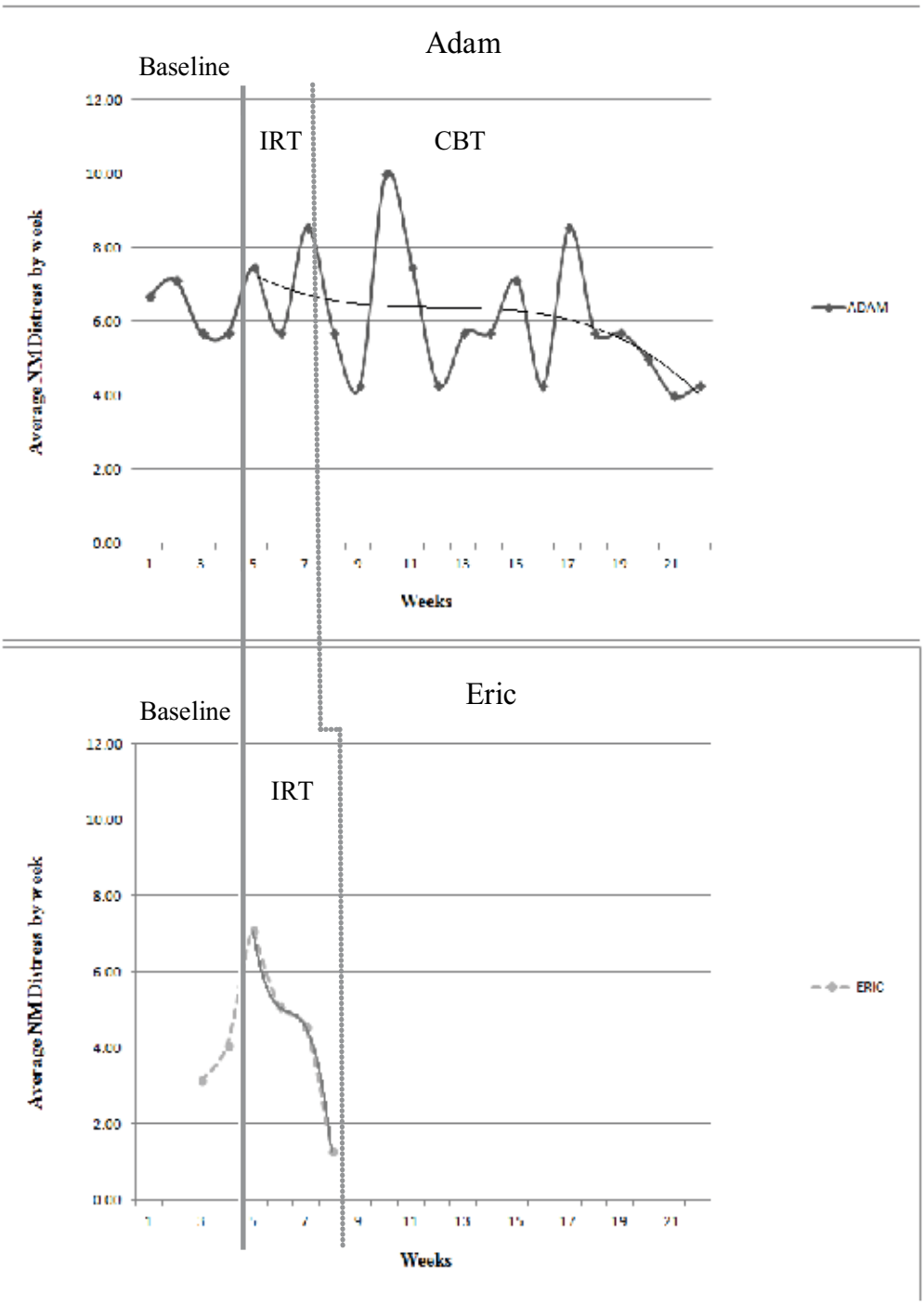

Figure 1. Weekly average levels of distress related to nightmares reported by participants from self-monitoring booklet at baseline and during treatment. The horizontal axis indicates session number and vertical axis indicates weekly average levels of distress related to nightmares over the course of the following week.

Total scores for administered questionnaires show a mitigating impact on PTSD symptoms of the combined treatment. From pre- to post-treatment, the overall score of the PCL-S decreased from 81.00 to 70.00. The total scores of CAPS remained unchanged. However, the intrusive recollection symptoms subscale score, including distressing dreams, decreased from baseline to the end of the combined treatment. Also, the hyperarousal symptoms subscale score, which encompassed sleep difficulties, decreased after IRT sessions and remained at the same level through the treatment.

Looking at sleep questionnaires, some improvements were noted, although significant residual symptoms persisted at the end of the combined treatment. The NDQ received a score of 45.00 (versus 49.00 at baseline), the PSQI demonstrated a score of 15.00 (18.00 at baseline) and the PSQI-A deceased to 10.00 (with a score of 17.00 at the beginning of the treatment).

From a clinical point of view, Adam showed few improvements on the intensity of his PTSD symptoms and still met criteria for PTSD diagnosis at the end of the combined treatment. However, he reported at the end of the therapy feeling less angry and distressed. He reported having gained control over his nightmares and was less afraid to go to sleep. The clinician noticed that, physically, he seemed more rested and to have more energy.

3.3. Participant 2: Eric

Eric reported only occasional nightmares at pre-CBT for PTSD. Since they became present almost every night after the seventh session, and did not disappear post-CBT, we offered Eric five additional IRT sessions. Eric indicated that he was motivated to work on treating his nightmares.

Regarding the frequency of his nightmares, Eric recorded between five and six nightmares a week during the 2 weeks at baseline post-CBT; during the IRT sessions, their numbers successively decreased to two nightmares a week by the end of his treatment. This decrease is coherent with the level of distress reported for his nightmares. The level of distress he experienced as a result of his nightmares decreased between pre-IRT baseline (3.14 out of 10) and post-IRT sessions (1.29 out of 10) with a peak of 7.07 of 10 after the first session. NDQ score was 28.00 and decreased to 22.00. These results suggest that IRT was an effective treatment for him.

Total scores for administered questionnaires show the efficacy of the combined treatment with a decrease in the CAPS total score from pre-CBT (89.00) to post-CBT (70.00) and post-IRT (60.00), more particularly for the intrusive recollection symptoms and the hyperarousal symptoms. When considering the PSQI (pre-CBT = 10.00; post-CBT = 9.00; post-IRT = 7.00) and the PSQI-A (pre-CBT = 9.00; post-CBT = 11.00; post-IRT = 6.00), sleep improvements were observed but sleep difficulties remained.

We observed that the intensity of his PTSD symptoms decreased from 89 to 70 on the CAPS. However, Eric still met the criteria of a clinical PTSD diagnosis. Nonetheless, we observed that, even if he could not complete an imaginal exposure to the whole event, he was able to go into certain details and felt less distressed doing so by the end of the treatment. This step was clinically very important for him, as he had not talked about the event in 10 years.

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3.4. Complicating factors

3.4.1. Participant 1: Adam

During the course of treatment, Adam encountered interpersonal problems with his family circle and mentioned their lack of support. He particularly indicated their misunderstanding of his PTSD reactions, reported conflicts with his wife, and expressed his feeling of stigmatization. Social support is reported as being a strong predictor for the development and maintenance of PTSD [34]. Even if Adam demonstrated motivation, these difficulties often had to be addressed during the PTSD treatment, as he felt a lot of anger or isolation when these situations occurred.

It is important to mention that Adam was on sick leave during the treatment and he did not know what to expect regarding the future of his work. A job loss or the threat of losing a job can trigger mixed and confusing feelings, such as anger [35]; on the other hand, a supportive workplace can help in reducing PTSD symptoms by offering, for example, social support. During therapy, Adam began to deal with the possibility of losing his job and this, too, had to be addressed.

A certain cognitive rigidity and significant difficulty concentrating were also observed. To deal with these difficulties, Adam would drink energy drinks before the sessions to be sure to follow everything. Since each session was recorded, Adam sometimes asked to listen to the sessions again, so he could be sure he understood every part of the therapist's intervention. The therapist observed it was difficult for the participant not to be in control of the treatment.

Finally, Adam experienced a lot of pain, more particularly with his back, following the accident, and he received a diagnosis of fibromyalgia during the treatment. Fibromyalgia syndrome is a chronic condition characterized by widespread musculoskeletal pain and multiple tender points on clinical examination. We know from the literature that patients with fibromyalgia are found to be significantly more likely to experience difficulties initiating or maintaining sleep than controls [36]. This variable may have contributed to the quality and quantity of his sleep, as the discomfort awoke him during the night. In addition, it was sometimes difficult for him to report in his self-monitoring booklet if his nightmares were the reason for his waking or if it was because of the pain.

3.4.2. Participant 2: Eric

Ten years had passed since Eric's traumatic event and it was the first time he had talked to someone about it. This brought a high level of anxiety and complicated imaginal exposure. Even though four additional CBT sessions were offered, it was not possible to complete the imaginal exposure of the whole event. However, by the end of treatment, Eric was able to talk somewhat about the details of his sexual assault.

Also Eric had to deal with his marijuana dependence. During sessions, this aspect was approached as it appeared this behavior was a way to manage his emotions and more particularly his anxiety. Eric was never under the influence of marijuana during sessions but used it

at home as a way to compensate for a lack of social network. It was agreed that he would not use marijuana before or after exposition exercises. At the end of the treatment, the clinician observed that Eric had reduced his consumption.

In addition, during the first 3 weeks of IRT, Eric showed difficulties in managing his anxiety because of a colonoscopy he needed, which reminded him of some aspects of the traumatic event. This situation led him to report more nightmares the week before the intervention (after session 1 of the IRT), and more flashbacks after his colonoscopy (before session 3 of the IRT).

3.5. Follow-up

Adam was assessed at 3 and 6 months post-treatment. At the first follow-up (3 months), on the CAPS, he reported a decrease in his PTSD symptoms (from 89.00 to 80.00), more particularly for the avoidance and numbing symptoms. On the PSQI, his overall sleep remained unchanged, while the score on the PSQI-A increased from 10 to 12. However, he mentioned he was less apprehensive to go to sleep and he continued to apply IRT, which helped him to calm down. One first explanation is the PSQI is a subjective self-report measure of sleep over the previous month. Also, the use of one single score for the PSQI could have limited the interpretation of any improvement in different sleep facets [37].

At 6 months follow-up, on the CAPS, we noticed his PTSD symptoms slightly increased (from 80 to 87) to return to the level of the pre-treatment assessment, more particularly for the avoidance and numbing symptoms. He reported having one or two dreams a week but now he could go back to sleep quite easily after them. He also observed it was difficult to separate his nightmares from his pain. On the PSQI and the PSQI-A, the total scores respectively increased from 15 to 17 and to 12 to 16. During the interview he expressed several stressful factors in his life that could have maintained or contributed to the increase in PTSD symptoms and decline in his sleep quantity and quality. These included a dependency to prescribed drugs, family problems and pain.

At 4 months follow-up, Eric's PTSD symptoms had increased slightly (from 60 to 67), except for the intrusive recollection symptoms, which dropped from 12 to 7. He was no longer experiencing nightmares. Avoidance and PTSD symptoms that are common to depression were the most significant symptoms. He still met the diagnostic criteria for PTSD and MDD, and still experienced marijuana dependence. It was not possible to evaluate the other variables as he did not send us back the questionnaires.

4. Discussion

4.1. Treatment implications of the cases

The present study was exploratory and reported the possibility of combining CBT for PTSD with a specific treatment for nightmares (IRT) for adults diagnosed with PTSD. Observations from both participants demonstrated interesting results with: a) a decreasing trend in the level

of distress related to nightmares for Adam and a clear decrease for Eric; b) a slight improvement in sleep; and c) a slight reduction in PTSD symptoms on the CAPS, with a greater reduction for Eric compared to Adam. Nonetheless, both participants still met the criteria for PTSD after treatment. Thus, the results were not as positive as expected. This could be explained by the complicating factors previously outlined, such as pain management, personality traits, and alcohol and drug abuse, which are issues often met by clinicians in their office, and that could affect the results of the combined treatment.

The current study confirmed that both sequences for IRT implementation, before and after CBT for PTSD, are possible. As a result, these data show promising results for clinicians to incorporate IRT, either as a first-step or second-step treatment, for patients diagnosed with PTSD, and who are distressed by their nightmares. Adding a specific treatment for nightmares as a first-step treatment also represents an interesting option for clinicians with clients who are reluctant to directly engage in exposure [38] or are refractory to medication. It therefore offers a way to potentially improve CBT for PTSD [39].

This study is consistent with the findings of past studies' of IRT efficacy in decreasing PTNM distress [40, 41]. Several treatments for nightmares exist, but to our knowledge, it is the first time such a treatment was added as an additional treatment strategy to CBT for PTSD.

Nonetheless, the impact of the combined treatment on the PTSD symptoms was not as positive as we expected. The results are generated from two single-case studies and several complicating factors were reported. Therefore, this study needs to be replicated before conclusions can be drawn. Several aspects should be considered in the future, such as: adding IRT sessions; implementing IRT in a group format; testing the combined treatment with different traumatic events; using a larger sample; and testing the combined treatment with women. Studies should also examine the optimal order for integrating IRT into CBT for PTSD. Also, future controlled and randomized studies are necessary to test IRT efficacy by comparing: IRT alone to IRT combined with a CBT for PTSD and IRT alone to CBT for PTSD alone. Finally, it would also be important to study what the therapeutic component is in order to better adapt IRT and help clinicians to implement it into their PTSD treatment practice.

4.2. Recommendations to clinicians

Both participants experienced a slight decrease in their sleep difficulties and in the intensity of their PTSD symptoms, as well a decrease in the level of distress from the nightmares (slight for Adam, more pronounced for Eric). In addition, Eric demonstrated a decrease in the frequency of his nightmares, which was contrary to Adam's experience. From the findings of this study, we noted that a specific treatment for nightmares, more particularly IRT, combined with CBT for PTSD is possible, and could also be a way of improving a CBT for PTSD.

From the case study of Adam, having only three IRT sessions at the beginning of treatment seemed too short for him, and more IRT sessions could have been beneficial. Also, sleep hygiene was briefly approached and could have been emphasized more. As mentioned and tested in a recent case study [38], CBT for insomnia (CBT-I) is a safe and effective treatment in patients with comorbid insomnia and PTSD. In the case of Adam, who set his alarm to avoid

his nightmares, it would have been interesting to concentrate on a more extended treatment of his sleep disturbances by combining CBT-I and IRT.

In addition, it is interesting to note that Adam's nightmare distress decreased while his nightmare frequency remained the same. This result underlines those of previous studies mentioning that nightmare frequency was not related to the level of distress [42]. As a consequence, nightmare frequency and nightmare distress concepts should be clearly differentiated and clearly explained to clients. For example, the clinician should specify that the client's nightmares may persist at the end of the treatment, but the nightmares will not be as distressing as before. Future studies should continue to monitor both measures in order to better understand the IRT impact.

Both participants expressed difficulties in understanding the rationale of IRT. This nightmare treatment is easy to implement but its rationale and therapeutic components may be an obstacle to delivery by the psychologist and its understanding by the participant. The CBT rationale for PTSD is that nightmares are a reliving of the traumatic event, and gradual exposure to the memory or the stimuli related to the traumatic event should gradually reduce these intrusions by habituation and reducing avoidance. Therefore, when introducing the IRT rationale and by changing the scenario of the nightmare, it may look like avoiding nightmares rather than confronting them. This emphasizes the importance of reinforcing the idea of not avoiding but taking control of the nightmares by changing something that is not real. This also underlines the importance of changing nightmares that do not replicate the traumatic event as we do not attempt to change the story of something that actually happened.

Finally, as the results of a recent study suggested [41], the degree of distress related to the nightmare content was positively linked to the degree of similarity between the nightmare and the trauma. In the current study, we indicated that the selected nightmares were not a replica of the event. It is, therefore, important to keep specifying this nightmare inclusion criterion for future studies to guarantee exactly what they are evaluating. It would also help to understand what the therapeutic component is for IRT (e.g., exposition, mastering, etc.). Otherwise, in the case of different nightmare content, other specific nightmare treatments could be considered, such as ERRT, LDT, sleep dynamic therapy, or self-exposure therapy. It could even be interesting to explore which treatment is more appropriate according to, for example, the degree of avoidance by the victim, the category of his or her traumatic event, and the content of the nightmares.

Author details

Katia Levrier[1], André Marchand[2], Valérie Billette[1], Stéphane Guay[3] and Geneviève Belleville[4]*

*Address all correspondence to: genevieve.belleville@psy.ulaval.ca

1 Centre d'étude sur le trauma, Montréal, Canada

2 Université du Québec à Montréal, Montréal, Canada

3 Trauma Studies Centre, Institut Universitaire en Santé Mentale De Montréal, Canada

4 Université Laval, Québec, Canada

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Chapter 6

Dreams in Cognitive-Behavioral Therapy

Dagna Skrzypińska and Barbara Szmigielska

Additional information is available at the end of the chapter

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Abstract

In recent years, cognitive-behavioral-oriented therapists have found a new interest in work with dreams. Dream analysis within the framework of cognitive-behavioral therapy (CBT) seems to be fully justified if the cognitive processes involved in the dreaming process are considered. The aim of the chapter is to introduce three perspectives for working with dreams within the realm of CBT. The first perspective is dedicated to the historical view on the use of dreams in CBT. The second includes an analysis of the conceptual functions of working with dreams in CBT. The third presents practical issues related to dream analysis in CBT. To sum up, the chapter presents systematic and comprehensive information about the therapeutic work with dreams within CBT from a historical, functional, and processual perspective.

Keywords: dreams, cognitive-behavioral therapy, dream analysis, continuous hypothesis, cognitive content-specificity hypothesis

1. Introduction

Since the birth of psychotherapy, work with dreams has been mainly developed in the realms of psychoanalysis, psychodynamic therapy, and less commonly within humanistic or existential therapy. Within the framework of cognitive-behavioral therapy (CBT), very few dream analysis concepts have been elaborated on. However, in recent years, cognitive therapists have found a new interest in work with dreams [1].

Referring to dreams in CBT is fully justified if the cognitive processes that are involved in the dreaming process are considered. Dreaming includes such cognitive processes as: accumulating content in both semantic and autobiographical memory; representing these elements in a visual and auditory manner and in other modalities; combining the above representations into a dream scene; creating a narrative sequence for the dream scene; and focusing on dream

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content [2]. Dreaming is also related to assimilation of personal experiences into one's existing memory system. During this process, waking life events are contextualized through the formation of connections between previous cognitive and emotional experiences and present circumstances [3]. Dreams are one way of assimilating waking experiences into the schemata because they help to classify emotional experiences from the waking state, compare them with memories, and plan future actions [4]. These processes are possible in the case of dreams that do not reflect powerful emotional traumatic events. Such dreams (usually nightmares) are very likely to be recurrent, as they are an attempt to complete the assimilation of negative waking experiences [3, 4].

Treatment of recurrent frightening dreams within the framework of CBT is well elaborated [5]. This topic has been addressed in other reviews and meta-analyses [5–7]. Working with nightmares in CBT is developed and often applied, but working with dreams, in general, in CBT is barely elaborated and rarely used. A vicious circle occurs due to a lack of research on the use of dreams in CBT, and there is a very little knowledge about dream analysis in this therapeutic approach; therefore, therapists do not want to elaborate on this topic during therapy sessions [2, 8].

The main aim of the chapter is to present perspectives on working with dreams within the framework of CBT. The first perspective concerns the historical view on the usage of dreams in CBT. The second functional perspective includes an analysis of the conceptual functions of working with dreams in CBT. Finally, yet importantly, the processual perspective is focused on practical issues related to working with dreams in CBT.

2. A historical perspective on working with dreams in CBT

The main aim of this part is to introduce a historical perspective on dream analysis within the framework of CBT. A division into objective and constructive approaches toward dream work in this approach is distinguished. The first comes from the objectivist tradition in CBT and is represented by, among others, Beck and Freeman. The second is more focused on metaphorical, subjective, and affective ways of understanding dreams. To this approach belongs, for instance, Hill [4]. Differentiation of dream analysis orientations in CBT is worth mentioning, although we concentrate on various propositions of working with dreams without reference to this division.

The historical perspective on dream analysis in CBT concerns the works of Beck [9], Hill [4], Freeman [8], and Montangero [2]. The use of dreams in third wave schema therapy is also considered. However, the aforementioned authors are not the only ones who have developed the topic of dream analysis in CBT. Others include Gonçales and Barbosa [10], and Barrett [11]. Due to lack of space and the assumption that the historical perspective is only one part of the chapter, a presentation of all of these concepts is beyond the scope of this review.

2.1. Aaron T. Beck: from psychoanalysis to a cognitive approach

Aaron Beck is one of the founding fathers of CBT. Before he made a pioneering contribution to this therapeutic approach, he was trained in psychoanalysis. In 1959, he joined the research

group led by Saul [12]. The main goal of their project was to examine the psychoanalytical theory of "inverted hostility" in depressed patients [13]. This concept assumes that a self-punitive need to suffer occurs in depression [14]. It was suggested that "masochistic" dreams are related to depression and that subjects with masochistic tendencies might be more prone to this disorder, so the study confirmed the psychoanalytical concept of "inverted hostility" [13]. In fact, this is the only article by Beck in which he referred to psychoanalytical interpretation of dreams.

In his next project, Beck, in collaboration with Ward, extended the research and confirmed his previous findings [15]. In discussion, he assumed that: (a) it is not necessary to analyze dreams, or assume any unconscious meaning, to assess their thematic significance; (b) the manifest dream content correlates well with important themes in a person's waking life; (c) the themes of a person's pathology and of his or her will correlate, suggesting the existence of a certain mechanism that regulates how we construct meaning; and (d) systematic and experimental study of dreams would be useful in isolating other thematic correlates of specific psychopathologies and pinpointing their mechanisms [14].

The aforementioned conclusions were fundamental for a cognitive shift of Beck's thinking about the mechanisms of mental disorders. Along with Beck's personal disappointment with the results of his own psychoanalytical therapy and his dissatisfaction with how psychoanalytical therapists treated their patients, his conclusions on dreams led him to abandon psychoanalysis and motivated him to work on his own therapeutic method [12]. In 1971, Beck published his last paper on dreams; this was the only one that concerned dreams and a cognitive approach [9]. In this article, he defined dreams as "(…) a visual phenomenon occurring during sleep" [9]. According to Beck [9], dreams reflect the patient's concept of the self, the world, and the future. Consequently, dreams are seen as reflecting a patient's cognitive patterns, which are specific to the individual and "exert a maximum influence on the content of dreams" [9]. Therefore, some dreams can be a useful tool in cognitive restructuring as they help reveal cognitive distortions, schemas, and maladaptive thought patterns.

Moreover, according to Beck [9], a single dream may provide a clarification of the patient's problem. After formulating a series of alternative hypotheses, a dream can support one of them, modify them, or offer completely different possibilities. Dreams might also be considered as a kind of biopsy of the patient's psychological processes. Pathognomonic dreams show, in turn, the way the individual sees himself, the world, and the future. Dream content may reflect changes in waking cognition due to progress in therapy [16].

Beck, at the beginning of his academic and therapeutic carrier, was deeply interested in dreams. After he established the basis of cognitive therapy, he wanted to spread his ideas. He was frustrated with the psychoanalytic politics of personal loyalty and in turn, psychoanalytic therapists were not interested in contributing to the "broad psychotherapy" postulated by Beck. Therefore, he turned toward behavioral therapists, who offered him a supportive community and opportunities for bringing cognitive therapy to a wider audience [17]. This alliance with behavioral therapists forced him to abandon his research on dreams. Subsequently, due to ideological, financial, and pragmatic reasons, Beck, decided not to continue his interest in dreams. CBT still bears the consequences of this decision: until now, working with dreams has been neither well implemented nor well researched. Freeman and White [8] pointed out

other factors that may influence the fact that cognitive-behavioral therapists do not consider dreams as important: lack of training in the use of dreams in CBT, lack of a manual dedicated to dream work in this approach, and regarding dreams as unconscious or having no direct behavior component. Despite these reasons for the lack of interest in dreams in CBT, a few methods and guidelines for using dreams in this therapeutic approach have been developed.

2.2. Clara E. Hill: the cognitive-experimental model of dream interpretation

One of the most elaborated and well-documented method of working with dreams in psychotherapy sessions is Hill's cognitive-experimental model of dream interpretation. It was developed in the 1990s based on psychoanalytic, existential-phenomenological, gestalt, cognitive, and behavioral approaches [4]. Due to the variety of sources of Hill's model, it is not directly recognized as a part of CBT. However, it can be used within CBT as an integration model that applies to Beck's concept of cognitive therapy as integrative therapy [18, 19]. This method is broadly presented elsewhere [4, 20].

According to Hill [4], dreams are a continuation of waking thoughts and therefore their meaning is personal. They contain cognitive, behavioral, and emotional components. Working with dreams assumes collaboration between the therapist and the client,[1] who is the main figure in this process. The goal of working with dreams is to introduce changes in the way clients think, feel and behave, and to develop their self-understanding [4].

The cognitive-experimental model of dream interpretation comprises the three following stages: (a) exploration, (b) insight, and (c) action. The first stage, consists of five steps: (a) explaining the model; (b) re-telling the dream; (c) exploring overall feelings and the timing of the dream; (d) exploring images according to DRAW method (description, re-experiencing, associations, waking life triggers); and (e) summarizing [20]. During the exploration stage, the client has an opportunity to reveal relationships between the dream and waking life [4, 20].

When dream images have been explored, the insight stage is introduced. It is divided into three steps: (a) asking the client for an initial understanding of the dream; (b) establishing the meaning of the dream; and (c) summarizing [20]. During this stage, the therapist and the client collaborate to establish the meaning of the dream [4].

The action stage has three steps: (a) changing the dream; (b) encouraging the client to make changes in his/her waking life; and (c) summarizing. Changing the dream may refer to the therapist asking the client to alter the dream in his/her imagination or create a continuation of the dream. The therapist encourages the client to think about ways in which he/she would like to change the dream plot. Hill [20] describes three possible kinds of actions: (a) behavioral changes; (b) rituals, and (c) continued work on the dream. In this stage, the therapist can also teach the client new ways of behavior, or encourage her/him to use skills she/he has already but is afraid to put into practice [4].

[1]Hill [4] uses term "client" instead of "patient." We follow this nomenclature to describe the cognitive-experimental model of dream interpretation; however, in all chapters we decided to use term "patient" in order to simplify the nomenclature.

2.3. Jacques Montangero: the description, memory sources, and reformulation method

Montangero claims that "dreaming is a primarily cognitive phenomenon since it consists of creating representations, that is, evoking things that are absent by means of substitutes like mental images, words, etc." [21]. Dream representations are not meaningless; they are related to a person's aspirations and concerns and they are often complementary to topics from the preceding day that one does not want to or has no time to think about. Therefore, the meaning of dreams is not univocal, but personal [21].

The goal of the systematic procedure of dream interpretation developed by Montangero [2] is to reveal this personal meaning of dream elements. The description, memory sources, and reformulation method (DMR) was elaborated in the 1980s and improved until the early 2000s [21]. The method has three steps: (a) complete description, (b) search for mnemonic sources, and (c) reformulating the dream description.

In the first step, the patient has to immerse in the memory of his/her dream. He/she shares the dream content with the therapist, who writes down this description. The second step is focused on connecting the dream elements to autobiographical memories in order to clarify the meaning of the dream. The aim of the third step is to describe the dream content as a sequence of more general terms. The patient and therapist collaboratively categorize and find a definition or function for each element of the dream. These general ideas could later be applied to the patient's aspirations or concerns. Reformulation of the dream leads to its interpretation, which is based on relationships between dream elements and waking experiences of the patient [2, 21].

Montangero established the DRM method as a part of CBT as it has several general methodological principles in common with this approach; for instance, both the DRM and CBT use a systematic analysis of the mental content of the patient [21]. We were unable to find any empirical research on this model.

2.4. Arthur Freeman: guidelines for using dreams

According to Freeman, a dream is a representation of an idiosyncratic dramatization of the dreamer's view of the self and the world. It reflects the waking cognitions and affective responses of the individual, not the "mysterious reflections of so-called deeper issues" [8]. Appealing to dream symbols should also be avoided; hence, in therapy, a dream should be understood in terms of the patient's life and his/her experiences from waking states [8].

Arthur Freeman has been working on dream analysis in CBT since the 1980s [8, 22, 23]. He had to rely on Beck's early papers because in other sources he failed to find any references to dreams, dreaming, or the use of dreams in CBT [14]. He listed points concerning "cognitive dream interpretation." The most recent version contains rules as, for instance: understand the dream in thematic rather than symbolic terms; the thematic content is idiosyncratic to the dreamer and must be understand within the context of his/her waking life; the affective responses to the dream image can be seen as similar to the emotional responses of the patient in waking life; dream content and images come under the same cognitive restructuring methods as automatic thoughts; the dream may reflect the patient's schema. The complete version is described elsewhere [8].

These guidelines simply and accurately present how cognitive-behavioral therapists can work with dreams within this therapeutic approach.

2.5. Jeffrey Young: schema therapy and dreams

Schema therapy is an integrative therapy that significantly expands on traditional CBT. It was developed by Young and colleagues in 1990. One of the main assumptions of schema therapy states that schemas, which have their source in toxic childhood experiences, might be the core of a number of psychological problems. Such schemas were labeled as early maladaptive schemas; these are defined as a broad, pervasive theme or pattern comprised of memories, emotions, cognitions and body sensations regarding oneself and one's relationships with others that was developed during childhood or adolescence and elaborated throughout one's lifetime and is dysfunctional to a significant degree (for more, see: [24, 25]).

Two phases of schema therapy were established: (a) the assessment and education phase and (b) the change phase. According to Young [24], schema therapy can refer to dreams in both stages. Schemas are triggered during various experiences during a patient's life; they can be present not only in waking mentation, but also in dreams. Recurrent dreams and those with strong affect are most important. A patient can record his/her dreams and discuss them with the therapist. Dream content can reveal a patient's schemas in the first stage of schema assessment. Furthermore, recounting a dream can be a starting point for imagery work related to usage of experiential methods in the schema change phase [24].

The aforementioned tips for working with dreams in schema therapy are the only ones that have been formulated so far. Empirical research on working with dreams in the third wave of CBT is still lacking.

3. A functional perspective on working with dreams in CBT

Dreams can be useful in psychotherapy. Some approaches, like psychoanalysis, actively apply to dreams, whereas others, like CBT, leave them on the periphery of therapeutic work. Eudell-Simmons and Hilsenroth [26] defined four conceptual functions of dreams in psychotherapy. A detailed description of the methodological issues and the basis of this division are available in the original paper [26]. Due to the scope of the chapter, we focus on the functions of dreams in terms of CBT.

3.1. Facilitating the therapeutic process

Working with dreams in therapy can facilitate the therapeutic process in these ways: increasing patient disclosure and comfort; improving his/her attitude toward the therapeutic process and participation in therapy; encouraging his/her engagement and positive involvement in therapy; and enhancing the cooperation and the working alliance between patient and therapist [26]. Moreover, use of dreams can prevent patients terminating therapeutic treatment early [27].

The therapeutic process in CBT includes several components: (a) defining the goal of the therapy; (b) elaborating the ever-evolving case formulation of the patient and his/her problems in

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cognitive terms; (c) emphasizing the present in the first phase of therapy; (d) structuring the therapeutic process and every therapeutic session; (e) establishing a good patient-therapist relationship; (f) collaboration between the patient and the therapist and the active participation of both in the therapeutic process; (g) emphasizing the role of psychoeducation; (h) using a variety of techniques to change thinking patterns, mood, and behavior of the patient; and (i) limiting the number of sessions [28].

Including work with dreams during each of these steps is plausible if: (a) the goal of the therapy can be defined, for instance, as the changing of an unpleasant dream, or decreasing the negative emotions related to the dream; (b) information obtained from dream content can be incorporated into the case formulation of the patient; (c) in the initial phase of therapy, the patient and the therapist can focus on the last dream or unpleasant/important dreams as the basis for extension of their therapeutic work; (d) working with dreams can be planned within the whole course of therapy; (e) working with dreams can facilitate the therapeutic relationship [26]; (f) the methods of dream analysis require collaboration between the patient and the therapist and their active participation in the process of dream interpretation; (g) information about the process of dreaming and sleeping can be a part of psychoeducation; (h) a variety of standard CBT techniques can be used to work with dreams; and (i) the patient and the therapist can establish the amount of time devoted to working with dreams in each session, as well the entire therapeutic process.

According to Safran et al. [29], a good therapeutic relationship in CBT consists of: (a) interpersonal processes, (b) alliance ruptures, and (c) the patient's emotions. Effective collaboration between the patient and the therapist increases the chances of therapeutic change and the healing of dysfunctional schemas. Schemas can be also present in dreams and work on dream content can facilitate modification of these unhelpful schemas [24]. For patients who have problems in establishing a good collaborative relationship with the therapist, the recounting of dreams may help to develop trust in the therapist more quickly and deeply. Working with dreams can also encourage the patient to introduce and/or pursue issues that otherwise may have been too difficult, painful, or embarrassing to discuss with the therapist [13]. Hence, elaborating on dreams can positively influence the interpersonal processes between the patient and the therapist [28]. There is a variety of methods for dealing with difficulties in therapy, one of which is to refer to dreams [26]. Finally, yet importantly, the patient's emotional arousal is necessary for the therapeutic progress [28]. Some dreams have a great emotional impact; therefore, working with them can be useful when processing the patient's difficult experiences in the course of therapy [30].

Dream analysis can bring multi-faceted support to the therapeutic process. As indicated, work with dreams can be incorporated into each element of the therapeutic process in CBT. However, this is a theoretical analysis that needs to be verified in empirical studies.

3.2. Facilitating self-knowledge of the patient

One of the goals of therapy is to enhance self-awareness or self-knowledge of the patient. Alternatively, it is called insight, understanding, or recognition [26]. Although, the term "insight" is traditionally not used within CBT, the process of fostering self-awareness of the patient is important [31].

In the course of CBT, the patient generally has two opportunities to gain new self-knowledge. Firstly, within collaborative empiricism, which involves a systematic process of the patient and the therapist working together [32], the patient's dysfunctional thoughts, beliefs, schemas, and coping strategies are identified [28]. Secondly, during psychoeducation, the therapist provides important information about the mechanisms of disorders, relapse prevention, and so on for the patient [28].

The patient extends his/her self-understanding when discussing his/her waking mental content with the therapist. However, dreams can also be a source of self-knowledge [26]. With reference to CBT, dreams may contain information about cognitive patterns [9], schemas [24], and cognitive distortions [2]. Dreams can also bring forth information about a patient's feelings toward various situations and experiences.

Individual's dreams can contribute to therapy by increasing the self-knowledge of the patient. The information obtained from discussing dreams can potentially lead the patient to greater self-understanding. Moreover, they can enhance the patient's motivation for therapy and provide the knowledge needed to change dysfunctional cognitive and behavioral patterns [26].

3.3. Providing clinical information for the therapist

The therapist needs information about the patient to plan the therapeutic process and interventions adequately. The first phase of CBT includes individual case formulation and clinical diagnosis. In CBT, several ways of obtaining information about the patient are possible, for instance, clinical interview, and self-observational methods [28]. An additional way of gaining information about the patient is to ask him/her about his/her dream content [26].

The approach of finding relationships between dreaming and waking experiences, which is typical of the therapeutic setting, starts with a dream and goes into its connections with the waking-life issues of the patient. Studies on dreams in psychodynamic therapy have shown that they provide information about, among others, patient's patterns of interpersonal functioning, his/her personality structure, and images of self and others. Dreams can also reveal information the patient is not aware of, for instance, his/her attitude toward the therapist [26, 33]. Important information for the therapist in CBT that may be provided by dreams concerns the patient's cognitive patterns [9], core beliefs [2], schemas [24], cognitive distortions [2], patterns of behaviors [15], patterns of affective responses [23], and resources [2].

Often dreams quickly and efficiently reveal information that is unique to the patient, especially information that the patient is not aware of or just does not want to share with the therapist. When the specialist recognizes this information, he/she can help the patient perceive it and subsequently change maladaptive cognitive and behavioral patterns. Dreams can also contain crucial information about a patient's emotions [26].

Dreams can reveal much important information about the patient to the therapist. Working with dreams in therapy may facilitate the speed at which some personal material is introduced to collaborative therapeutic discussion, helps the patient recognize and express emotions and thoughts, and may even shorten therapy [26]. However, there is no research on this use of dreams related to providing clinical information to the therapist in CBT.

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3.4. Providing a measure of therapeutic change

The last conceptual use of dreams in therapy refers to using dreams as a measure of therapeutic change. Dreams can provide information about the patient's functioning outside of therapy and indicate therapeutic change or improvement of the patient due to therapy [26].

Changes in dream content can occur not only when the therapeutic goal assumes working on dreams, but also when other goals, even those not related to dreams, have been accomplished. A shift in a dream can indicate that clinical improvement in relation to personality development and behavioral change has been achieved [26]. Interestingly, the anxiety content of dreams increases in patients who are successful in therapy. This possibly reflects an increase in tolerance and ability to cope with anxiety when awake [34]. These findings need to be examined in terms of CBT. However, even now it is recommended for therapists to bear in mind that an increasing level of anxiety in dreams may, paradoxically, not be a sign of worsening, but of improvement. Notwithstanding, the decision concerning whether an increasing level of anxiety in dreams is positive or not should be always be based on the broader context of the patient's functioning in the waking state.

Overall, dreams have the potential to indicate therapeutic change. In CBT, this way of evaluation of improvement may be additional to other methods, such as scales. Research on the mechanisms and directions related to therapeutic change and dreams needs to be conducted within the framework of CBT.

4. A processual perspective on working with dreams in CBT

The processual perspective on dreams in CBT is focused on some practical aspects of working with dreams in the course of therapy. There is hardly any research on dreams in CBT and only a few theoretical papers.

4.1. Characteristics of patients and therapists who work with dreams

Therapists who participate in studies on working with dreams in therapy are mainly oriented toward psychoanalytic and psychodynamic approaches. This is related to the fact that dream theories and manuals for dream analysis have seldom been available in other therapeutic approaches, including CBT [35]. Systematic research on the frequency of use of dreams in psychotherapeutic practice, especially CBT, is scarce.

Schredl and colleagues [35] checked the frequency of use of dreams in 79 therapists with private practices. The results revealed that in about 28% of therapy sessions, the topic of dreams is discussed. Therapists had introduced work with dreams in 33% of cases. Schredl et al. [35] divided the total sample of therapists into two categories: (a) psychoanalysts and (b) humanistic and cognitive-behavioral therapist. Compared to humanistic and cognitive-behavioral therapists, psychoanalysts more often refer to dreams, regard work on dreams as more beneficial for patients, and report the greater enhancement of dream recall in patients. Representatives of psychoanalysis have also read more literature about dreams, and more

often work with their own dreams in comparison to humanistic and cognitive-behavioral therapists. The findings indicate that working with dreams in therapy still plays an important role and is considered beneficial in the therapeutic success [35]. In CBT, the literature about dreams is still lacking; therefore, cognitive-behavioral therapists possibly less often work with their own dreams and less willingly develop dream-related issues during therapeutic sessions.

In a study conducted by Cook and Hill [36], 129 therapists rated themselves on a 5-point Likert scale as adhering to techniques of cognitive, humanistic, and psychodynamic approaches on averages of 3.92, 3.26, and 3.08, respectively. Almost all of them (92%) worked with dreams during therapy sessions at least occasionally. Therapists reported that they felt moderately competent or even incompetent when working on dreams in therapy and had moderate or no training in dream work. Such training was strongly related to the aforementioned feelings of competence. Additionally, therapists with more training were likely to devote more time in therapy to work with patients' dreams than were therapists with less training. It seems that training in dream work and therapists' personal experiences with dreams are related to their willingness to elaborate on dreams during therapy sessions [36].

To conclude, cognitive-behavioral therapists have little or no training on working with dreams in therapy. During such training, therapists can gain knowledge about techniques and methods dedicated to work with dreams; therefore, when patients introduce their dreams into therapy, therapists have some idea of how to elaborate on this clinical, narrative material [36]. Lack of knowledge about working with dreams during therapy sessions discourages cognitive-behavioral therapists from discussing dreams with their patients; however, they are somehow more willing to explore dreams in terms of patients' waking experiences than to interpret them [37]. A comprehensive manual concern working with dreams in CBT is needed, as it has not yet been elaborated on.

As the proverb says, it takes two to tango; therefore, there are not only therapists who are open to work with dreams in therapy, but also patients. Patients who remember their dreams more often bring them to therapy than those who do not [26]. Patients who have "thin boundaries" are also more likely to discuss their dreams during therapy sessions [38]. Moreover, patients who have more vivid or memorable dreams and are more attuned to their inner experiences tend to bring dreams to therapy more often than those without these traits [26].

A study on 336 undergraduate students revealed that those who volunteered in a dream interpretation session (N = 109) had a more positive attitude toward dreams, recalled dreams more frequently, were more open, were higher in absorption, and were more often female than the non-volunteers [39]. A study on 157 voluntary participants revealed that those who profited most from discussing dreams during therapy sessions had poor initial functioning related to the problem reflected in the dream, a positive attitude toward dreams, salient dreams, low initial insight into the dream, and poor initial action ideas related to the dream [40]. The importance of attitude toward dreams, understood as an indicator of motivation to work with dreams and willingness to bring dream content in therapy [41], is also confirmed in other studies [42, 43].

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The therapists' encouragement to talk about dreams in therapy is an important factor when considering bringing dream content into therapy sessions [43]. A vast majority of cognitive-behavioral therapists have not been trained to work with dreams in therapy; therefore, they do not feel competent to discuss such issues. There are studies on the characteristics of therapists and patients who work with dreams in therapy, but no such studies have been conducted directly in CBT.

4.2. Phases of CBT

The three phases of the CBT process are distinguished: (a) clinical diagnosis and case formulation; (b) realization of therapeutic goals; and (c) evaluation and preservation of therapeutic achievements [29]. Our proposition to work with dreams within all these stages is presented.

4.2.1. The first phase: clinical diagnosis and case formulation

The first phase of CBT usually takes a few sessions. It is a very important part of the whole therapeutic process because decisions concerning the treatment plan and clinical interventions are made at this stage [28]. During diagnosis, the therapist can broaden the standard clinical interview with questions concerning dreams; for instance, he/she can ask the patient about the last remembered dream, the most important dream, recurrent dreams, the emotional tone of one's dreams, or the patient's attitude toward dreams.

Beside the standard clinical interview, the therapist can also adopt the dream interview model (DIM) elaborated by Delaney [44]. It is based on the assumption that dream images are symbols or metaphors representing waking experiences of the patient. It can be used as a separate method of dream interpretation; however, the initial steps can also especially be used in the first phase of CBT as a technique that facilitates the process of obtaining information about the patient and his/her dreams. DIM is not dedicated to CBT, but it can be used within this approach due to the integrative assumptions of CBT made by Beck and Alford [18, 19]. DIM is described in detail elsewhere [44]. It may be used within CBT as a method of gaining information about a dream, the patient's feelings and opinions about that dream, and relationships between dream images and his/her waking experiences. Importantly, clinical diagnosis cannot be based on only dreams. Information related to dreams may only be additional information for the therapist to understand the patient better.

If needed, it is plausible to use questionnaires and scales about dreams in a clinical context. However, it is important to remember that these tools were developed for scientific research and therefore should be used with caution in therapy. Some methods are available to assess attitudes toward dreams: the attitude toward dreams questionnaire [39, 43], and the attitude toward dreams scale [45]. In the course of therapy, the dream recall frequency scale may also be useful [46]. Other methods may be used during clinical diagnosis, for instance the dream questionnaire [47], and the Mannheim dream questionnaire [48].

Information about the patient obtained from clinical interviews and other methods serves in CBT to create a case formulation which is "a hypothesis about the psychological mechanisms and other factors that are causing and maintaining all of a particular patient's disorders and

problems" [49]. The case formulation includes, among others, the automatic thoughts, beliefs and schemas, cognitive distortions, typical patterns of behavioral and emotional responses of the patient. This cognitive content may represent both waking and dreaming cognition. As stated earlier, dreams can reveal information about the patient's core beliefs [2], schemas [24], cognitive distortions [2], patterns of behaviors [15], and patterns of affective responses [23]. All these elements may be incorporated into the case formulation for a better understanding of the patient and the mechanisms behinds his/her problems. Dreams can reveal information that the patient is not aware of or does not currently want to share with the therapist [13].

It seems that dreams may be useful at this stage of CBT in terms of direct and indirect disclosure of information. In this approach, the most important issue is what the patient thinks about his/her own dream, what emotions it evokes in him/her, and what conclusions he/she can draw from it. Research on the use of information obtained from dreams in a case formulation needs to be conducted in the future.

4.2.2. The second phase: realization of therapeutic goals

The second phase of the CBT process is focused on the realization of therapeutic goals. It aims to improve the functioning and quality of life of the patient. This improvement is achieved with specific therapeutic interventions resulting from the case formulation. During this stage, a variety of techniques focused on cognitive, behavioral, and emotional changes is used [28].

Before focusing on CBT methods that can be helpful when working with dreams, it is worth discussing the relationship between the continuity hypothesis [50] and the cognitive content-specificity hypothesis [51]. The continuity hypothesis formulated by Hall [50] states that "dreams are continuous with waking life." In dreams, the same personalities with the same characteristics, beliefs, convictions, wishes, and fears are presented as in the waking state [50]. The continuity hypothesis is broadly discussed and studied [52, 53]. The cognitive content-specificity hypothesis, which is a component of Beck's cognitive theory, states that psychopathological symptoms can be differentiated on the basis of their unique cognitive content, such as automatic thoughts and/or beliefs [50]. This hypothesis is also studied [54]. If these two hypotheses are combined, the conclusion may be that dream content in individuals with diagnosis of specific psychiatric disorders may be continuous with the cognitive content from their waking state. Dreams of patients diagnosed with various psychiatric disorders are continuous with some aspects of their waking life. On the other hand, dreams also reveal several discontinuities from their waking experiences [53]. Research on the relationship between waking/dreaming experiences and cognitive and emotional patterns has still not gone deep enough. A detailed review on dream content in specific groups of patients is not possible in the chapter but in **Table 1**, a compilation of results concerning cognitive content and dream content in selected psychiatric disorders is presented. Due to the fact that results on the relationship between waking and dream cognitive content are still insufficient, the summary below should be taken with caution and treated as additional information, not as the basis for diagnose or clinical interventions. However, as with automatic thoughts and beliefs, dream content can be discussed during therapeutic sessions; therefore, knowledge about relatively frequent dreams in specific psychiatric conditions may be useful for cognitive-behavioral therapists.

Disorder	Cognitive specificity	Dream content (in comparison to the non-clinical population)
Depression	Negative assessment of self, the world and the future (Beck's Negative Cognitive Triad) [22]	Higher rate of nightmares [55]; more negative mood tone (not confirmed in all studies [53]); more passive role of the dreamer [56]
Anxiety disorders	Focus on physical or psychological threats [28]	Anticipation of physical harm and psychological trauma; less friendly interactions with other dream characters [53]
Eating disorders	Excessive focus on issues related to eating, appearance, weight and body shape [57]	More dreams of food (or food rejection) and body distortions [53]
Borderline personality disorder	The world and other people are dangerous and malevolent; the self is powerless, vulnerable, and inherently unacceptable [58]	More distressing dreams that may portray traumatic childhood experiences and main emotional and interpersonal concerns of patients [53]

Table 1. A comparison of cognitive specificity and dream content in selected psychiatric disorders.

One of the most basic CBT methods which is also classified as a therapeutic approach within the framework of CBT is cognitive restructuring. Dreams may facilitate this process [2]. The reformulation of dream content has the same structure as working with automatic thoughts. The goal of this intervention is to change dysfunctional themes of dreams and their affective impact by appropriate disputation and rational challenges to maladaptive dream material [8]. Moreover, when working with dreams in therapy, metaphors can be useful [59].

Dream content, the same as automatic thoughts, can be recorded within the homework and then be a part of the therapeutic work during the session. Two reporting techniques are used in relation to dreams: the Dream Log and the Dream Analysis Record [18, 19].

Importantly, in therapy it is possible to work not only on individual dreams, but also on series of dreams. Dream series can provide a lot of information about the patient and reflect changes in his/her state of mind and progress in therapy. Moreover, they can reveal repetitive dream elements which may be clinically important [42]. If the patient and the therapist want to work on dreams during therapy sessions, it is recommended to look at more than just one dream.

4.2.3. The third phase: evaluation and preservation of therapeutic achievements

The goal of the therapeutic process in CBT is to change the maladaptive and unhelpful cognitive, emotional, and behavioral patterns of the patient, as well as to teach him/her to be their own therapist. The last stage of CBT is aimed at a summary of these changes, re-evaluation of the therapeutic goals established at the beginning of the therapy, and relapse prevention [28].

Working with dreams in therapy is beneficial when it leads to changes in the patient's emotions, cognitions, and/or behavior. These changes may be related to the patient's dreams or to his/her waking life generally. The therapist and the patient can explore how changes related to dreams may be applied to his/her waking concerns [4, 42]. During the last stage of CBT, the therapist and the patient summarize what was helpful for the patient, which

methods were the most useful, what he/she has learned, his/her new adaptive thoughts and beliefs, and what he/she can do when there is a risk of the problem reoccurring [28]. All these interventions can also be used in the case of dreams. The methods of working with dreams, the main conclusions drawn from dreams, and the useful materials about dreams that the patient can refer to after therapy should be mentioned during the last therapeutic sessions.

5. Conclusions

The goal of this chapter was to present the historical, functional, and processual perspectives on working on dreams in CBT. Issues related to dreams are rarely raised during therapeutic sessions in this therapeutic approach. Although research on dreams had an important place when cognitive therapy was established by Beck, ideological, financial, and pragmatic reasons led to its abandonment. Only a few methods related to dreams have been elaborated within CBT, for instance the DMR method of dream interpretation created by Montangero [2] and the guidelines for using dreams defined by Freeman and White [8]. There are very few studies on them; the only exception is the cognitive-experimental model of dream interpretation established by Hill [4]. This model has great empirical support; however, it is not dedicated to CBT. Because of the lack of research on the use of dreams in CBT, cognitive-behavioral therapists are not trained in this area and therefore do not work with their patients' dreams. This vicious circle should be broken by conducting empirical studies about the use of dream analysis in the course of CBT, creating manuals for work with dreams, as well as training programs for therapists about such work. As has been presented, working with dreams in CBT can be useful and beneficial when elaborating on the functional perspective. Dreams can not only facilitate the therapeutic process, but also broaden the self-knowledge of the patient, provide clinical information for the therapist, and be a measure of therapeutic change [26]. Dream analysis can be incorporated into all of the stages of CBT. It is possible to refer to it during clinical diagnosis and case formulation, realization of therapeutic goals, and evaluation and preservation of therapeutic achievements. For dream content, the same methods as for working with automatic thoughts can be used. There is potential for dream analysis within CBT; however, this area is still waiting to be explored by cognitive-behavioral therapists, their patients, and researchers interested in CBT and dreams.

Author details

Dagna Skrzypińska* and Barbara Szmigielska

*Address all correspondence to: dagna.sk@gmail.com

Institute of Psychology, Unit of Sleep Psychology, Jagiellonian University, Krakow, Poland

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Chapter 7

Cognitive-Behavioral Psychotherapy for Couples: An Insight into the Treatment of Couple Hardships and Struggles

Caroline Dugal, Gaëlle Bakhos, Claude Bélanger and Natacha Godbout

Additional information is available at the end of the chapter

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Abstract

In this chapter, a comprehensive literature review of the theoretical underpinnings and clinical practices of cognitive-behavioral couple therapy (CBCT) will be presented. First, a description of the theory underlying CBCT and the role of the therapist will be reviewed. Different mandates and motives for couples to consult in CBCT will then be described, with attention given to specificities for diverse populations. The assessment process and main intervention techniques used by CBCT therapists will be presented, including communication training, problem and conflict resolution, cognitive restructuring, identification and expression of emotions, expression of affection and sexual problems as well as acceptance and tolerance of differences. The chapter will conclude with a critical analysis of CBCT and suggestions for future clinical developments.

Keywords: cognitive-behavioral couple therapy, assessment, intervention, couple distress, couple adjustment

1. Introduction

Intimate relationships are of great significance for most adults and highly impact overall well-being and health [1, 2]. Indeed, satisfying intimate relationships can provide happiness, social support as well as buffer the repercussions of numerous stressors [2–4]. However, when these relationships are characterized by significant distress, destructive conflicts or general dissatisfaction with the relationship, they can also lead to deleterious consequences to physical and psychological health [1] as well as great suffering [2].

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Cognitive-behavioral couple therapy (CBCT) aims at assisting romantic partners who report distress in their relationship. Over the years, CBCT has been extensively evaluated in treatment outcome studies, which have repeatedly concluded in its effectiveness for decreasing couple distress and dissatisfaction as well as for addressing communication or problem-solving difficulties [5–7]. Studies have also found that such improvements seem to be maintained for up to 2 years by most couples [8].

In this chapter, a comprehensive literature review of the theoretical underpinnings and clinical practices of CBCT will be presented. First, a description of the theory underlying CBCT and the role of CBCT therapists will be offered. Possible mandates and motives for consulting in CBCT will then be described, with particular attention to the specificities in CBCT for diverse populations. The assessment process used in CBCT will also be addressed, allowing readers to understand the particularities of psychotherapeutic work with couples. Subsequently, the main intervention techniques used in CBCT will be defined: communication training, problem and conflict resolution, cognitive restructuring, identification and expression of emotions, expression of affection and sexual problems as well as acceptance and tolerance of differences. The chapter will conclude with a critical analysis of CBCT and suggestions for future clinical developments.

2. A brief history of the theoretical underpinnings and objectives of CBCT

The origins of CBCT stem mainly from Stuart's [9] work on behavioral exchanges between partners. He based his analysis of couple interactions on learning principles [10] and social exchange theory [11], postulating that individuals' evaluation of their relationships would depend on the ratio of benefits to costs, resulting from positive and negative exchanges with others. Stuart [9] thus proposed a behavioral exchanges paradigm where successful relationships could be differentiated from dysfunctional ones by the frequency of positive and negative behavioral exchanges. Positive behaviors include constructive problem solving as well as empathically expressing and listening to each other, whereas negative behaviors refer to the expression of criticism, hostility, contempt or withdrawal from interactions with the partner. Early behavioral couple therapies [12, 13] focused primarily on behavior changes and the acquisition of skills aimed at increasing the frequency of positive behaviors and reducing aversive behavioral interactions through the development of effective communication and problem-solving strategies [14].

During the last decades, behavioral couple therapy expanded by including interventions that also addressed emotions and cognitions contributing to conflicts and dissatisfaction. This was achieved by highlighting the importance of attributions, dysfunctional beliefs and distorted cognitions in romantic partners' evaluation of their relationship [15]. For instance, by selectively attending to specific behaviors or characteristics in the partner or by approaching the partner with expectations or standards about how he or she should be or act, individuals will

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see variations in their appreciation of their partner and of their relationship. Cognitions also depict the way partners process information originating from the others' behaviors, which guide their interpretation of events as well as expectations towards the other and the relationship [15].

Work from Jacobson and Christensen [16] increased focus on acceptance strategies as a way to help partners recognize that they are different and eventually learn to respond constructively to difficulties or incompatibilities within the relationship. In 2002, Epstein and Baucom further enhanced CBCT by including work on partners' needs for intimacy and increased attention to emotions, not only as a result of modifications in the dysfunctional behaviors but also as a primary target of therapy. According to these authors, emotions can significantly impact relationships through various means: in their expression, through their impact on the interpretations (cognitions) made as well as by affecting behaviors expressed towards the other. Epstein and Baucom [17] also emphasized the importance of considering partners' vulnerabilities and the impact of the couple's environment as part of the multiple factors that can alter partners' cognitions, emotional responses and behaviors.

A specificity of CBCT lies in its dynamic understanding that cognitions can influence intimate relationships through each partner's interpretations or appraisals of stressors and of their partner's behaviors [3]. Moreover, the interpretations partners make about the behaviors of the other will determine the positive and negative emotions experienced towards the other. As shown in **Figure 1**, these emotions are considered to influence future cognitions and behaviors [14]. As such, in CBCT, behaviors, cognitions and emotions are observed as interrelated and equally important in relationship functioning [18].

In summary, the main objective of CBCT is to help couples understand their difficulties in order to enhance their relational well-being by identifying and challenging the processes at play in partners' interactions while taking into account the external factors that can affect them. To do so, CBCT not only relies on behavioral interventions in the treatment of couple difficulties, but also emphasizes the importance of working on various cognitive, emotional and environmental factors that affect a couple's functioning [18]. CBCT interventions also aim at helping couples identify, regulate and express intense or negative emotions when they arise in and out of sessions. By doing so, CBCT therapists help couples develop their ability to observe and change their automatic thoughts, assumptions and standards as well as identify the impact that their ways of behaving, thinking, interpreting and feeling have on their relationship [3].

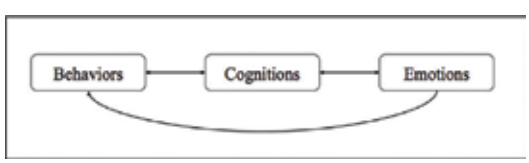

Figure 1. Interrelations of behaviors, cognitions and emotions in cognitive-behavioral couple therapy.

3. The role of CBCT therapists

CBCT therapists hold different roles that will vary depending on the stage of therapy and the needs of clients [19]. For instance, during the first sessions of CBCT, the therapist typically uses psychoeducation to inform clients about the approach and related intervention and acts as a facilitator by creating a safe and supporting environment where emotions or concerns may be expressed freely. He/she will also act as a collaborator to develop the treatment goals. However, a more directive approach will also be used by CBCT therapists to address dysfunctional interactions or the escalation of conflicts in order to create and preserve a safe environment for therapy and help partners understand what is going on and learn new ways of dealing with their disagreements [20]. A directive approach might also be needed to deal with crisis interventions (see Section 4.4). Throughout sessions, CBCT therapists can also take a more didactic role, for instance, when they teach communication and problem-solving skills for couples [12]. They will also act as guides when they help partners identify the interrelations between their cognitions, emotions and behaviors [17].

In CBCT, the therapist undertakes the responsibility of establishing and maintaining the therapeutic alliance with both partners [19]. In order to lay the foundations for a healthy therapeutic alliance, the therapist is thus expected to swiftly orchestrate sessions by fairly allocating speaking time for each partner to express themselves [20], while demonstrating neutrality and empathy [21]. If situations occur in which therapists feel unable to remain neutral towards a couple and if it significantly hampers their ability to help partners, they should seek supervision. Special consideration must also be given to the management of secrets between one partner and the therapist, for instance, in cases when an ongoing extradyadic affair is admitted by a partner during the individual session of assessment (see Section 5.2 for the phases of the assessment interviews). In such situations, it is advised that the therapist takes a neutral position by explaining to partners that he/she cannot engage in therapy while withholding information that would affect the process of therapy or bring he/she in collusion with one of the partners against the other [20].

4. Possible mandates and motives for consultation in CBCT

The first step a CBCT therapist undertakes is to question partners' objectives and expectations with regards to therapy. Poitras-Wright and St-Père [22] have proposed three main therapeutic mandates in couple therapy: alleviation of distress, ambivalence resolution and separation intervention. According to Tremblay and colleagues [23], therapeutic mandates can also be reliably classified and revised during the course of treatment to take into account the specific needs of couples which may change over time. The following sections describe how these different mandates are conducted in CBCT, with an additional section allocated to crisis intervention.

4.1. Alleviation of distress and relationship improvement

Over the years, CBCT has accumulated strong empirical support for its efficiency to alleviate relationship distress and enhance couple functioning [18]. These therapeutic gains would also seem to persist years after the end of treatment [24]. Research has shown that the therapeutic goals couples formulate regarding alleviation of distress revolve around communication problems, dissatisfaction with manifestations of emotions and affection, sexual problems, financial problems as well as decision-making or problem-solving issues [25–27]. Since some of these concerns are quite frequent, they are typically addressed with the common CBCT interventions presented in the fifth section of this chapter. However, many couples also consult for difficulties that require a more distinct approach, some of which include the presence of conflicts and violence, extradyadic affairs, infertility as well as various psychological or health-related problems partners might have.

4.1.1. Conflicts and violence

Many couples find it difficult to resolve their conflicts, and this difficulty heavily affects their functioning and satisfaction within the relationship [28]. Yet, it is how a couple handles disagreements that will determine how satisfied partners are with their relationship [29]. Accordingly, unresolved conflicts constitute one of the most frequent consultation motives for couple therapy [25]. As such, CBCT offers techniques aiming at the enhancement of positive interaction patterns in couples as well as the improvement of communication and problem-resolution techniques in order to diminish conflicts within couples [30].

Conflicts between spouses can also spiral into violence [31], for instance, when partners escalate theirs conflicts to a point where they will resort to psychological or physical violence. Indeed, partner violence is a serious challenge that many couples face but that is frequently under-reported or concealed by partners who may, for example, rather report consulting to address difficulties in dealing with conflicts [32]. During the assessment phase of CBCT, the presence of violence must systematically be assessed in order to decide whether or not CBCT should be conducted [33]. For instance, when partner violence is severe or perpetrated by one partner towards the other, couple therapy is usually contraindicated because it could lead to further violence. The therapists should then deliver a crisis intervention (see Section 4.4 for crisis intervention) [32, 33]. On the contrary, when partner violence is situational and minor to moderate and when both partners agree to cease all acts of violence during therapy, CBCT can be useful in preventing the escalation of conflicts to more severe forms of violence [33, 34]. Indeed, a few therapies using a CBCT framework or techniques have been developed to treat moderate intimate partner violence and show promising results in the reduction of mild-to-moderate violent behaviors [35–38]. Such therapies include interventions that promote positive interactions between partners, assertion and communication skills, increased imputability in conflicts and an understanding of the escalation of conflicts into violence. These interventions also seek to challenge the cognitive distortions that are entangled in conflicts and to help partners to better control their anger and other negative emotions as well as to help them negotiate time-outs during conflict.

4.1.2. Infidelity/extradyadic affairs

Infidelity is a relational problem that many who consult in couple therapy might eventually face [39]. Indeed, studies have shown that from 20 to 40% of couples will experience infidelity at least once [40] and 20–57% of men and 14–32% of women will report having had an extradyadic affair at least once in their life [41–43]. According to therapists, infidelity represents one of the most prevalent and difficult problems to treat in couple therapy [44, 45]. This is mainly due to the feelings of betrayal and relationship distress that commonly result from extradyadic affairs [46, 47]. This problem is also particularly difficult to address in treatment because it frequently puts partners in a situation where they question their desire to continue their relationship [48, 49]. This being said, many studies have concluded in the effectiveness of CBCT in the treatment of extradyadic affairs in terms of decreased psychological symptoms of depression and relationship distress [40, 50, 51]. Since CBCT commonly addresses infidelity as a form of interpersonal trauma experienced within the intimate relationship [52], interventions for this problem generally aim at dealing with the crisis following disclosure of the extradyadic affair and at the exploration of factors that might have contributed to the affair. This will be accomplished by giving the extradyadic affair a meaning [17, 52]. Since this type of couple difficulty tends to take place when the needs of a partner are not fulfilled in the current relationship [46–48], forgiveness-based interventions can also be used to help partners better understand the circumstances in which infidelity has taken place and repair the relationship. Partners will then learn how to "reconnect" after having been hurt by the other, to "turn the page" and to move forward [52].

4.1.3. Infertility

According to Sullivan et al. [53], the number of couples who encounter fertility problems is growing, with an average of 10–15% of couples experienced fertility issues. Importantly, for many couples, infertility constitutes a major crisis, and even a significant traumatic event that has important repercussions on partners' individual and relational well-being [54]. Indeed, infertility as well as the many consequences related to its treatment, such as its cost, its time requirements and the uncertainty of its results [53, 54], can lead to psychological consequences, especially high levels of stress [55], depression, low self-esteem, marital and life dissatisfaction [56, 57], sadness and denial [54] as well as feelings of guilt [54]. Some interventions using CBCT techniques have been developed to treat this problem [53, 58] and aim at facilitating disclosure and communication between partners, exploring the meaning and nature of grief (e.g., when partners learn they cannot have children), enhancing the couple's ability to understand and support each other and developing useful strategies for stress reduction and problem solving related to infertility.

4.1.4. Individual problems

In general, studies have demonstrated that couple-based therapies are effective across a wide range of individual problems and disorders that not only address an individual's psychological functioning but also his or her partner's relationship satisfaction. Consequently, CBCT has also been customized to treat a plethora of individual difficulties [19]. This approach argues

that by including the partner in the treatment of an individual's difficulties, the latter will benefit from support from his or her partner, which in turn will enhance the couple's functioning and alleviate personal difficulties [18, 59]. Alcohol use disorder is an example of an individual problem that is widely recognized as exerting a devastating effect on couple functioning and satisfaction [60, 61]. Indeed, adults with an alcohol use disorder are four times more at risk of separation and divorce than those who do not present such problems [62]. The perceived quality of the romantic relationship is also known to modulate the effect of substance use on couple functioning, so that satisfied couples experience less distress caused by substance abuse than dissatisfied couples [63]. Interestingly, support was found for the use of CBCT to reduce alcohol and drug use disorders as well as increase relationship satisfaction [64, 65]. For instance, CBCT for alcohol use disorder, which draws upon cognitive-behavioral methods for the treatment of alcohol use disorders [66] and behavioral couple therapy [67], simultaneously aims at decreasing alcohol use and increasing relationship stability and satisfaction [62]. The underlying assumption of this therapy is that drinking behaviors might be intertwined with the ability to cope with negative couple interactions. As such, by learning new ways to interact with the partner and by staying abstinent, partners are better able to cope with relationship distress [62].

Mood disorders, particularly depression, are also known to have a bidirectional association with couple functioning [68], with lower relationship quality leading to higher depressive symptoms and higher depressive symptoms generating lower relationship quality [69]. As such, when depressive symptoms act as risk factors or follow relationship difficulties, couple therapy for depression has been shown to be effective in reducing depressive symptoms and relationship problems [70]. This therapy aims at enhancing positive interactions between partners and diminishing negative interactions as well as improving communication and problem-solving abilities [71]. Couple-based interventions have also shown encouraging results for the co-occurring treatment of couple distress and bipolar disorder [72], emotion dysregulation [73], post-traumatic stress disorder [74, 75], obsessive-compulsive disorder [76], anxiety disorders [77] as well as anorexia nervosa [78].

4.2. Ambivalence resolution mandate

Sometimes, couples consult in therapy because one or both partners are unsure whether to end the relationship [79]. Drawing from their empirical results, Boisvert and colleagues [25] highlighted that one out of four couples consulting in therapy tend to report such ambivalence. In these situations, CBCT therapists usually suggest an ambivalence resolution mandate in order to help couples take a decision on the future of their relationship [80]. Yet, this mandate is not much addressed in the CBCT literature. Among the few authors offering clinical guidelines on this topic, Wright and colleagues [14] propose to include the exploration of emotions, beliefs and expectations of each partner regarding the continuation of the relationship, while putting any harsh decisions or behaviors about the relationship on hold until a final decision is reached by both partners. The therapist then helps partners define a new therapeutic mandate based on their decision, whether it is relationship improvement or separation.

4.3. Separation mandate

Whether it results from a decision taken within the course of treatment or whether it is formulated as a primary therapeutic objective, a separation mandate can be put forward to help partners accept and deal with separation [81]. Indeed, albeit difficult, separation can generate alleviation of distress in certain couples [79]. According to Lebow [82], the CBCT techniques used in therapy with a separation mandate usually include psychoeducation on how to deal with the consequences of the separation as well as feelings towards one another after the separation. Problem-solving techniques and communication training are also often conducted in session to alleviate the possible consequences of the separation for couples with a separation mandate in CBCT.

4.4. Crisis intervention

Although crisis intervention is not a therapeutic mandate *per se*, it can be required prior to CBCT, for instance, when a partner expresses severe personal difficulties (e.g. manifests a suicidal or homicidal risk), discovers the other has been unfaithful or when severe violence occurs within a relationship. It is thus necessary for therapists to be able to identify, assess and deal with such situations in order to help the couple regain stability and security before conducting any other intervention. To do so, Wright and colleagues [14] have developed guidelines for couple therapists. The first action to be performed is to ensure the safety of each partner, and by extension of their children, if applicable. When a suicidal and/or homicidal risk is present, the same guidelines used in individual psychotherapy are applicable in CBCT with a particular attention given to the safety of both partners. The therapist must then assess whether couple therapy should be continued or if individual therapy with a different therapist would be better suited to address these difficulties before starting or resuming CBCT [68, 77]. If ongoing severe violence occurs within a relationship and especially when it is perpetrated by one partner towards the other, rather than minor and bidirectional (see the Section 4.1.1 on conflicts and violence), couple therapy is usually contraindicated and specific procedures must be undertaken to control aggressive behaviors and protect the victim. Guidelines for such situations have been suggested by Lussier and colleagues [32, 36] and by Bélanger and colleagues [33]. After safety has been ensured and the crisis has started to resolve, the therapist can help couples make sense of this experience and feel validated in their distress, which can potentially strengthen the therapeutic alliance. Only then does the therapist and partners discuss new therapeutic goals if partners decide to remain in therapy.

4.5. Specificities in CBCT for diverse populations

As of now, there are clinical and research drawbacks regarding how CBCT can be effectively offered to couples who present specificities that can affect how they experience intimate relationships, such as same-sex or intercultural couples [18, 83]. For instance, in the past decade, the number of intercultural couples has increased in North America [84, 85] but these couples remain understudied [85]. In addition, even if couples from different cultural backgrounds usually experience the same kind of issues than other couples [86, 87], they may also face unique challenges that require specific attention in CBCT. Indeed, studies have reported that

intercultural couples will experience greater difficulties with communication, marital satisfaction and divorce [88, 89]. As such, intercultural couples might need more negotiation skills than others to deal with couple issues (e.g., discussing the language(s) spoken at home, religion and rituals that will be practiced by the children, etc.). Furthermore, parenting and disciplinary styles often involve debates in intercultural couples [85]. Exploring and negotiating the couples' cultural differences could thus potentially foster intimacy between partners and promote a sense of mutual understanding [90].

Due to widespread heterosexist standards, many lesbian, gay and bisexual couples experience prejudice, rejection, discrimination and lack of social support, which can significantly impede couple satisfaction and functioning [83, 91]. However, research has shown that, in general, same-sex and bisexual couples show more similarities than dissimilarities when compared to heterosexual couples [92] and tend to seek couple therapy for similar reasons [93, 94]. Indeed, most CBCT interventions, such as cognitive restructuring, role playing, assertiveness training, psychoeducation, decision making and negotiation, are used similarly with same-sex, bisexual or heterosexual couples [23]. Communication and problem-solving training can also be of significant importance for certain same-sex or bisexual couples who struggle with internalized homophobia (i.e., refers to negative stereotypes, hate, stigma and prejudice about homosexuality or bisexuality that a person with same-sex attraction turns inward on him/herself), issues regarding disclosure of sexual orientation, conflicts related to relationships or the division of household work and parenting difficulties (for a review, see [83]). Yet, many therapists report difficulties comprehending the unique situations in which same-sex or bisexual partners live [95] or report a lack of confidence about how to intervene with same-sex and bisexual couples. In addition, many therapists have few opportunities to develop their psychotherapeutic expertise with patients from sexual minorities given that the majority of their clients are heterosexual [96]. Therapists must therefore possess a good understanding of the challenges faced by these couples as well as the ability to have a non-discriminatory attitude in order to help their patients overcome prejudice in and out of their relationship [23]. To do so, couple therapists who decide to work with same-sex and bisexual couples should aim at receiving specific training or supervision to further understand and help these populations.

5. Assessment in CBCT

Before conducting CBCT, the couple therapist must inquire on the partners' expectations about therapy, evaluate the level of functioning or distress of the couple as well as the partners' motivation for staying together and in engaging in a therapeutic process [22]. By doing so, the therapist can determine the form of assistance that can be offered and tailor a treatment that will be most beneficial for both partners [2]. The main objective of assessment is to formulate a case conceptualization of the couple. This is accomplished by defining the concerns for which partners have sought assistance, identifying the individual, dyadic and environmental factors at play in the difficulties reported as well as by discerning the couple's existing strengths that might potentially facilitate the therapeutic process [97]. Therapists also aim at understanding both partners' respective goals in therapy and perspectives with regards to the

concerns they report in order to assess their level of commitment in their relationship and in therapy. By doing so, the therapist will be able to determine the appropriateness of CBCT for the clients or propose an alternate course of action. For instance, the therapist might recommend that one or both partners should first follow an individual therapy [17, 19]. Assessment can also continue throughout sessions: as partners become more comfortable or familiar with the therapist, they may reveal more about themselves as individuals and as partners, which allows the therapist to get a more precise understanding of the couple's relational dynamics and, if applicable, to refine the therapeutic objectives and strategies [97].

5.1. Assessment methods

In the assessment phase of CBCT, the therapist gathers information from different sources in order to understand a couple's functioning. This multi-method approach is highly recommended as it allows the therapist to draw a better portrait of a couple's functioning and concerns.

5.1.1. Clinical interviews

Throughout evaluation sessions with a couple, the therapist collects information on both partners by means of semi-structured clinical interviews. Clinical interviewing includes therapists' inquiry of the couple's history and environment, as well as of the partners' individual functioning and backgrounds [19], which will be further explained in Section 5.2 on the phases of assessment interviews. Clinical interviews also allow CBCT therapists to question partners' reactions, emotions and cognitions as they occur in session or when couples are asked to describe their concerns [98].

5.1.2. Self-report measures

The use of self-report questionnaires is highly valuable in CBCT as an adjunct to clinical interview. It can help therapists have access to information that may otherwise remain unknown. The use of self-report measures constitutes a fast and affordable way to assess numerous constructs [99], and it can also grant access to information that might not be disclosed during sessions [100, 101]. Depending on the problems reported by the consulting couple, self-report questionnaires that may be used in the assessment phase of CBCT can evaluate couple satisfaction and adjustment (e.g., Dyadic Adjustment Scale: [102]), partners' cognitions (e.g., Inventory of Specific Relationship Standards: [103]), communication patterns (e.g., Communication Patterns Questionnaire: [104–106]), sexual satisfaction (e.g., the Global Measure of Sexual Satisfaction Scale: [107]), dyadic coping (e.g., Dyadic Coping Inventory: [108]) and support (e.g., Romantic Support Questionnaire: [109]), as well as psychological symptoms (e.g., Psychiatric Symptom Index: [110]) and levels of violence exhibited by each partner towards the other (e.g., Revised Conflict Tactics Scales: [111]; Coercive Control Scale: [112]). The measurement of attachment (e.g., Experiences in Close Relationships: [113]) can also significantly help therapists understand the internal representations of self and other their patients hold in romantic relationships. Finally, considering the high prevalence of childhood trauma in the clinical population, especially consulting for sexual or relational problems (up to 95% [114]), the lack of spontaneous self-report, and given the direct and

indirect influence of such trauma on couple functioning [114–116], it is also central to systematically assess adverse childhood experiences (e.g., Childhood Cumulative Trauma Questionnaire [117]) as part of the standard assessment of couples.

5.1.3. Direct behavioral observation

In CBCT, special attention is also given to the couple's interactions, as they take place during sessions. As such, therapists observe how partners behave towards one another in a problem-solving task. They can take note of the positive and negative behaviors that partners initiate, for instance, with criticism or support when the other speaks [17]. Baucom and colleagues [19] also emphasize the importance of creating tasks or exercises during the assessment phase that will encourage partners to interact in order to allow therapists to better assess the couples' interactions. Couples can thus be asked to discuss a specific concern or problem they report currently having, to share their thoughts on a specific matter as well as try to engage in a decision-making discussion.

5.2. Phases of the assessment interviews

The assessment phase of CBCT is typically formed of three parts: one or two couple sessions in which both partners are present and one individual session with each partner followed by a feedback session for the couple. During the first couple session, the therapist presents his or her qualifications, theoretical orientation as well as the objectives and structure of CBCT [17]. During this session, the therapist also informs partners that all information gathered during individual sessions aims to help design a well-tailored couple intervention so may be discussed during the following couple sessions. The therapist informs the patients that this is a couple therapy process where he/she would not be forced to keep a secret from one partner during treatment [118]. The therapist then collects information on the couple's concerns for which they seek therapy. Assessing each partner's goals is primordial in clinical interviewing since they can be quite dissimilar, for instance, when one partner wants to improve the relationship and the other rather wishes a separation [19]. The therapist then inquires on the couple's relationship history in order to better understand how the relationship has evolved over time. He/she will ask questions on the beginning of the relationship, for instance, by inquiring on the duration of the relationship, on how partners met and what attracted them to one another [118]. The therapist also typically asks partners to describe past hardships or significant events that they have experienced and that might have affected them as a couple and to relate the ways they adapted or the resources they used to overcome them [98]. Finally, assessment of the couple's physical and social environments that are likely to contribute to the couple's problems [19] and evaluation of the couple's sexual functioning [119] are also conducted during the first evaluation session.

The therapist will then meet with each partner separately in order to gather information on their personal history as well as their current psychological and social functioning. The therapist will therefore inquire on each partners' developmental or family history, anterior romantic relationships, medical or psychological health, substance use, possible stressful or traumatic events, academic or professional functioning and how all these factors affect, or not,

their current relationship and perception of their partner [20]. During these individual sessions, specific attention will be given to potential subjects that might not have been explored during couple sessions, such as sexual difficulties, extradyadic affairs or the presence of partner violence [17, 19]. Indeed, potential partner violence, its severity and frequency must be explicitly inquired with both partners, as well as the level of safety victimized partners feel while living with the other [36].

After both partners' individual sessions, the couple and the therapist meet for another session during which the therapist will offer feedback using a cognitive-behavioral formulation of the couple's functioning and the factors that affect it, namely how each partner's cognitions, emotions and behaviors influence one another and affect couple interactions [118, 120]. The therapist also uses the feedback session to present his or her interpretation of the causes of the couple's concerns and to highlight the positive aspects that partners have expressed about their relationship [20]. The therapist then sets the treatment mandates and goals in collaboration with the couple and proposes a treatment plan [19].

6. Intervention techniques commonly used in CBCT

The following section describes the most common intervention techniques used in CBCT. These strategies include the development of communication, problem-solving and conflict resolution skills, cognitive restructuring, the improvement of the identification and expression of emotions, the improvement of the expression of affection and sensuality between partners as well as enhancement of sexual functioning and the development of acceptation and tolerance of differences and incompatibilities.

6.1. Communication training

Communication training is a central feature of CBCT and aims to enhance the way in which partners learn to express and listen, without criticism or attack. Interestingly, this type of intervention has demonstrated observable short-term changes, even in highly distressed couples [14, 17]. In order to lead communication training in CBCT, therapists must learn to recognize and identify dysfunctional behaviors expressed by either partner during sessions, as well as identify the emotions and beliefs that underlie such interactions in order to help couples develop more appropriate and functional dialogs [120]. In order to do so, the therapist first helps the couple identify a topic of conversation that is problematic, but does not involve overwhelming emotions [14]. Then, partners are successively assigned the roles of speaker and listener. The speaker is guided in expressing his or her subjective experiences and feelings within the relationship. The listener is directed in demonstrating openness, non-judgment and to respond with empathy and respect through the use of non-verbal demonstrations, reflections and summaries in order to help the speaker further describe his or her feelings and thoughts and feel listened to while doing so [121]. During this exercise, the therapist's role consists of reinforcing partners efforts, providing partners with constructive comments or suggestions and modeling certain speaker or listener behaviors in order to help partners' perfect communication and

listening techniques [98, 121]. However, in cases where partners bicker during the session, the therapist must quickly take control of the situation and ask them about what did they feel and perceive that triggered the dysfunctional interaction [14]. Following is an example of how a communication training exercise can take place in CBCT.

Melanie and Ethan are new parents and have decided to consult in CBCT in order to deal with feelings of dissatisfaction resulting from difficulties they experience in adapting to their new life as parents. During a session, Melanie and Ethan mention a situation they have experienced which disappointed them both.

***Therapist**: I think this situation is a good example we could use to practice the communication skills you have learned last session, don't you think? Remember, when you are the speaker, you must express your subjective experience, by using "I", and focus on your feelings and perceptions. When you are the listener, you must demonstrate openness and respond with reflections and summaries about your partner's experience. (Both partner express they do remember). Who would like to begin?*

***Melanie**: I'll start.*

***Therapist**: Ok, I would like you to take the role of the speaker for now and Ethan, that you take the role of the listener. We will then exchange roles ok?*

***Melanie**: Ethan, I was hurt last Sunday when you came home late from your hockey game without telling me beforehand because I felt you did not care about us.*

***Ethan**: You are saying that you were hurt because I came home late without telling you and you felt as if I did not care about you and Lily.*

***Melanie**: Yes, exactly. I wish you would also tell me when you plan on being late, so that I would not feel hurt like last Sunday.*

***Therapist**: Melanie, could you rephrase it so it will not be a request; at this point try to focus on what you felt or thought during this event.*

***Melanie**: Ok. When you do not tell me when you are going to be late, I feel that Lily and I are not your priorities, and that I am not important to you. This is how I felt last Sunday.*

***Ethan**: So you are saying you don't want me to play hockey on Sundays because you feel hurt, correct?*

***Therapist**: Ethan, try to stay focused on what Melanie said; Melanie, is it what you said?*

***Melanie**: No, not exactly. I am not saying I don't want Ethan to play hockey.*

***Therapist**: Tell Ethan….*

***Melanie**: (Looking at Ethan) In fact Ethan I know that it is important for you. But if you would tell me when you plan on coming home late after the game, I would not feel hurt or not important like I did Sunday.*

***Ethan**: So if I hear you well, you would like me to call you when I plan on staying longer for a lunch after the game, so that you won't feel as if I do not care about you and Lily.*

***Melanie**: Yes, that's it.*

***Therapist**: Perfect, now Ethan, would you like to continue as the speaker and Melanie, as the listener?*

6.2. Problem and conflict resolution

In CBCT, five strategies are commonly used to help couples develop problem-solving skills [17, 98, 121]. First, partners must define and identify one problem on which they want to work. Second, the therapist helps partners understand the meaning this problem holds for them by defining each partners' underlying needs. Third, partners are asked to suggest as many solutions they can think of, using brainstorming, which is known to increase feelings of interest, appreciation and consideration in the relationship as well as being particularly useful in case of serious conflict or strict patterns of interactions. Fourth, partners are asked to select a solution together that will allow to fulfill both partners' wishes, although it is possible they will not be equally satisfied. The fifth and last step involves a trial period that will take place between sessions. A feedback discussion is then held during the following session and, if partners feel unhappy during with the chosen solution, a new solution may be chosen with the therapist.

Similar steps as those used in problem-solving can also be used in CBCT to help couples learn how to resolve conflicts [28]. Yet, as conflicts can sometimes involve strong negative emotions, particular attention must be given to the expression of emotions and needs and the exploration of the meaning of the conflict by partners during these exercises [14]. In addition to guiding couples in acquiring these techniques, the therapist also holds the responsibility of observing conflictual interactions that arise in session, for instance, if partners attack or withdraw from an interaction, in order to provide feedback as to the impacts each partners' behavior exert on the other. This will allow the therapist to highlight and challenge the cognitions and emotions that underlie or contribute to these dysfunctional interactions with the intention of decreasing their recurrence [17]. The following case describes how these strategies can be used.

> *Thomas and Sandra have sought couple therapy due to constant bickering and frustration resulting from problems they have difficulty resolving together. Sandra blames Thomas for the amount of time he spends at work, especially since he has been working on weekends. Thomas gets home late, is often too tired to engage with his partner and goes to bed shortly thereafter. Thomas admits to being exhausted and criticizes Sandra for constant complaints about financial matters.*
>
> ***Therapist**: Sandra, why do you want Thomas to spend less time at work?*
>
> ***Sandra**: Because we would be able to spend more time together, which would help me feel important and like more connected to him.*
>
> ***Therapist**: And you, Thomas, what are you looking for in spending extra time at work?*
>
> ***Thomas**: When I'm at work, I don't hear complaints about our financial situation. It would be so great to hear some appreciation of all my efforts to improve our finances and how wearing is my schedule.*
>
> ***Therapist**: Thomas, I understand that you would like more appreciation for your hard work. Sandra, you've expressed that spending more time with Thomas would help you feel more valued and connected. Now that you've both addressed your needs, I invite you to name of as many possible solutions you can think of that could help resolve the problem expressed by Sandra.*

***Sandra**: Thomas, maybe you could start by taking the weekends off?*

***Thomas**: I understand where you are coming from Sandra, but my job makes it difficult for me not to work for the whole weekend. What if I try to come home earlier on weeknights?*

***Sandra**: Hum… Why don't you take Sunday mornings off so that we can brunch together just like we used to?*

This brainstorming continues until the most suitable solution is provided and agreed upon by both partners. The therapist encourages partners to be open for a trial period until the next session where the solution will be revaluated based on their feedbacks of the trial period. Since in the first exercise, the couple has addressed a problem that was initially reported by Sandra, the next problem-solving exercise will focus on a problem reported by Thomas, such as his complaints regarding Sandra's lack of acknowledgment of Thomas' efforts concerning financial matters.

6.3. Cognitive restructuring

CBCT therapists are interested in identifying and confronting the distorted ways in which partners process information and how these cognitive distortions, namely selective attention, unrealistic or inappropriate attributions, expectations, assumptions and standards, are related to negative emotions and behaviors experienced within the relationship [31, 122]. Cognitive interventions used in CBCT thus aim at helping couples learn to detect and evaluate the appropriateness of their cognitions. They also aim at helping partners to challenge the cognitions they hold that negatively influence their emotional and behavioral responses towards their partner. These interventions thus allow couples to broaden their perspective on the relationship by gaining a mutual understanding of how the other thinks and interprets events. Partners will also begin to anticipate the impact of those interpretations on their interactions [17]. To do so, CBCT therapists often give information to couples on their cognitive distortions and the impact it can have on their interactions. They then solicit feedback from partners to promote integration of these concepts and encourage partner's ability to detect and question further cognitive distortions [123].

Since CBCT allows couples' interactions to take place within sessions, therapists have the opportunity to address cognitive distortions as they spontaneously arise between partners, to help them question their way of thinking and to consider different alternative explanations or perspectives on the partner and on the relationship [19]. CBCT therapists also guide partners interacting in ways that will allow them to challenge their distortions by sharing their respective experiences on a particular issue [123]. Typically, cognitive interventions are also used to help partners revaluate the logic or incoherence of their thinking and understand the underlying issues and concerns. For instance, Socratic questioning entails asking questions to partners that help them understand the logic in their inferences or beliefs as well as evidence for their validity. Other cognitive techniques also used in CBCT involve inquiring about the evidence that supports a cognition, weighing its advantages and disadvantages, as well as considering the worst possible outcomes of negative predictions that partners make about their relationship [98, 124]. Cognitive interventions also include helping partners gain a mutual understanding of their difficulties by considering each partner's perspective on the concerns they report [99].

Nancy and Jacob began their relationship before Jacob left a former partner (Sarah). Jacob's history of infidelity is the subject of several arguments with Nancy. Jacob repeatedly told Nancy of his regrets at having been unfaithful with Sarah, and of his feeling that his relationship with Nancy is completely different. However, in the past few months, Nancy has been getting angry and has expressed jealousy when Jacob goes out with friends, convinced that infidelity might be an issue.

***Therapist**: I understand you are angry when Jacob goes out with friends. What do you think will happen?*

***Nancy**: That Jacob will meet someone and cheat on me.*

***Therapist**: What makes you think Jacob might cheat on you?*

***Nancy**: Nothing that I can think of … except what happened with Sarah.*

***Therapist**: Do you think that Jacob could be unfaithful to you, even though that has not happened?*

***Nancy**: I don't know…Jacob told me that the relationship with Sarah was not a happy one.*

***Therapist**: Do you think Jacob is happy with you?*

***Nancy**: …. seems happy….*

***Therapist**: You are saying that the cheating with Sarah was because Jacob was unhappy in that relationship. You also believe Jacob is happy in the relationship with you. Explain to Jacob why do you think he might be unfaithful to you?*

***Nancy**: Actually, there are no concrete signs that indicate that you would cheat on me… I think I'm just afraid of losing you.*

***Therapist**: I understand you care a lot about Jacob and do not want to lose the relationship. Jacob, how does it make you feel to hear that?*

6.4. Identification and expression of emotions

In CBCT, emotions that are minimized, avoided, repressed or excessively expressed by partners are known to negatively impact a couple's relational functioning and satisfaction [120]. Indeed, individuals who do not express their emotions are generally more distant and less involved in their relationship, which ultimately leads to less intimacy and satisfaction between partners [30]. As such, CBCT intervention techniques have been developed to identify, modify and enhance tolerance of negative emotions [19]. By enhancing partners' identification, expression and tolerance of negative emotions, CBCT therapists can also help couples identify the sources of their relational dissatisfaction and, eventually, foster higher levels of intimacy between partners.

For Wright and colleagues [14], since certain negative or strong emotions that affect couple interactions, such as anger or fear, are often avoided by partners, the therapist must help partners clarify and regulate avoided emotions. To address this, strategies used in CBCT hold the purpose of accessing and heightening partners' emotional experiences as well as helping them receive the emotions expressed by the partner. To do so, therapists generally address spontaneous emotions, as they arise in session or as they are expressed non-verbally by partners. They

will also encourage partners to express feelings and detect how they affect their way of thinking and behaving. When emotions have been identified and understood, partners are encouraged to express them by using the communication skills previously learned. Therapists can also access repressed or minimized emotions by asking partners to describe in detail specific experiences, by using reflections or questions or by encouraging partners to use metaphors and images to describe what they experience [19]. Techniques also include normalizing the expression of both positive and negative emotions, encouraging partners to care and support the other when he/she expresses emotions and guiding partners to stay focused on their emotional experiences rather than concentrating solely on more cognitive or behavioral aspects of an experience, for instance, during a conflict with the partner [19].

Sometimes, therapists also meet couples that struggle with difficulties in regulating negative emotions. These partners will express them in a more dysfunctional manner, potentially leading to serious arguments and even partner violence. With these couples, scheduling times to discuss subjects that trigger such interactions can be useful in order to contain the expression of negative emotions to a specific time and place [125]. Skills specifically addressing emotion regulation as proposed in dialectical behavior therapy [126] have also been included in CBCT. Such interventions include the development of skills that enhance both partners' tolerance to strong or negative emotions and decrease their emotional reactivity in order to provide couples with the ability to deal with emotional interactions they may face together [73].

6.5. Expression of affection and sexual problems

Lack of emotional affection or sensuality and dissatisfaction in the quality or frequency of sexual relations are frequently invoked when consulting in couple therapy. Many sexual problems can also be put forward by couples consulting in CBCT, some of which include various sexual dysfunctions, such as erectile disorders, orgasmic disorders, genito-pelvic pain/penetration disorder and sexual desire/arousal disorder [119]. Indeed, sexuality holds a decisive place in a couple's functioning and satisfaction [127], and thus, it is generally important to address the sexual domain in CBCT. However, since the various biological, social and psychological factors that contribute to the development and the persistence of sexual dysfunctions make their treatment complex [128], it is recommended that couples who experience sexual difficulties benefit from the expertise of a therapist specialized in both sexual and couple therapy [119].

CBCT techniques aimed at the improvement of sexual well-being in couples include a variety of strategies and exercises that allow a broadening and diversification of sexual behaviors for partners and that have been proven effective for addressing sexual dissatisfaction and various sexual dysfunctions [128, 129]. For instance, psychoeducation can help clients learn about sexuality as well as correcting myths, misconceptions or unrealistic notions that partners might have about sexuality through information from the therapist as well as by reading or watching recommended psychoeducational material [130]. Cognitive interventions can also be used to address sexual difficulties by challenging and nuancing cognitive distortions that could be both automatic and irrational, in order to replace them by more positive

and functional cognitions and beliefs towards sexuality [17]. Such cognitive distortions can include beliefs or standards about how sexual relations "must be" that are unrealistic (e.g., "In our sexual relations my partner always has to reach an orgasm") or negative (e.g., "I have never had a good sex life with my partner"). Indeed, cognitive interventions can be used to address these negative or anxiety-provoking thoughts that interfere with the ability to have satisfying sexual relations with a partner [128].

According to Kelly et al. [131], difficulty in expressing sexual needs and desires is common in couples. Consequently, it is crucial that partners improve their communication skills with regards to sexuality [132]. The several communication training techniques mentioned above can be applied to sexuality, with the objective of promoting optimism and sexual pleasure in the relationship. Indeed, communication training can be used to enhance feelings of love and affection between partners. This is accomplished by helping partners share their sexual needs and find new ways to express affection and caring [128].

Sessions on sexuality can also be dedicated to the exploration of negative emotions that are experienced during sexual relations. Partners are shown how to detect negative emotions, such as anxiety, anger, discomfort, as well as fear of rejection or abandonment, any of which can disrupt intimacy and sexual desire [128]. Identifying and accepting these emotions, the specific context in which they arise, their underlying beliefs as well as their impact on pleasure and intimacy, will increase sexual and sensual exploration and innovation [14]. In addition, strategies aimed at revealing these emotions in session can be of significant use as they allow to explore the underlying beliefs and attachment needs of partners in the sexual problems or dissatisfactions they experience [133].

Behavioral exercises that broaden a couple's sexual repertoire, diminish avoidant behaviors towards sexuality as well as confront certain cognitive distortions and help partners refocus on sensations and sensuality [119] are also used to treat sexual dissatisfaction or dysfunctions and are recognized as leading to positive outcomes and long-term changes [134]. These exercises are usually explained during session, practiced at home between sessions and later discussed with the therapist [119]. Such behavioral interventions can include self-exploration (i.e., exploration of one's body and/or genitalia) followed by directed masturbation (i.e., trying different ways of masturbating, in different positions or places) that can be practiced alone at first but then with the partner [119]. Finally, sensate focus is a behavioral exercise for couples that has been developed by Masters and Johnson [135] and that is commonly used to emphasize pleasurable sensations and sensuality and de-emphasize sexual performance, which is considered as being at the root of many sexual difficulties in couples.

6.6. Acceptance and tolerance of differences

Jacobson and Christensen [16] have underlined the importance of acceptance and tolerance in order to enable the integration of new behaviors developed in CBCT. Indeed, the non-acceptation of basic personal differences between partners might sometimes lead to arguments or resentment. Interventions developed by Jacobson and Christensen thus aim at accepting the potential fundamental differences or incompatibilities between partners.

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This is accomplished by developing an empathic understanding of the other's experience and working together to face common hardships [136]. To achieve this goal, strategies target three objectives: acceptance, tolerance and change [137]. Strategies to enhance acceptance aim at offering partners new ways of looking at their problems through empathic joining and unified detachment. Empathic joining brings to light each partner's sense of vulnerability by allowing them to express their perspective on a problem, while being listened by the other partner and the therapist, whose task is to encourage the expression of emotions, rather than accusations or comments on behaviors. Unified detachment encourages partners to discontinue accusations or blame by helping them develop a more objective and less emotional consideration of their problems or differences and by considering them as an " it " (e.g., an object, an animal, a nickname) rather than as a deficiency or a problem in the other. The following example illustrates how this technique can be used.

Robert and John have sought CBCT as a result of frequent arguments they have experienced in the past months. Their arguments usually revolve around their finances and lifestyle. Robert typically prefers staying home and has a frugal lifestyle. John rather enjoys luxuries and spending his evening in trendy restaurants. During a session, Robert expresses his anxiety over their financial situation as John has spent a few hundred dollars in the past week during an evening with friends. John then expresses he feels Robert is treating him like a child by scolding him every time he comes back home.

***Therapist**: Robert, I understand you must feel anxious about your financial situation and John, I understand you feel as if you are treated as a child. Perhaps we could use this situation to try an exercise called " unified detachment " to help both of you. First, I would like you to identify what part of yourself, or of your personality, is talking during these arguments. Then, try to imagine what form would take this part of yourself during conflicts if it were to be described as a " thing ". It can be an object, an animal, a country, whatever you want.*

***John**: I would be a glass of champagne! It is luxurious and bubbly, like me!*

***Robert**: You are right John! If I follow your lead on drinks, I would be a cup of freshly brewed coffee. It's inexpensive but comforting.*

***Therapist**: Perfect! Now, if the glass of champagne and the cup of coffee were to discuss on a date they are planning for Friday night. What would they say to each other?*

***John**: Well the glass of champagne would like to go to the new restaurant on 6th Street.*

***Robert**: The cup of coffee would prefer to stay home, order take out and watch a good movie.*

***Therapist**: And considering these different wishes, what solution can the glass of champagne and the cup of coffee try to find together to spend their Friday night together?*

***John**: Robert, I have an idea! You know we often drink champagne as an aperitif in restaurants and coffee with desert. What would you say if we were to do the same?*

***Robert**: The glass of champagne and the cup of coffee could grab drinks at the restaurant and then finish the evening with take out and a movie?*

***John**: Yes! What do you think of that?*

***Robert**: It is a very good idea! Let's try it!*

Tolerance strategies have also been developed in order to stop partners from trying to change the other, for instance, by pointing out the benefits that can result from certain behaviors that are considered negative by partners (e.g., a partner's constant worries and attempts to predict everything that can go wrong in a situation, typical in anxious people, can negatively impact a couple's interactions but can also be very useful when planning a vacation or when taking financial decisions). Change strategies aim at reinforcing and prompting positive behaviors that partners already portray towards each other and include the improvement of communication and problem-solving skills by recreating a conflict they have already experienced and integrating the acceptance and tolerance strategies they have learned [137]. Finally, mindfulness-based interventions can also be used to enhance acceptance of differences. These strategies have been proven to increase relationship satisfaction, sense of relatedness and closeness, acceptance of the partner and to alleviate relationship distress [138]. They include meditation and touch exercises, aim at enhancing partners' acceptance of their experiences without judgment as well as their moment-to-moment awareness of how they feel and behave while interacting with one another, which could eventually help them develop new ways to connect with one another.

7. Conclusion

The current chapter has provided a comprehensive literature review and description of the theoretical underpinnings, possible therapeutic mandates and main assessment and intervention methods used in CBCT. This chapter has also highlighted the empirically demonstrated effectiveness of CBCT for the treatment of a significant number of couple struggles ranging from communication difficulties and dissatisfaction with expressed affection to the management of explosive conflicts. This chapter also demonstrated that CBCT can be very effective in treating individual problems by using the intimate relationship as a therapeutic tool.

The scientific literature suggests that CBCT is a highly effective treatment approach to improve relational well-being as well as a way to address many difficulties and concerns couples may face. This is especially true for difficulties in communication, problem-solving and conflict resolution as they arise spontaneously between partners or as a result of comorbid psychological difficulties in one or both partners, for which specific techniques have been developed and are regularly used by couple therapists. Interestingly, CBCT also offers a good foundation on which therapy can be customized to various needs partners may hold. For instance, recent developments in CBCT have started to incorporate more complex and specific variables in the understanding and treatment of couple functioning by considering the roles of attachment [139], relational schemas [140] and mindfulness [141] as possibly underlying certain couple dynamics.

Results from psychotherapeutic outcome studies presented in this chapter must be examined by considering certain drawbacks. Indeed, evidence-based studies have become the gold standard to evaluate the effectiveness of psychotherapeutic interventions yet, not all studies

on the effectiveness of CBCT include large sample sizes, randomized controlled trials (RCT) or follow-up data extending beyond 6 or 12 months. As such, the effectiveness of CBCT for different couple difficulties must be considered within this reality. In addition, going from theory to practice can be quite a challenge, especially because in CBCT, clients are two different people who consult together. Indeed, CBCT therapists must learn to work not only with both parties' personalities, feelings, cognitions and behaviors but also with the couple's dynamics as they take place during and between sessions. The complexity of this type of therapeutic work also lies in the therapist's role, as he/she is called to inquire about, and directly witness, couples' most intimate moments and feelings while maintaining a respectful and professional distance.

Finally, it is also important to note that regardless of the concerns for which a couple seeks therapy, the CBCT process in itself holds certain limitations. Indeed, both partners must be strongly committed to making their relationship work by demonstrating honesty, openness, caring and interest in the other's experience. They must also demonstrate commitment towards the therapeutic process. For instance, in cases when partners do not really want to see their problem solved (e.g., when changes in the couple are considered as too anxiety-provoking) or when partners come to therapy to have the therapist determine who is "right" or "wrong," it is often difficult to induce change in the relationship and enhance relational functioning. Fortunately, empirical and clinical work from the past decades has offered precious insights in the understanding of such dynamics and in the training of CBCT therapists that are not only aware of these therapeutic intricacies but also use them to further their work with couples.

Author details

Caroline Dugal, Gaëlle Bakhos, Claude Bélanger* and Natacha Godbout

*Address all correspondence to: belanger.claude@uqam.ca

Université du Québec à Montréal, Montreal, Quebec, Canada

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Chapter 8

Cognitive-Behavioral Therapy: Current Paths in the Management of Obesity

Alessandro Musetti, Roberto Cattivelli, Anna Guerrini, Anna Maria Mirto, Francesco Vailati Riboni, Giorgia Varallo, Gianluca Castelnuovo and Enrico Molinari

Additional information is available at the end of the chapter

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Abstract

The treatment of obesity and its related chronic symptoms is one of the major issues that world healthcare systems are facing today. Cognitive-behavioral therapy (CBT) is one of the most effective therapies in the treatment of dysfunctional eating behaviors. In the first part of the chapter, the phenomenon of obesity will be introduced; subsequently, the role of CBT into obesity treatment will be underlined. CBT's core strategies will be presented and analyzed: goal setting, self-monitoring, stimulus control, problem solving technique, and cognitive restructuring technique. The use of these strategies and related results is a major issue, emphasizing the need for further studies on the phenomenon of obesity, given the excellent results available in the short term, with significant weight loss, but the difficulties in keeping the results achieved in the long run. Since obesity is a chronic condition, CBT treatments must focus on different outcomes, considering weight loss as a consequence of a change in the individual's eating style rather than as a major and only result to be pursued. Finally, we will take into account the topic of motivation in the psychological treatment of obesity since patient's motivation assessment seems to be a major prerequisite for successful weight loss therapy.

Keywords: chronic care management, overweight, obesity, rehabilitation, clinical psychology, weight management, cognitive-behavioral therapy

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1. Introduction

1.1. Obesity: a modern global epidemic

Developing new and better treatment for obesity and its related chronic clinical complications is one of the major challenge that world healthcare systems are facing today, both from a clinical and economic perspective [1]. It is well known that obesity is a worldwide chronic disease, whose treatment is complicated by its interaction with other chronic illnesses or chronic disorders [2]. In fact, as excess weight increases, so do risks of developing heart disease, type 2 diabetes, sleep apnea, osteoarthritis, and several types of cancer, among other conditions. The excessive weight gain has a relevant impact on most national health administration policies, creating a significant economic burden and requesting new strategies to be dealt with [3]. For example, evidence from the literature suggest how, in USA, obesity treatment costs have raised from 78.5 $ billion, back in 1998, to 147$ billion, in 2008, affecting the annual US medical's economic balance by 10% of its total. It seems this problem is going to increase over time, unless new health policies will be soon adopted. In recent years, the prevalence of obesity has reached epidemic proportions. Worldwide, over 1 billion people could be considered over weight, with nearly 300 million fitting the criteria for obesity (**Figure 1**). By 2020, nearly half of the USA population could meet the World Health Organization criteria for obesity, and it is estimated that by 2030, up to 90% of the population will be showing a body mass index (BMI) > 25.0. Generally, obesity is explained and understood through two simple factors: dysfunctional feeding and lack of proper physical activity [1]. This interpretation of the phenomenon seems, however, extremely reductive, greatly simplifying a much more complex

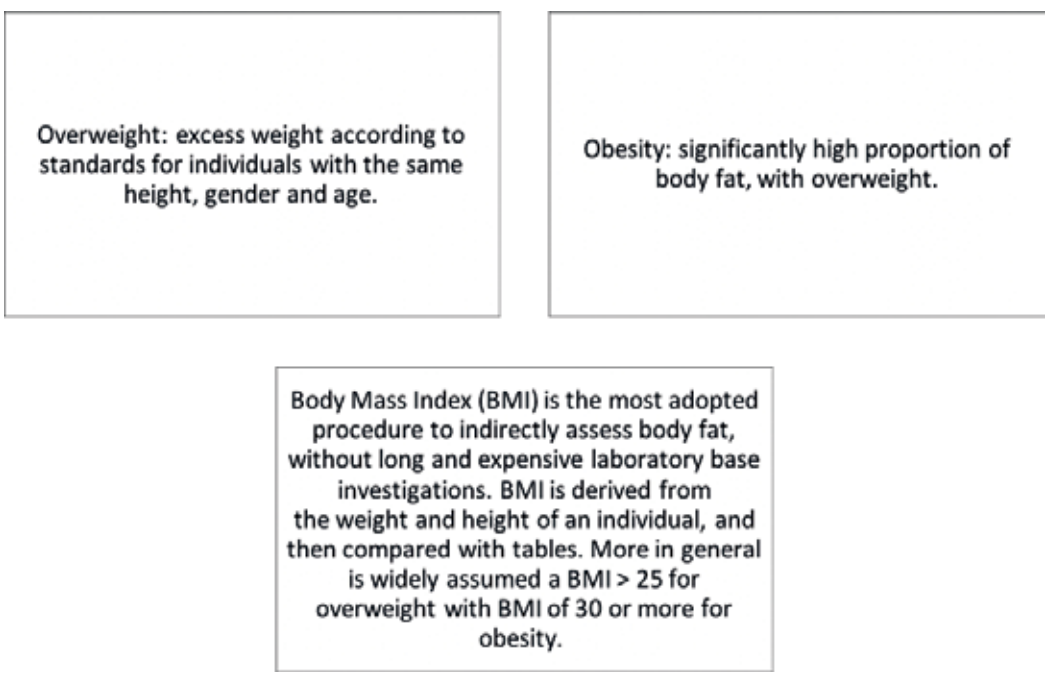

Figure 1. Measure of obesity and overweight.

reality. For example, the recent proliferation of genetic studies has shown that about 5–6% of the obesity's cases can be defined as monogenic, with a single responsible mutation of the patient's clinical picture. Otherwise, genetics determines a predisposition to weight gain that manifests itself only by interacting with environmental factors. It is calculated, however, that genetic factors are relevant in at least 70% of cases. According to Keith et al. [4], obesity treatment should be individually tailored, and realistic goals should be clearly set before starting.

Scientific literature is full of examples about how interventions exclusively aimed at weight loss results in bankruptcy over time, with a regaining of the weight lost during hospitalization within 3 years [5, 6]. It becomes clear that the multifactorial nature of this pathology requires multidisciplinary interventions, able to combine the different needs and urges of each individual, from a clinical, psychological, and social perspective. Psychological factors, in particular, influence both weight loss and, more importantly, long-term weight loss maintenance. Cognitive-behavioral

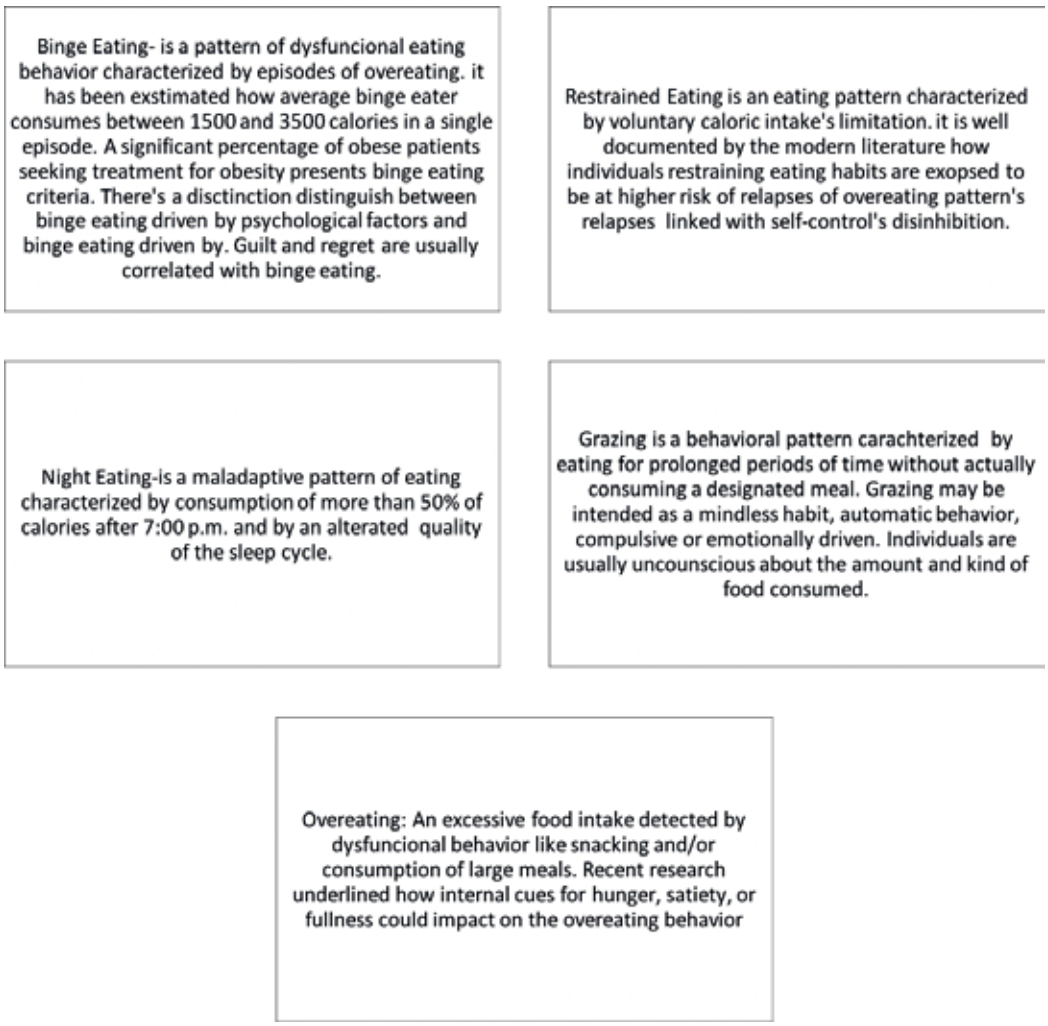

Figure 2. Dysfunctional eating behaviors.

therapy (CBT) appears as the treatment of choice in psychological therapies for obesity and other eating disorders (**Figure 2**), highlighting significant results even at longitudinal level [7]. Within this chapter, the main therapeutic components of this approach will be presented, in addition to numerous clinical examples to better understand how CBT seems to be the most effective treatment in responding to the multidimensionality of a clinical condition, such as obesity.

Specifically, CBT's core strategies will be presented and analyzed: goal setting, self-monitoring, stimulus control, problem solving technique, and cognitive restructuring technique together with patient expectations for treatment and motivational readiness will be investigated in the context of psychological treatment of the obese subject. The application of these strategies and related results is a major issue, emphasizing the need for further studies on the phenomenon of obesity, given the excellent results achievable in the short term, with significant weight loss, but the difficulties in keeping the results obtained in the long run [7]. As already explained, obesity is a chronic condition, and CBT treatments must focus on different outcomes, considering weight loss as a consequence of a change in the individual's eating behavior rather than as a major and only result to be pursued [7]. Researches in this field have brought to the development of different therapies for the treatment of obesity. They focused on the specific situations and other modalities characterizing the patients' eating behavior. Typical treatments for obesity aim to help patients to change their eating behaviors throughout diets and improvements in their physical activity. They include a number of cognitive-behavioral techniques such as self-monitoring of weight and weight-related behaviors (e.g., caloric intake and physical activity), cognitive restructuring, and social support. Behavioral strategies could be aimed to change bad eating habits while cognitive restructuring and problem solving could improve emotional self-regulation and prevent stress-related relapse. Life style changing support interventions including goal setting and self-monitoring strategies and are central to improve self-control in obese and overweight individuals and are equally important in case of eating disorder to support more emotional oriented component of CBT interventions.

2. Goal setting

A goal is defined as "what one's wants to accomplish." A goal is a mental representation of desired outcomes to achieve [8], setting goals leads people to improve their effort reducing discrepancy between their actual status and what they want to become [9]. Goal setting is an important facilitator of behavior change allowing the determination of the goals one's wants to achieve and the criteria for judging outcomes. Goal striving involves planning and practicing actions to attain goals [10]. Self-regulation begins with the adoption of goals. Several goals can be prefixed, such as small goals or more challenging goals. Goal setting emerged as an effective strategy improving behavior change [11]. In the clinical field, goal setting has been considered as a valid method to obtain behavior change only in recent years [12]. In general, people are unlikely to achieve goals which are inconsistent with their self-image or identity [13]. Furthermore, people adopt goals because they have an intrinsic or an extrinsic motivation doing so [14]. As far as motivation is concerned, studies suggest people are more likely to act goal-directed behavior when intrinsically motivated [14]. Cullen et al. [15] have proposed a

four-step goal-setting program guiding dietitians in the implementation of goal setting strategies in nutritional counseling. The program is based on of four specific steps: recognizing a need for change, establishing a goal, adopting a goal-directed activity and self-monitoring it, and finally self-rewarding goal attainment. Industrial psychology has examined goal characteristics considering properties, components and types. Properties include goal's difficulty, specificity, and proximity. According to Latham [8], proximal, specific, but achievable goals provide higher performance. Components include feedbacks, which improve goals achievement and internal or external rewards, which can motivate goal process. Three kinds of goal setting have yet been investigated: self-set, assigned-prescribed, and participatory-collaborative. When goal difficulty is held constantly, there would be no significant differences between different types of goals [8]. Setting goals is necessary, but it is not enough developing motivation to achieve the goal itself. A person has to be interested in the achieving process and free from significant goal conflicts. Thus, goal setting can lead to higher performances. Setting specific goals in order to achieve a task and providing performance feedback leads to better performances [8, 16]. Setting goal has a positive effect on performance throughout three motivational mechanism/steps, described by Latham [16]: effort, persistence, and concentration. Goal setting helps a person to try hard and for a longer time, with less distraction. This appears to be true when the task is not too challenging or difficult for the person itself. Setting high goals has benefits on cognitive and motivational processes in terms of stimulating strategic analysis [8]. Strategic analysis leads to a fixation on a series of short-term goals easier to reach, helping individuals into the process of achievement of long-term goals. Setting smaller steps to reach bigger goals also provides feedbacks and rewards sooner than longer goals. Strategic analysis is often subject to personal abilities and characteristics. For example, complex tasks are often perceived as impossible to achieve by people who think that it is useless spending energies for something they cannot realize [12]. Perceived self-efficacy influences problem solving and analytic thinking [17]. A person with higher levels of self-efficacy can develop more effective strategies, learns more from feedback, and sets higher goals than other person with lower self-efficacy. The results suggest that greater self-efficacy leads to higher goals, leading to higher performance, leading to greater self-efficacy [12]. Strecher and colleagues [12] provided practical recommendations for the inclusion of goal setting into behavior changes programs. First, it is important to start from an analysis of the problem and the patient's commitment addressing the problem. The second step is to know which tasks are required to address the problem. For complex tasks, every specific behavior which leads to address the problem should be organized in a strategic plan. Furthermore, for each behavior there are levels of self-efficacy perceived by the person that should be determined in order to achieve the behavior. During the goal setting process, it is important to make sure that every selected goal is difficult enough to be achieved eliciting effort from the client. Goal should be considered difficult, but realistic at the same time. Finally, the authors recommend providing feedback regularly, always about an individual's own performance. In the obesity treatment, setting specific goals requires to decide the amount of weight loss per week/month [17]. Short-term goals should be expecting a decrease of body weight by 5–10% within 6 months of therapy. When goals have been achieved, results' maintenance, and if desired further weight loss, become new challenge. Providing constant observation, monitoring, and encouragement for the patients appear to be significantly important in order to prevent relapses.

3. Self-monitoring and new technologies

Self-monitoring is described as a "Cornerstone" of behavioral weight control intervention [18] and one of the most important and effective techniques developed in the area of behavioral therapy applied to obesity's treatment [18, 19]. The processes involved are self-observation, self-evaluation, and self-reinforcement. Self-regulation involves establishing goals, expectations and plans, monitoring the subject's behaviors, and evaluating performances [19]. A person can change his dysfunctional behavior by becoming aware of it [20]. Self-monitoring is positively correlated with self-awareness, playing a crucial role in the eating behaviors. Consistency of self-monitoring is often associated with weight control [21, 22]. Self-monitoring's consistency can help patients managing weight control. Consistency of self-monitoring reflects the frequency, completeness, and quality of self-monitoring. By improving consistency of self-monitoring, patients can learn control their behavior in a better way. Improvements of self-monitoring are associated with a decrease of weight. In addition, self-monitoring seems to impact on self-evaluation and self-regulation of weight. Baker and Kirschenbaum [23] highlighted how high levels of self-monitoring may be helpful for a more significant weight loss. In order to improve self-monitoring, it is necessary to clearly understand the normative levels, monitoring behavior, and therapist and client expectations, regarding the consistency of self-monitoring. The authors consider self-monitoring both as a state and a trait: some people tend to monitor themselves very consistently, whereas other people tend to do it very inconsistently. Furthermore, while some people, under some conditions monitor themselves consistently, others may reduce levels of self-monitoring if they are sick or emotionally distraught. In obesity treatment, self-monitoring plays a crucial role, as demonstrated by Baker and Kirschenbaum [23]. The aim of Baker's study was to know whether specific variables were more linked to weight control than others. The results show that control over any food eaten, all foods eaten, time when food was eaten, quantity of food eaten, and the percentage of fat eaten are directly linked to higher levels of weight control. On the other hand, control of other specific variables, such as water intake, was unrelated to weight control. This study suggests that when subjects self-monitor any food, they tend to control other variables for the whole day. This result confirms that self-monitoring follows the principles of: "all or none." The type of self-control needed in order to prevent failure is defined by Kirschenbaum et al. [22] as "obsessive-compulsive self-regulation." Traditional behavioral weight control programs can be very expensive and require lot of time for participants [24]. Furthermore, these interventions are not always available for everyone [18]. Technology-based behavioral interventions, called "eHealth" interventions, have been developed to address barriers associated with traditional treatment. These interventions use new technologies, such as smartphone applications (apps), websites, and/or online social media networks, to deliver behavioral weight loss treatment. Nowadays, digital health represents a key dimension of healthcare [25]. These new technologies include websites, smartphone applications (apps), and smart scales allowing individuals to view and monitor their weight, caloric intake, and physical activity [26]. New technologies ensure a lot of advantages on treatment, allowing individuals setting own goals, comparing their self-monitoring data, and reinforcing the process of reaching short- and long-term goals. Ross and Wing [26] designed

a study that aimed to investigate the impact of newer self-monitoring technology (compared to traditional self-monitoring tools), provided with and without a brief phone-based intervention, on weight loss in adults with overweight and obesity. As supposed by the authors, findings suggest that newer self-monitoring technology combined with a brief phone-based intervention can improve adherence to self-monitoring and lead to greater weight losses than traditional interventions. Patients who join internet-based programs show greater levels of adherence to self-monitoring than participants of traditional treatments [20]. A study conducted by Krukowski et al. [27] shows that participants who consistently self-monitor during program are more likely to achieve better results in weight loss within 6 months than others. It appears important to continue self-monitoring throughout a 6-month weight loss program. Online self-monitoring appears to be strongly associated with weight loss outcomes. Over many years, review and meta-analysis have highlighted the available evidence for eHealth interventions for weight management [6]; Burke [20] conducted a study in which they compared the use of a personal digital assistant with dietary and exercise software, with and without a feedback message, and a paper diary/record, in order to determine which type of treatment results in greater weight loss and improved self-monitoring adherence. The results showed that all participants had a significant weight loss, but those who received a personal digital assistant with a feedback message lost more than 5% weight compared to other groups. Internet-based weight loss and maintenance programs have shown a small effect in moderating weight loss in obese patients, because of the heterogeneity of the intervention components [28]. Despite efforts to improve outcomes from web-based weight control and maintenance interventions, researches found that weight losses tend to be smaller than 7–10% weight losses obtained in traditional interventions [18]. The small effect obtained has been improved by providing interactivity and other basic characteristics of traditional interventions such as self-monitoring of caloric intake, physical activity, and regular feedback on goal achievement [29]. Other findings suggest that a frequent use of web-based intervention materials has been linked to better weight loss results [28, 30]. Mobile technologies for weight management often include apps, text messaging, wearable sensors, and social media interventions. Personal digital assistants (PDAs) and other smartphone apps promote adherence, self-monitoring, and goal achievement. Users can also contact their remote coach or other participants [31]. This type of interventions appears to be more effective than traditional programs [32]. On the other hand, several studies have not found positive effects of apps over other interventions [31]. Feedback on goal achievement progress or self-monitoring is provided through text messages [33]. Evidences support the effectiveness of text messaging on treatments for weight loss [34]. Adherence to text messaging represents a predictor for weight loss; in other words, if participants respond to text prompts, they tend to lose more weight than others [34]. Social media are a useful device for connecting people taking part in treatments. Social support acts as an important facilitator in the achievement of health behavior change and goals [35]. Recent studies demonstrate the effectiveness of media support to encourage weight loss. For example, Napolitano and colleagues [33] show that participants who interacted with each other throughout Facebook and received intervention material and messages supporting weight loss lost more weight than participants from other control groups. This new line of research requires additional evidences, although it is still too soon to evaluate the efficacy of this new type of interventions [35].

4. Cognitive restructuring

The aim of cognitive-behavioral therapy (CBT) is to promote an emotional change, from a maladaptive functioning to an adaptive functioning. Cognitive schemas are defined as internally stored representations of stimuli, ideas, or experiences [36]; managing information-processing systems to provide meaning and engaging other mechanism such as motivational, affective, and physiological ones. This functional feature of human cognition elicits a vicious cycle contributing in the symptoms maintenance, since maladaptive beliefs and schemas guide cognitive evaluation [36]. These distorted beliefs are dysfunctional as they appear to be structurally inflexible, rigid with negative idiosyncratic thoughts regarding self, world, and interpersonal relations [36]. Assuming schema's pivotal role in psychopathological disorders, maladaptive beliefs' modification is essential for promoting significant emotional change and, consequently, symptom reduction [36]. Recent literature has already highlighted the key role plays by dysfunctional thoughts concerning caloric intake, body shape, body image, and weight in ED. However, as they mediate the effectiveness of therapy, focusing and changing core beliefs are still necessary. Moreover, it is assumed that other irrational beliefs may impact eating behavior: low global self-value [37], mood intolerance linked with poor mood-regulation strategies, high levels of clinical perfectionism, and interpersonal issues [38]. Cognitive-behavioral therapy is the treatment-of-choice for BED. Several studies have tested the efficacy of CBT in reducing binge behavior frequency [38]. CBT appears less effective when BED is in association with obesity, especially in long-term weight loss maintenance [1]. Since obesity has a multifactorial etiology, the best intervention approach seems to be an integrated treatment made up of nutritional intervention, physical reconditioning program, and cognitive-behavioral psychotherapy [1]. Moreover, in interventions, specifically intended for childhood obesity, family, and peer background must be taken into account in order to promote a long-term weight loss maintenance [38], since they play a key role in shaping and supporting healthy-habits. Cognitive restructuring is the key technique used to promote a change in beliefs and thoughts. It could be defined as a collaborative intervention focused on the identification, discussion, and substitution of dysfunctional thoughts and appraisals identified as significant factors in the psychopathology development [39]. This intervention aims to modify a dysfunctional content, reducing maladaptive thoughts' activation, and promoting adaptive beliefs' adoption. An effective restructuring intervention is based on three main components: collaborative empiricism, verbal interventions, and empirical hypothesis testing. Collaborative empiricism is a process aiming at setting common treatment goals, in order to promote therapeutic alliance and client engagement. Collaborative empiricism is more effective when clients attribute behavioral change to his own effort rather than to external intervention. Cognitive disputing is one of the main verbal interventions. It could be defined as an evaluation process focuses on logical coherence, functional and heuristic value, empirical evidence of a theory (e.g., irrational beliefs), and other alternative (e.g., new adaptive thoughts), through use of questions [40]. Depending on the question's content, three types of disputing can be recognized: logic, empiric, and pragmatic. The first type of disputing assess the logical coherence of client's beliefs ("Do you think it is logical that the person's value depends on the respect shown by her/his colleagues?"); the empiric disputing verifies if the client's thoughts are coherent with the facts and evidence ("What evidence do you have about your intolerance regarding

the lack of respect that your colleagues provide you? You're just alive, right?"); the latter investigates the functional and utility value of dys/functional beliefs ("How useful is it to believe that it's intolerable not to be respected?"). Gearhardt et al. [41] suggests to redirect dysfunctional self-talk due to a training aimed to modify irrational thoughts and beliefs to improve longer term compliance with diet plans and physical activity. Cognitive restructuring, briefly detailed above, improve strategies strictly linked to previously illustrated goal setting and self-monitoring interventions, help overweight persons to the long-term achievement of weight loss. From a cognitive-behavioral perspective, the ability to detect, focus, and directly change irrational beliefs could be strengthen through promotion of distraction, defined as the ability to redirect from food craving to engaging and more functional activities or thoughts. Distraction could play a core role in management of difficult thoughts often linked with different forms of overeating and consist in directly teaching overweight to change activities coherently with emerge of craving. Stress management techniques have to be included in CBT interventions for obesity for individuals showing high level of emotional eating or stress-related craving [13]. Classical approach to stress management is equally effective with more recent mindfulness-based interventions aimed to cope internal or externally perceived stress source. In conclusion, obesity is a complex chronic condition that needs a multidisciplinary, multicomponents approach, but the CBT contribution could not be more central. Self-management techniques and more cognitive-emotional approaches concur to promote lifestyle change in obese individuals, teaching new wave to cope with stress, difficult thoughts, food craving, and to support changes related to eating habits and physical activity patterns. Best practice maximizing long-term weight loss and relapse prevention should include increasing social support, managing emotions, adaptive problem solving, and incorporating reinforcing, rewarding activities, and also exercise, relaxation [6].

Conflict of interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

Author details

Alessandro Musetti[1]*, Roberto Cattivelli[2,3], Anna Guerrini[2], Anna Maria Mirto[3], Francesco Vailati Riboni[2,3], Giorgia Varallo[2,3], Gianluca Castelnuovo[2,3] and Enrico Molinari[2,3]

*Address all correspondence to: alessandro.musetti@unipr.it

1 Department of Humanities, Social Sciences and Cultural Industries, University of Parma, Parma, Italy

2 Department of Psychology, Catholic University of Milan, Italy

3 Istituto Auxologico Italiano IRCCS, Italy

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Chapter 9

Cognitive-Behavioral Therapy for Gambling Addiction

Steliana Rizeanu

Additional information is available at the end of the chapter

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Abstract

This chapter contains a brief history of gambling and a brief description of gambling disorders, followed by the risks that this behavior would become compulsive and the negative consequences that the gambler and the members of this family would experience. Thereafter, the psychological characteristics of the compulsive gambler will be specified, as results from the recent international researches, and we will also describe the psychological profile of the Romanian compulsive gambler. Next, we will approach the various methods of treatment of gambling addiction, focusing on the forms of psychotherapy that proved to be effective in treating this mental disorder, and listing of certain studies that have demonstrated their effectiveness.

Keywords: gambling disorders, cognitive-behavioral therapy, treatment

1. Introduction

Gambling has been around since the oldest times, as the desire to win, to gain welfare and prestige by taking risks continuously is an instinctual force, which continues to exist in the human gene. People used to gamble dices even 6000 years ago, in today's in China, as attested by archeological evidence [1].

There has been, throughout history, a plethora of personalities of different times preoccupied with gambling: Roman Emperors Nero and Claudius were recognized as great gamblers, while Lord Halifax, Marie Antoinette, the Duke of Wellington, and Dostoyevsky could belong in the modern definition of a compulsive gambler [2].

Research in the field shows us the fact that in the Unites States of America, approximately 85% of the adult population has participated at least once in their lifetime in a game of chance [3]; in Canada, a percentage of 63.3% of the adult population has gambled at least once during the year 2005, without developing addiction problems [4]; in Norway, more than 80% of the

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adult population has participated in a game of chance, out of whom, approximately 40% have gambled at least once a week.

When a person is gambling more and more and is allocating more and more money to gambling to the detriment of other daily activities, a compulsive disorder may be seen as emerging and developing, which risks becoming a gambling disorder. The consequences of compulsive gambling are many, ranging from financial problems to intensified or prolonged stress, from dismantled families to lost fortunes, academic abandonment, and more. It is becoming more and more important that the young population especially, but also the rest of the population seen entering casinos on an increasing larger scale, should understand what it means to gamble responsibly and how to avoid the slippery slope to gambling disorder [5].

2. Factors involved in the development and maintenance of gambling disorder

Raylu and Oei [6] consider that there are three categories of factors that can contribute to the emergence and development of gambling disorder: family-related factors, individual factors, and sociological factors.

In terms of **family factors**, specialized studies in the field have demonstrated that both parental models of behavior and genetic factors represent for any gambler at the risk to develop a compulsive gambling behavior [7–8].

Individual factors are involved in the emergence and maintenance of the gambling disorder and they include the gamblers' personality traits (especially impulsivity and sensation-seeking), his/her cognitions (the ability to influence or predict gain), negative emotional states (depression, anxiety or stress), and biological factors (frontal lobe deficits, neurotransmitter malfunctions, and changes in the functioning of the brain's reward system).

Sociological factors which are tied to the emergence of gambling disorder refer to the existence of a socio-economic status of the gamblers, unemployment, and a lower education level.

3. Consequences of gambling disorder

The practice of excessive gambling has negative consequences on the gamblers as well as on the society per se, starting with poverty, family dismantling, and illegal behavior in terms of obtaining the necessary money gamble. The main consequences of gambling disorders are the following [9]:

- Professional problems: job loss, compromising one's career due to the preoccupation on gambling, which is the cause for the loss of one's efficiency at work and the rising levels of absenteeism;
- Problems with one's family, friends: the compulsive gambler hides the truth about this addiction which rules over him/her, he/she abuses the family or neglects his/her familial responsibilities;

- Financial problems: one borrows, sells goods, and builds up debt in order to finance this addiction;
- Legal problems: deceits, forgeries, thefts;
- Stress-related afflictions: insomnia, nervousness, depression, anxiety, culminating in suicide attempts.

Studies conducted by Blaszczynsky [10] have revealed that gambling disorder determines the following negative effects on gamblers: depression, suicidal thoughts, anxiety, alcohol and drug consumption, difficulties in keeping a work-place, lies and deceits, the decrease of cognitive performance, and physical symptoms.

4. The prevalence of gambling disorder

Between 1997 and 2007, Muňoz-Molina performed an extensive study on the prevalence of gambling disorder, and he found that it is situated between 0.6% in Norway [11] and 7.6% in USA [12] among the adults, while the prevalence for teenagers is at approximately the same high level, respectively 0.8% in Switzerland [13] and USA [14].

Disley et al. [15] specified the fact that there are certain categories of the population upon which there have not been studies on the prevalence on the gambling addiction, namely incarcerated people, homeless people, and active military officials.

Gambling disorder is defined by the DSM-5 Diagnostic Criteria [16] as a "Persistent and recurrent problematic gambling behavior leading to clinically significant impairment or distress, as indicated by the individual exhibiting four (or more) of the following in a 12-month period:

1. Needs to gamble with increasing amounts of money in order to achieve the desired excitement.
2. Is restless or irritable when attempting to cut down or stop gambling.
3. Has made repeated unsuccessful efforts to control, cut back, or stop gambling.
4. Is often preoccupied with gambling (e.g., having persistent thoughts of reliving past gambling experiences, handicapping or planning the next venture, thinking of ways to get money with which to gamble).
5. Often gambles when feeling distressed (e.g., helpless, guilty, anxious, depressed).
6. After losing money gambling, often returns another day to get even.
7. Lies to conceal the extent of involvement with gambling.
8. Has jeopardized or lost a significant relationship, job, or educational or career opportunity because of gambling.
9. Relies on others to provide money to relieve desperate financial situations caused by gambling."

In an explorative study carried out by Fernandez-Montalvo and Echeburua [17], the following personality profile of the compulsive gamblers is depicted: they are impulsive, present the slight symptoms of depression and anxiety, and have the tendency to consume alcohol in an abusive manner and to experience difficulty adjusting to daily life; a percentage of 16% fulfills the criteria for a diagnosis of the borderline personality disorder, followed by antisocial behavior, narcissism, and paranoia.

5. Screening

In terms of diagnosing gambling disorder, there are multiple instruments utilized, such as South Oaks Gambling Screen (SOGS); Massachusetts Gambling Screen (MAGS); Gamblers Anonymous 20 Questionnaire; The Problem Gambling Severity Index-PGSI; The Inventory of Gambling Situations (IGS); The Gambling Related Cognition Scale; The Composite International Diagnostic Interview (CIDI); and The Structured Clinical Interview.

South Oaks Gambling Screen (SOGS) was developed by Lesieur and Blume [18], and it contains 20 items which correlate with the criteria of the diagnostic for the pathological gambling from DSM-IV; the advantage of SOGS is the ease with which it is administered and the way of scoring, as well as the fact that proved useful with diagnosing the pathological gambling for both teenagers and adults.

Massachusetts Gambling Screen (MAGS) [19] is an easily administrable and markable questionnaire that can be used for both teenagers and adults, and it utilizes the criteria of DSM IV for the diagnosis of the pathological gambling; a score of minimum 5 permits the adjustment in the pathological game of chance.

Gamblers Anonymous 20 Questionnaire [20] is a more extensive questionnaire with 20 questions, which the gamblers can self-manage in order to establish whether they possess an addiction problem or not.

The Problem Gambling Severity Index (PGSI) [21] represents an instrument which comprises a number of nine items with whose help any person can self-evaluate the severity of their pathological gambling.

The Inventory of Gambling Situations (IGS) [22] represents an identifying instrument identify for the situations, where a person presents a risk of compulsive gambling and comprises a number of 63 items, which represent just as many possible situations in which someone could gamble excessively.

The Gambling Related Cognition Scale [7] is a questionnaire with 23 items, which help the participant to self-evaluate their irrational beliefs related to games of chance, and the items are divided in five subsections: interpretative biases referring to the capacity of controlling the game; the illusion of control; the prediction of control; nonrealistic expectations tied to gambling; and the inability to stop gambling.

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6. Treating gambling disorder

Gambling disorder is best described as being a syndrome, and from this perspective, the most efficient treatment reflects a multimodal approach, which bases itself upon a personalized and complex treatment plan. Multidimensional treatments thus include different combinations of therapeutic, financial, and educational counseling, as well as self-help, psychotherapy, and psychopharmacology in the case of intervention.

There is a wide range of treatment programs for compulsive gambling, based on the specific professional expertise of the therapist and the existing therapeutic resources. Primary medical care programs tend to offer more screening, short-term pharmacological treatment, and guidance for follow-up counseling.

The problems faced by specialists when starting treatment with compulsive gamblers mainly relate to the fact that they deny that they have an addiction problem, they are not informed on the fact that there are qualified professionals in this field, they are fearful of the fact that they could be stigmatized, often they do not want to give up gambling, their partner does now want to get involved, and their family is not supportive.

The treatment for the gambling disorder shares many similarities with the treatment for drug addiction, and it involves the development and techniques and measures to cope with the phenomenology of craving that characterizes any addiction and has a neurophysiological substrate. In drug and alcohol addiction and even in gambling disorder, we find the following aspects [23]:

- An increased desire to gamble (or to ingest substances);
- Denial of the severity of the problem by the addict;
- Problems in family relations;
- A high rate of relapse;
- Loss of control;
- Lying, to cover these activities;
- The increased preoccupation with these activities;
- Progressive psychological disorder;
- Development of tolerance.

Until the present day, there have been relatively few studies on checking the efficiency of the different forms of treatment for gambling disorder [24–26, 6–7, 27].

Pharmacological treatment has some promising results in ameliorating some comorbidities, such as impulsivity and mood disorders, but the results of the efficiency studies for this type

of treatment are limited due to the fact that there were smaller lots of people used, high drop-out rates recorded, and big variations in terms of the placebo effect [28–30].

Psychological treatment for gambling disorder includes numerous approaches, such as psychodynamic therapy and analytic therapy [31], multimodal therapy, the Gamblers Anonymous group [20], the motivational interview [32], online counseling [33], behavioral therapy [34], and cognitive-behavioral therapy [6, 15, 23, 24, 35–37].

Chambles and Ollendick [38] have analyzed the efficiency of various approaches to treat gambling disorder; based on the scientifically validated evidence and the research that has been carried out, following classification has been established:

- Cognitive-behavioral therapy together with behavioral therapy represents the most efficient forms of scientifically validated treatment;
- Relapse prevention techniques have shown moderate efficiency;
- Psychodynamic therapy, aversive therapy, auto exclusion, and the Gamblers Anonymous groups present a reduced efficiency in treating this pathology.

Gooding and Tarrier [26] have studied the efficiency of the cognitive-behavioral therapy by examining 25 studies carried out by several experts in the field in USA, Canada, Spain, and Australia, targeting the reduction of gambling disorder; based on their meta-review, the mentioned authors presented the following conclusions:

- There is conclusive evidence according to which cognitive-behavioral therapy creates visible improvements in the gambler's behavior, and these are maintained at the follow-up evaluation conducted 3 months posttreatment;
- The improvements were maintained after 6 months and 12 months of finishing treatment, but these results will be interpreted with caution, due to the reduced number of participants at the long-term re-evaluation meetings and the small number of studies carried out in this way;
- Both group therapy and individual therapy are efficient in the follow-up evaluation which takes place 3 months after finishing treatment, but at the 6 month evaluation, the effects of the groups therapy are better maintained;
- Authors mention the fact that it is possible that cognitive-behavioral therapy has no direct effect on game behavior; however, its effect relates to reducing symptoms of depression and anxiety, which will then influence in their turn the improvement of game behavior.

Given that most of the studies carried out so far have investigated the efficiency of the treatment of compulsive gambling only in relation to the specific type of therapy that was used in the treatment process, one must also acknowledge that there are a number of nonspecific factors which can contribute to the success of the treatment: extra-therapeutic attributes which the subject presents at the moment of treatment (level of education and family support); the therapist's qualities (empathy, warmth, understanding, and acceptance of the subject); and the subject's expectations, his/her hopes in terms of the results of the treatment [39].

Cognitive-behavioral therapy is currently considered the most efficient method of treatment for gambling disorder; this type of therapy postulates the fact that the irrational thoughts tied to the ability of a person to control the game and predict the win represent the main factors which determine the development and the maintenance of this pathology [39–45].

The literature on the topics includes more models of cognitive-behavioral therapy for the gambling disorder [6, 10, 15, 36, 46–49]; self-help books can determine the improvement of the compulsive behavior according to the studies conducted by Apodaca and Miller [50] and Hodgins et al. [32].

Petry and his associates [51] conducted a comparative study on a lot of 231 compulsive gamblers which they split into three groups: the first group was treated using the Gamblers Anonymous method, the second group using GA combined with the help of the cognitive-behavioral therapy guiding exercises, and the third group participated at the GA groups plus eight individual sessions of CBT. They found improvements in 59% of the participants that benefited from CBT, 39.2% of the participants who completed the exercises from the CBT books, and 34% of the participants who only took part in the GA groups.

Ladouceur and others [52] proposed a model of therapy for treating the gambling disorder which comprises the following five steps:

- Informing in terms of the general aspects of the game;
- Modifying the irrational beliefs of the gambler with how the activities in gambling are carried out;
- The development of new coping abilities and problem-solving;
- Acquiring social abilities;
- Learning some relapse prevention techniques.

Petry [36] proposes a protocol of cognitive-behavioral therapy group therapy which lasts eight sessions, with a weekly frequency; the session's homework within which the protocol is the following:

- General information, presenting the reward system for game abstinence and identifying those factors those factors that contribute to the urge to play;
- The functional analysis of the gambling behavior;
- The increasing frequency of pleasant activities;
- The auto-management plan;
- Coping with the urge to gamble;
- Training for assertiveness and the ability to refuse the game;
- Changing irrational thoughts;
- Planning for emergencies and preventing relapse.

Ledgerwood and Petry [53] proposed a model where the main components refer to the restructuring of the gambler's medium in a way that it is less conductive to pathological gambling; the patients are initially taught to identify their irrational thoughts connected to the game of chance, about the game of chance, to understand the connection between these thoughts and their pathological game behavior, and to identify new coping methods.

Raylu and Oei [6] proposed a model of cognitive-behavioral therapy that contains four steps:

- Evaluating the problems and needs with which the client is confronted, his/her education and motives with the purpose of changing dysfunctional behaviors, while using motivational interview techniques;
- Familiarizing the gambler with the fundamental strategies of the cognitive-behavioral therapy used with the purpose of stabilizing his/her compulsive gambling behavior and minimizing the negative effects in case of a relapse;
- Learning some coping methods in terms of maintenance the positive changes in game behavior;
- Learning of maintenance strategies of the therapeutic wins obtained and preventing relapse.

Blaszczynsky [10] introduced a complete self-help program for compulsive gamblers which comprises the following steps:

- Increasing the motivation to stop the game;
- Monitoring gambling behavior;
- Controlling the impulse to gamble by following relaxation techniques;
- Identifying irrational thoughts and replacing them with other rationalities;
- Preventing relapse;
- Learning new ways of getting family support.

Wulfert, Blanchard, and Martell [54] used for the treatment for gambling disorder an alternative of cognitive-behavioral therapy which comprises techniques of the motivational interview, cognitive-behavioral therapy, and techniques for relapse prevention, while Miller and Rollnick [55] proposed a model of raising motivation where the key concepts are the following: raising the motivation of the client is essential in observing the product of change; motivation is a dynamic feature; and motivation is influenced by external factors, including the behavior and attitude of the counselor.

The advantages of cognitive-behavioral therapy refers to the fact that it is a well-structured type of therapy, it is carried out on a limited period of time, it requires limited costs compared to the other types of therapy, and it produces long-term benefits and supposedly the fall off the risk of relapse [6, 15, 36, 43]. Success rates of this type of therapy for gambling disorder within the studies that have been carried out so far have ranged from 36% [25] to 42% [56]; to 72% [57]; to 77% [40]; to 49% [36]; and 74% [43].

The treatment of gambling disorder poses many problems, first of all, because pathological gambling has been only recently recognized as a disorder in its own right, not enough

research has been done and there is a lack of professionals trained in offering psychological and psychiatric services in this field.

We have introduced a model of cognitive-behavioral therapy for gambling addiction in Romania, based mainly on cognitive restructuring techniques, with the following fundamental objectives:

- Reducing the consequences of gambling disorders which interfere in the everyday functioning of gamblers;
- Avoiding or reducing the risk of developing a gambling addiction behavior;
- Managing the negative emotionality associated with this disorder (depression, anxiety, stress);
- Satisfying the need for entertainment and developing new and pleasant recreational and social activities, which do not pose the risk of having a destructive impact on the lives of the subjects.

The model includes several stages, namely assessment and formulation, psycho-education and introduction to the ABCDE model, cognitive restructuring, problem-solving training, assertiveness skills training, and relapse prevention.

During the clinical assessment stage, we look at client engagement in the therapeutic process by increasing his motivation to change his gambling behavior and we clarify the following aspects [47]:

- The origin of the client's pathological gambling problems;
- Etiological and maintenance factors;
- The degree to which the subjects have reached out for psychological support and the efficiency of the support they have received;
- Whether they have reached out for treatment out of their personal initiative or at the their friends' bidding;
- How they heard about our specialized psychological services;
- In case they have not reached out for psychological support, the reasons why not.

We will adopt an attitude of acceptance toward the subjects and their gambling experience, using techniques such as active listening, reflection, nonverbal communication (maintaining visual contact, open body posture, nonevaluative facial expression, consistency of tone etc.), and verbal communication (the meaning of what is said).

Case example:

John is 32 years old, he is married and has been gambling electronic roulette and poker machines since he was 18; his parents are divorced and his father told John that he had been an unwanted child, whose birth had been a mistake and with whom he wishes to have no relation whatsoever. John faced economic hardships his entire childhood and he remembers being the poorest child at his school.

When he got married, he vowed that his family would never suffer from poverty, but the company he started is not doing well and he believes that only his gambling activities will help them escape poverty.

Because he is not able to support his wife financially, he experiences profound sadness, disappointment and discouragement.

"She thinks I'm so stupid, I can't do anything right, I'm embrassed to see myself through her eyes. I think she's very disappointed in me and maybe she is already thinking of ending our marriage; if she leaves me, what reason do I have for living? The thought of suicide has crossed my mind, but then I started thinking: am I really such a coward? My family needs me, but they need me to be a strong and normal person, not the kind of person I am right now. I usually play the victim: I think of myself as lazy, I have time management issues, I fall into a trance for long periods of time, I have negative thoughts".

For John, gambling is an escape. At the casino, he puts all his problems behind him and cuts himself off from the world.

In the case formulation, we will focus on the experiences, cognitions, emotions, and behavior of each client; the case formulation will help the client understand the factors that led to the development and maintenance of their compulsive gambling [58].

In the following stage, we will teach the client the ABCDE model designed by Albert Ellis [59] and we will familiarize him with the basic principles of cognitive-behavioral therapy [1]:

- Psychological issues represent learned maladaptive responses, supported by irrational cognitions;
- Dysfunctional thinking results from genetic and environmental factors;
- Modifying irrational beliefs is the best way to reduce maladaptive behaviors;
- Dysfunctional cognitions can be identified and replaced, which takes effort and perseverance on the part of the subject.

The goal of cognitive restructuring is to interrupt the vicious cycle of compulsive gambling and to help the subject have control over his behavior. The main irrational cognitions that pertain to gambling disorder can be classified in three groups [6]:

- Illusion of control of gambling, which can take three forms: active illusionary control (the belief that he can directly control his gambling outcomes); passive illusionary control (the belief that he may indirectly have control in determining whether he wins or loses only when he feels lucky), or magnifying his own gambling skills and minimizing other gamblers' skills;
- Predictive control, which involves the belief that the gambler has the skill of making accurate predictions;
- Interpretive biases, which involve reframing gambling outcomes in such a way that encourages continued gambling despite of heavy losses: gambler's fallacy, chasing, selective memory, reframed losses internal or external attributions.

A study carried out in Romania from 2010 to 2012, involving 119 compulsive gamblers with an average age of 29.86 years, identified the following irrational cognitions about gambling, cognitions that play a central role in the development and maintenance of the gambling behavior [43].

Case example:

Gambling makes me happy.

My skillfulness and abilities make me continue to gamble.

When I am gambling, life seems better.

Losing makes me gain experience so I can become a better gambler.

When I am gambling, the future looks brighter.

If I win once, I am bound to win again.

Gambling makes me feel less agitated or stressed out.

The memory of winning makes me want to gamble again.

To a certain extent, I can predict my next win.

The participants had a 70.58% co-occurring addiction, alongside gambling disorders, as follows: 50% of the participants engage in excessive alcohol consumption; 41.20% are heavy smokers; 16.8% engage in occasional drug use [43].

Case example:

Given that, whenever he goes to a casino, John is certain he will win a substantial sum of money that will get him out of poverty, I asked him where exactly such a huge win could come from, seeing how the casino where he gambles is basically just a small hall, in which approximately 10 gamblers try their luck.

"That's easy. If there are ten gamblers who hope to win, just like I do, I will outsmart them all and I'll get their money. Then I'll be able to have a flourishing financial situation that will enable me not to be poor again, my wife will love me again, just like she did when we first met. Also, when I gamble, life seems more beautiful and I only gamble when I feel I'm lucky and I'm on the verge of winning. When I lose, I get really mad, I yell at everybody, I turn into a monster."

During the cognitive restructuring phase, we focus on changing gambling behaviors by correcting irrational beliefs, cognitions and dysfunctional attitudes about gambling, as seen in **Table 1** [58].

Therefore, we will help the subject dispute each irrational belief we identify using the following type of questions [60]:

- What effect does this belief have on me? Does it help me or not?
- What evidence is there that this belief is actually true?
- Is my belief logical and does it reflect reality?

- What is another way of thinking?
- What must I do to change this belief?

Following the disputation process, we will help the subject replace his irrational beliefs with a different set of beliefs, which will be rational and will reflect reality, such as [47]:

- Winning happens because of sheer chance and not because of the gambler's abilities;
- We do not have the power to influence if or how much we win by gambling slot machines, as this is pre-determined by a computer system;
- Future wins will never be influenced by previous wins or losses;
- Slot machines are set up in such a way that what you win will always be less than what you spend;
- The machines are set up to continue playing, despite losses;
- You are not more valuable as a human being if you win and you are not less valuable as a human being if you lose when you gamble.

The following is an example of an irrational belief: "on a certain extent, I can predict my next win". As a result of the disputation process, the compulsive gambler's irrational beliefs will be replaced by rational beliefs, which will reflect reality and will help him manage his gambling behaviors.

After the cognitive restructuring process, we will suggest to the gambler that he creates a list of alternative activities to replace his gambling behavior and as well as a schedule of daily activities which should leave him no spare time to gamble or identify the triggers for his gambling behavior. Studies have shown that involving compulsive gamblers in a large number of activities to fill up their spare time significantly reduces the risk of a relapse.

Identifying irrational beliefs
↓
Testing the validity of irrational beliefs
↓
Replacing irrational beliefs with rational thoughts
↓
Positive influence on emotions
↓
Behavioral modification

Table 1. The cognitive restructuring process.

Preventing relapses is a psychoeducational approach targeting behavioral change, through which the gambler learns to identify and overcome risk situations that could make him return to his old compulsive gambling behavior [39].

Creating a decisional balance sheet for when he feels the urge to gamble again will help the subject to make the right decision about gambling. The decisional balance sheet is a technique which consists in creating a list of pros and cons of a certain behavior, as they appear to the subject at that particular moment in time. With the help of this balance sheet, the subject will weigh the long-term and short-term advantages and disadvantages of his gambling behavior, and based on the weight he gives to each advantage and disadvantage, he will make the decision to either cease or to continue to gamble, taking on the full responsibility for the consequences of his actions.

Case example:

John's decisional balance sheet includes the possibility of winning a lot of money, satisfying a momentary urge and forgetting about his troubles at home among the advantages of continuing to gamble. Among the disadvantages he includes losing large sums of money, addiction, wasting his time, neglecting his responsibilities, negative emotional states, heavy smoking while gambling, a permanent state of restlessness.

Depending on each gambler's specific circumstances, we will continue the process of cognitive restructuring with the goal of treating any potential depression and anxiety disorders, given that the negative emotionality underlying depression and anxiety play an important role in triggering as well as maintaining the gambling addiction [61–64]. The key irrational cognitions that generate negative emotional states are the following:

- Absolutist demands: the absolute "must";
- Catastrophizing: it is terrible/horrible;
- Intolerance to frustration: I cannot stand;
- Global evaluation: I am terrible; the others are terrible;
- Unconscious associations between the activating event (A) and the consequences (C).

During the process of cognitive restructuring, these cognitions will be replaced by rational alternatives:

- Nondogmatic preferences: I may want something, but I do not have to absolutely have it;
- Evaluation as unpleasantness: it is unpleasant;
- Tolerance to frustration: I do not like it, but I can put up with it;
- Avoiding global evaluation: I am human and I can make mistakes sometimes.

Raylu and Oei [6] suggest using the following cognitive techniques when fighting the urge to gamble:

- Picture the negative consequences of the gambling;
- Redirect your focus from the urge to gamble to other external events, by using the STOP technique: as soon as you feel the urge to gamble, clearly tell yourself STOP in a silent voice, without saying it out loud, and focus on something else;
- Identify your irrational beliefs about gambling, dispute them, and then replace them with rational beliefs.

Specialists in the field of gambling disorder recommend regularly practicing guided imagery in a state of relaxation as a way of dealing with the urge to gamble [6, 10, 65]. The rationale for using relaxation techniques has to do with the fact that gambling disorders are caused or exacerbated by feelings of stress and anxiety, given that stress plays an important role in the development and maintenance of this pathology [37, 66].

At the end of the therapeutic process, we will support the gambler in his efforts to adopt a well-balanced life style, by establishing the following intervention objectives:

- Overall improvement of coping strategies;
- Applying the aforementioned coping strategies in a wider context;
- Improving stress management.

Case example:

John has established the following objectives for himself:

- *Make a change in myself;*
- *Learn English;*
- *Lose weight;*
- *Take concrete actions to change for the better, without waiting for God to work a miracle in my life;*
- *Quit smoking;*
- *Put more effort into managing my company so that it yields a reasonable profit;*
- *Be a different John.*

Dryden and Matweychuk believe that the maintenance of benefits that result from treatment requires developing coping skills with regard to risk situations and future temptations, insofar as addictive behavior relapse is concerned; the authors provide the following recommendations [67]:

- Develop several healthy convictions, such as give up the habit of pleasing others and put yourself first and the others second;

- Create (or develop) several social interests: understand that the people around you have their own wishes and goals in life, and they cannot always offer you their unconditional support, you must also think of how you can support them and be there for them when they need you;
- Learn how to take control of your life; do not let your addictive behavior control your life;
- Develop a heightened tolerance to frustration so that you can achieve the goals you set for yourself;
- Be flexible so that you can cope with the next challenges in your life;
- Learn to accept uncertainty, because we live in a world of probabilities, in which nothing is absolutely certain;
- Develop your creativity so that you can find new ways of spending your time;
- Think logically, establish short- and long-term goals, and think about the possible consequences of your actions;
- Learn to accept yourself unconditionally, without making global evaluations about who you are as a person;
- Take on only limited risks in order to increase your chances of achieving the goals you have set for yourself;
- Embrace a philosophy of long-term hedonism, striking a balance between immediate gratification and long-term gratification;
- Assume the responsibility of your own negative emotions, without blaming them on external causes;
- Embrace a healthy lifestyle, with a healthy proportion of work, rest, sport and leisure activities;
- Develop a sense of humor so as to maintain a good disposition even in the face of hardships.

The following emotional signs or behaviors may indicate that a relapse is forthcoming: exhaustion, tiredness; the tendency to hide/distort certain facts; impatience, restlessness, agitation; grumpy disposition, the tendency to be argumentative; depressive symptoms, passivity; decreased tolerance to frustration; self-victimization; reckless risk taking; heightened expectations with regard to other people; and expressing the belief in self-omnipotence.

For all gamblers who have tried to change their gambling behavior, Fong and Rosenthal [68] offer the following closing advice:

- Do not forget that it takes time to make a change in yourself;
- You have taken a major step on the path towards healing by completing the suggested exercises;
- Make sure you reward yourself after each achievement;

- Learn from your own mistakes;
- Be happy for every achievement;
- And do not forget that TODAY is the most important day!

7. Conclusions

One needs to underline the fact that not all psychological counseling techniques work for all gamblers; therefore, one must use individualized treatment approaches, depending on the needs and context of each individual case.

The experts in the field have agreed that future research will have to focus on looking for efficient strategies aimed at preventing and minimizing the negative consequences of gambling disorder; providing psychological support to those affected by this behavior and to members of their family; utilizing a variety of strategies during treatment, as required by each person's particular situation; suggesting alternative leisure activities that the client will find pleasant; raising awareness; and educating a larger number of young people about the causes and development of this type of addictive behavior [15, 69–70].

We have to admit that we know too little about the efficiency of treating gambling disorder; the involvement of the government, the academic community, and the gambling organizers can help us to find the most effective treatment strategies for this compulsive behavior [71].

Author details

Steliana Rizeanu

Address all correspondence to: stelianarizeanu@yahoo.com

Hyperion University of Bucharest, Faculty of Psychology and Educational Sciences, Romania

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Chapter 10

Internet Addiction and Cognitive Behavioral Therapy

Malakeh Zuhdi Malak

Additional information is available at the end of the chapter

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Abstract

Internet addiction has become a social and public health problem especially among adolescents and adults. The purpose of this chapter is to describe the Internet addiction and discuss the process of treating Internet addiction by using cognitive behavioral therapy for Internet addiction model (CBT-IA). Among the Internet addiction, I have elected to focus on the studies regarding definition, prevalence, risk factors, negatives consequences, and treatment modalities with focus on CBT-IA. In contrast, research on the CBT-IA is still in its early stages. Till now, there is no clear definition for Internet addiction, and these definitions are based on assessment tools that are developed by researchers. There was a variance in the prevalence of Internet addiction among adolescents and adults, which might be related to many factors including assessment instruments and cultural factors. There are many risk factors for Internet addiction that involve socio-demographic, social, psychological factors, and Internet use practices. Many negative consequences result from Internet addiction such as social withdrawal, lack of relationships with families and peers, and psychological problems including depression and anxiety. The CBT-IA is the most effective treatment for Internet addiction. The CBT-IA model is a comprehensive approach, which can be divided into three phases: behavior modification, cognitive restructuring, and harm reduction therapy (HRT).

Keywords: assessment tools, cognitive behavioral therapy, Internet addiction, prevalence, risk factors, treatment

1. Introduction

Internet use has become increasingly popular among the population all over the world. The prevalence of Internet use has increased rapidly, with the current estimated world's number of Internet users in June 2017 is more than 3.8 billion [1]. According to statistics, Asia is considered as one of the most high Internet societies in the world (49.7%) [1]. This widespread

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leads to the problem of Internet addiction especially among teenagers. Of course, the problem of Internet addiction (IA) has become more widespread and considered as a social and public health problem. It is known that adolescents and young adults are the high-risk groups and more vulnerable for Internet addiction [2]. Both groups especially adolescents suffer from emotional and social stress, in addition to lack of behavioral control due to incomplete psychological maturity, which motivate them to engage in risk-related factors such as Internet addiction [3].

Yet after the 20 years on evolving the concept of Internet addiction and despite the growth, the popularity, and the increasing prevalence of Internet addiction, there is still no clear definition of this concept. However, it is under investigation and to be included in the classification in the Diagnostic and Statistical Manual for Mental Disorders, Fifth Edition (DSM-5) [4].

A number of literature have been written, which identified many risk factors for Internet addiction and several negative consequences resulting from this problem. Such risk factors include socio-demographic, social, psychological and mental factors, and Internet use practices. It produces physical, social, and psychological problems, in addition to academic performance and career difficulties [5, 6]. Therefore, this problem needs immediate action and treatment. Thus, there are different ways to treat Internet addiction; however, cognitive behavioral therapy (CBT) has been proposed as an effective treatment. There is a specialized type or model to treat this disorder called cognitive behavioral therapy for Internet addiction (CBT-IA).

This chapter presents the data associated with the prevalence of Internet addiction and the risk factors to gather a sense of the scope of the problem. The chapter also provides the cognitive behavioral therapy model for treatment of Internet addiction. This chapter could help in developing two perspectives, the academic and the mental health. From the academic perspective, this chapter helps to identify future areas of research, as new studies in the field continue to emerge. From the mental health perspective, the chapter assists clinicians in developing more empirically sound methods to assess and potentially treat Internet-addicted clients by applying CBT-IA.

2. Internet addiction

2.1. Definition of Internet addiction

There are many definitions of Internet addiction. Some authors defined it as “excessive Internet usage” [7, 8], “problematic Internet use” [9], “Internet dependency” [10], or “pathological Internet usage” [11]. This variation is related to lack of agreement in definitions among studies that investigated the different symptoms and characteristics of IA. Young [7] developed definition for Internet addiction, which was “maladaptive pattern of Internet use that lead to clinically significant impairment or distress”.

It was also defined as "a psychological dependence on the Internet, despite the purpose once logged on" [12]. In his second definition that based on the Diagnostic and Statistical Manual IV (DSM-IV) pathological gambling diagnosis criteria to Internet use, Young [13] defined Internet addiction as an impulse-control disorder and made a definition that consists of eight criteria and requires the fulfillment of five out of eight for the identification of an individual to be addicted. This criteria are (1) excessive mental effort with the Internet, (2) the need for longer time online, (3) repeated attempts to decrease Internet use, (4) withdrawal symptoms when decreasing Internet use, (5) issues in time management, (6) environmental distress (family, friends, school, and work), (7) lying about time spent online, and (8) mood modification through Internet use. Goldberg [14] defined Internet addiction on the basis of the DSM-IV substance addiction criteria as a behavioral addiction functions as a coping mechanism.

Later on, Block [15] defined it as "compulsive behaviors related to any online activities that influence normal activity daily living and lead to stress on social and family relationships, lying, poor achievement, and fatigue". Other researchers conceptualized it as "an impulse control disorder where individuals loss ability to control Internet use" [16, 17].

2.2. Prevalence of Internet addiction

There are many studies focused on studying the prevalence of Internet addiction among adolescents and others focused on adults. The adolescents are considered as a high-risk group for the behavior of Internet addiction. They undergo many developmental changes and stressful events, which result in using Internet that is considered a rich and attractive environment to reduce these stressors [18]. There are many studies concerned to determine the prevalence of this problem among this target group. The prevalence of Internet addiction varies widely. It is documented that the recent prevalence in different countries ranges from 4.0 to 25.3% among school students [19–22]. In USA, the rate was reported between 0 and 26.3% [23] and 0.8 and 13.5% in the European Union [11, 24, 25]. In Asia regions, the prevalence of Internet addiction is reported between 2 and 25.3% [20, 21, 26]. In Middle Eastern, the prevalence was between 1 and 28.4% [19, 22, 27, 28], and the high prevalence was among Turkish students (11.6–28.4%) [28, 29].

Moreover, many studies regarding Internet addiction were conducted among adults in various countries [30–39]. The prevalence rates in studies have used Young's Internet Addiction Test ranged from 1.2% in the UK [24] to 40% of the Jordanian university students [26]. On the contrary, the prevalence of Internet addiction by using Chen's Internet Addiction Scale reported 12.3% [36] to 17.9% [33] among Taiwanese adults. However, the prevalence rates of Internet addiction by using the Internet Addiction Diagnostic Questionnaire [13] demonstrated 1.0% among Norwegian adults [31] while 22.8% among Iranian Internet users [35].

From the results, there are differences in prevalence of Internet addiction, which may be related to differences in the definition of possible and serious addiction, using various instruments in the evaluation and sociocultural factors.

2.3. Assessment tools of Internet addiction

Many tools have been developed to investigate Internet addiction or similar concepts. However, the main diagnostic assessment instruments used widely in empirical studies involve (1) Young's Internet Addiction Test (YIAT), (2) Internet Addiction Diagnostic Questionnaire (IADQ), and (3) Chen's Internet Addiction Scale (CIAS).

2.3.1. Young's Internet Addiction Test (YIAT)

It was developed by Young [10] by adapting Diagnostic and Statistical Manual IV (DSM-IV) criteria for substance dependence and pathological gambling [40], and it is a modification of the previous 8-item scale. The criteria include loss of control, neglecting everyday life, relationships and alternative recreation activities, behavioral and cognitive salience, negative consequences, escapism/mood modification, and deception. It is a self-report scale and consists of a 20 items; each item is scored using a 5-point Likert scale ranging from 1("not at all") to 5 ("always"). The score of the total scale ranges from 20 to 100. The Internet users are categorized as follows: a score 70–100 reflects significant problems due to Internet use and 40–69 reflects frequent problems when scoring [13]. It has shown to be reliable and valid [13]. The internal consistency of the Internet Addiction Test (IAT) has been reported as excellent, with a Cronbach's alpha of 0.93 [23].

2.3.2. Internet Addiction Diagnostic Questionnaire (IADQ)

This questionnaire was developed by Young [7]. It is a self-report measure which consists of eight items dichotomously. It is based on the diagnostic symptoms of pathological gambling [40]. This questionnaire utilized the following criteria: preoccupation, tolerance, loss of control, withdrawal, negative consequences, denial, and escapism. If the scores were five or more of the criteria, it indicates Internet addiction.

2.3.3. Chen's Internet Addiction Scale (CIAS)

This scale was developed by Chen et al. [27] and was the most frequently used scale in the empirical research papers studying Internet addiction. The CIAS is a self-report measurement consists of 26 items on a 4-point Likert scale. It assesses the main symptoms of Internet addiction, tolerance, compulsive use, and withdrawal, as well as related problems in terms of negative impact on social activities, interpersonal relationships, physical condition, and time management. Furthermore, it assesses the weekly online hours and Internet use experience. The scores of 67/68 indicate Internet addiction. It has good internal consistency of the scale, with Cronbach's alpha values between 0.79 and 0.93 for the subscales [27].

2.4. Risk factors

Several risk factors have been identified as associated factors for Internet addiction especially among adolescents and adults. Some of these factors are related to socio-demographic variables

such as age (being younger adolescents and younger adults [31, 41, 42]), gender (being male) [3, 11, 17, 24, 25, 27, 30–34, 41–46], female gender [22], higher family income levels [17, 44], living in rural areas (for adolescents) [47], living in urban areas (for adults) [34], single parent (for adults) [24, 33], marital status (for adults) (being single) [24], income (for adults) (financial difficulties), unemployment (for adults) [11], university year level (being in lower-year levels) (e.g., first or second year) [31, 42] and lower school grade levels (for adolescents) [3, 22, 27], and ethnic group (Asian ethnicity) [38].

Moreover, there are factors related to Internet use and patterns of Internet use, which are also recognized as risk factors for developing Internet addiction. Age of using Internet for the first time (being so young or earlier adolescence age) [11, 17, 33], frequency [17], and duration (more than 10 hours daily) of Internet use [17, 22, 27, 31, 35, 36], Internet access at home [12], Internet use at an Internet café [25, 27], purposes of Internet use (e.g., for noneducational purposes [e.g., downloading programs, music or movies, playing online games or chatting, and social networking] [17, 22, 32, 35], online activities and practices [e.g., communicating, playing online games, listening to music, making new friends, and online chatting] [25, 35], Internet use for mood regulation [47], and having a hobby such as reading books [18]), positive outcome expectancy from Internet use, and low self-efficacy toward using Internet [36] have relationships with the development of Internet addiction. In addition to this, parental involvement and guidance regarding Internet behaviors were reported to be correlated with Internet addiction, specifically little parental communication about Internet use and lack of rules about Internet times and use [48]. It is suggested that social factors including poor academic performance (for adolescents) [8] and dissatisfaction with academic performance (for adults) [32, 36], poor relations with school [43, 49], inadequate social adaptation [17], stress [43], leisure boredom [50], presence of peers and siblings consuming alcohol [49], and lack of social support [8, 34, 38, 42] are associated with Internet addiction.

It is reported that family variables were associated with Internet addiction such as family conflict and dissatisfaction [43, 49], an insecure attachment style [36], child maltreatment experiences [32], poor parental relationship [25, 46], poor family love [32], homesickness [33], low parental involvement and supervision [50], and showing positive attitude to adolescent substance use by parents [49].

Health-risk factors such as consuming alcohol, substance use, and smoking have been suggested as risk-factors for Internet addiction. Previous studies have documented a relationship between alcohol, substance use, and Internet addiction [43]. Onen et al. [45] revealed that there was a relationship between Internet addiction and smoking. In addition, a behavioral factor such as a habit of skipping breakfast [34] was correlated with Internet addiction.

It is necessary to recognize that psychological and psychiatric problems and symptoms are also associated with Internet addiction. Several studies have reported a relationship between Internet addiction, depression, anxiety, attention deficit and hyperactivity disorder, social phobia, neurosis, solitude, hostility, aggressive behaviors, suicide, psychological dysfunction, and emotional and behavioral problems [8, 10, 11, 17, 22, 27, 41, 42, 51, 52].

It is also reported that negative personality characteristics including depressive thoughts, low self-esteem, poor self-perception and concept [38, 53], novelty seeking, harm avoidance, low reward dependence [38], impulsivity [36, 49], introversion, low agreeableness, and emotional instability [54], escapism and fantasy [30], could lead to the development of Internet addiction. Furthermore, the following internal characteristics were documented as risk factors: low life satisfaction [17], low well-being [54], loneliness, lack of confidence [17, 30], preference for online social interaction, negative life outcomes [47], and seeking for enjoyment and entertainment [49].

2.5. Negative consequences of Internet addiction

Internet addiction results in experiencing physical, social, and mental or psychological problems. It has been linked to physical problems like sleep disturbance, eating problems, limited physical activity, back strain, eyestrain, and others [52]. Research literature has been demonstrated that Internet addiction leads to a poor health condition, excessive daytime sleepiness, insomnia, nightmares, difficulty in falling asleep and night awakenings [2], loss of energy, physiological dysfunction, weakened immunity [17], overweight and obesity, and impaired vision [55].

The Internet addicts transfer their social lives into the Internet world. Internet addiction leads to many social issues such as disturbing family, social, and workplace relations, where it isolates the persons from family and society and keeping them away from social interactions [27]. It has a negative effect on interaction with peers and friends, family life, academic life, and social life [41].

It is important to understand that Internet addiction may lead to negative effects on psychological development for population. The worst effects are Internet anxiety [38, 46], depression [30, 32, 33, 36, 51], suicidal ideation [51], social phobia and phobic anxiety [41], schizophrenia, obsessive-compulsive disorder [30], antisocial/aggressive behaviors [49], self-injurious behavior [56], harmful alcohol use [46], and sleeping disorders [31]. In a Chinese study conducted among school students, the results indicated that the scores for comorbid disease and impulsivity were higher among students experienced Internet addiction [52].

2.6. Treatment for Internet addiction

Treatment for Internet addiction is similar to treating any other types of addiction. It involves cognitive behavioral therapy, interpersonal psychotherapy, and support groups.

- **Cognitive behavioral therapy (CBT)** is a short-term and problem-focused type of behavioral treatment. It focuses on helping clients consider the relationship between beliefs, thoughts, and feelings and following behavior patterns and actions. During CBT, clients learn that their perceptions influence directly on responses to specific situations. In particular, a client's thought process guides his or her behaviors and actions. Cognitive

behavioral therapy is not a discrete treatment technique, but it is a general term refers to a group of therapies [57]. Through treatment by CBT, the therapists use many techniques including relaxation, social, physical, and thought exercises to raise a client's awareness of his or her emotional and behavioral patterns, challenging beliefs, mindfulness-based interventions [57], journal writing therapy or writing therapy [58], and time management methods [59].

- **Interpersonal therapy** is a type of treatment concentrating on enhancing interpersonal connections and actual social relationships with friends, parents, and others. Therefore, this therapy purposes to find new methods of interaction and includes the following interventions: encouraging influence, developing communication techniques and strategies, modeling, and role-playing.
- **Support groups** may be helpful in the treatment of Internet addiction. These support groups should be applied to help addicts in attaining appropriate support that facilitate recovery. Moreover, couples counseling could be a necessary part of recovery among Internet addicts, whose marital and familial relationships have been negatively affected by Internet addiction.

2.7. Cognitive Behavioral therapy for Internet addiction (CBT-IA)

This is the first model of its kind and the most effective type of therapy for Internet addiction that is focusing on cognitive behavioral therapy (CBT). Researchers have documented that using cognitive behavioral therapy (CBT) is an effective treatment for Internet addiction [53]. The CBT in general helps addicts to realize addictive feelings and actions, while learning new coping skills and methods to prevent a relapse. The CBT usually takes 3 months of treatment or approximately 12 weekly sessions. The focus of this therapy is to assess the client's patterns of use and then develop new schedule to change the past formed patterns. External influences such as activities that demand the addict to leave Internet could be applied. There are also treatment programs that help the client in identifying goals about the time needed for using the Internet.

The CBT-IA model is a comprehensive approach which can be divided into phases, including (1) behavior modification, (2) cognitive restructuring, and (3) harm reduction therapy (HRT). The first phase or the early stage of therapy is behavior modification that is focusing on specific behaviors and situations where the impulse control disorder causes the significant difficulty and is used to control compulsive Internet use and reduce the time spend online by addict. The second phase is a cognitive restructuring that is applied to identify, challenge, and adjust cognitive disruptions and negative beliefs that cause a compulsive usage of Internet and effect on this behavior of addiction [53]. The third phase is harm reduction therapy (HRT) that is a new and untested therapy, which is used for continuation of recovery and prevention of relapse. The HRT is used to recognize and cure psychiatric problems related to Internet addiction and treat social problems in relationships with families, peers, and friends. We will discuss each in turn.

2.7.1. Phase 1: Behavior modification

In this phase of the CBT-IA, behavior therapy is applied to examine both computer behavior and noncomputer behavior. Computer behavior deals with actual online use, with a main purpose of abstaining from questionable applications while maintaining controlled usage of the computer for legal purposes [53]. This could be explained by the example of a university student who was addicted to Internet porn movies would need to learn to refrain from these movie Websites while still being able to use Internet for academic activities, social networking, and conducting e-mails to his contacts. Noncomputer behavior concentrates on assisting clients to promote favorable life style activities without the Internet. The activities that do not encompass the computer usage are examined and may involve activities related to social or job-related functioning [53].

A previous study [60] found that Internet addicts felt a sense of displacement when online and were incapable to handle the main aspects of their lives due to increasing preoccupation with Internet usage, which affect their work (e.g., ignoring and skipping the deadlines of their work), relationship with their families (e.g., giving little time for their families), social relationships with their friends, colleagues, and community, and their normal routines. As Internet addiction progressed, addicts become expanded with their online activities such as Internet games, chatting, and gambling, which lead to ignorance of social life instead of being alone in front of the computer [61]. Time management for Internet addicts is the primary aim of CBT-IA [62].

It is always important to be aware of the main goal in this phase, which is modifying unhealthful computer behavior to healthful one. In the beginning of implementation of this phase, the therapist should assess the client's present use of the Internet. A daily Internet activity dairy could be adopted to evaluate client's behavior and develop a plan for treatment [53]. This dairy should include date and time of each session, event, Internet activities (e.g., mailing, chatting, Web surfing, and shopping), situations, duration, feelings that trigger excessive online usage, and outcome of the Internet session (what activities were achieved, what activities were stopped while online). The recovery success among Internet addicts could be measured through reduced online hours and abstains from any contact with problematic online applications. According the results of the daily dairy, therapist could review the duration and favorite times of online.

It is necessary for the clients to get rid of any problematic online behavior. This could be achieved by using computer restructuring or reorganization strategy. The clients should remove bookmarks or favorite files and sites that lead to the problem online. Then, the therapist puts time management goals with the addicts and uses many methods to help them interrupt old patterns of addictive online behavior such as taking routine computer breaks, using alarm or timer as reminder to do another activity (e.g., walking through the office or garden or home, or see what family is doing in the living room) and using filtering software that could be used to block access to some online sites and can help clients to self-regulate online use.

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2.7.2. Phase 2: Cognitive restructuring

In application of this phase of treatment, many methods are used including assessment of the type of disturbance, problem solving methods, coping techniques, modeling, support group, and self-thought monitoring [62].

The therapy classifies the maladaptive cognitions that are employed as triggers for excessive use of the Internet. For example, some addicts are suffering from distorted thoughts concerning themselves such as rumination (e.g., they are continuously thinking and concerning regarding the problems related to their Internet use) and intense self-concepts that serve their availability online (e.g., we have no value offline; however, we are other persons in online world). The Internet addicts experience distorted thoughts regarding their world, for example, "We do not like the people because nobody appreciate us" and "the Internet world is the only site where we are respected and appreciated." These extreme thoughts are distinguished by all or nothing thinking that intensifying and preserving the clients' online addiction. This could be explained by the following example: In Internet games, the addicts who carry out their goals in these games could realize the offline world as not desired, which results in psychological dependence on using the online to enhance their self-esteem. Online addicts have a cognitive bias that they are treated with respect in their virtual world, but they feel unhappiness and lack of satisfaction with real lives. These thoughts encourage them to engage in the online. Cognitive restructuring is used to breach this pattern of behavior. In this stage, the therapist puts the addict's thoughts "under the microscope," and the addict is challenged by rewriting the negative thinking related to him/her. Moreover, CBT-IA assists addicts to recognize that they use the Internet to keep away from any situation or feeling.

Cognitive restructuring will help addicts reevaluate the rationality and validity of these interpretations. For example, addict who uses Internet games to build self-esteem will begin to understand that using Internet is for the satisfaction of the unfilled needs in his or her real life. When the addicts have awareness of their patterns of mistaken thinking, they start to challenge these thoughts more independently of therapy. In this way, they will have difficulty to reason or justify their online usage and to break the cycle of connecting online usage with the best life. Through faults in addicts thinking, they feel worsted because they overestimated difficulties and lessen the potential of corrective actions.

The CBT-IA assists addicts to determine the main problems or consequences caused by Internet addiction in order to help them stay concentrated on treatment goals. In addition, the therapist asks the addict to make a list of the five main problems result from Internet addiction and a list of the five main advantages for lowering or avoiding online use in order to identify consequences. Clients' reassurance is very important because it is making their decision list broad and all comprising, and it should be honest as possible. The therapist should learn the worthy skill of clear-minded assessment of consequences for any recovery from online addiction and relapse prevention.

This phase is used to deal with denial that frequently exists among Internet addicts and to resist the defense mechanism of rationalization that clarifies excessive Internet use. Online

addicts have ambivalence feelings toward treatment. They may enter the treatment sessions with mixed feelings because they are not taking responsibility for their behavior and are not certain from their desire to quit their online use. The addict considers Internet as a healthy outlet just to rationalize his behavior, "This behavior does not cause any harm to anybody else", this is not a big deal, "The Internet is not a problem in my life, it is the stress." They also lower from the hurt that causes to loved ones: "It is a device," "It is not a sexual relation outside marriage," "It is only words on the screen."

In this therapy, the addicts are faced when they conflict themselves. At the first session, they admit to have an addiction. The next session, they lower the same behavior of addiction. In this stage, the treatment assists addicts to take the responsibility of the problem. The addicts recognize that they will stick to a structured online time management plan, if they admit their addiction, which is the important focus in this stage of therapy because it remains addicts that they take a daily commitment, and if they are not ready to take this appointment for themselves, and someone else, then abstaining will be difficult to preserve.

2.7.3. Phase 3: Harm reduction therapy (HRT)

During this stage, the therapist identifies and addresses the factors related to development of Internet addiction including personal, situational, social, psychological, or occupational issues [63]. The addicts suppose that they are recovered once stopping this behavior and say "We are recovered." However, there is much more to complete recovery than merely stopping the Internet. Full or complete recovery means examining the fundamental issues lead to the compelling behavior and finding solutions to these issues in a healthy way; on the contrary, relapse is probable to happen. As a part of recovery, the HRT is considered as an important method for the addict to indicate the main issues leading to the addiction [63]. It is necessary to explain that addicts begin to be dependent on the Internet because it provides an urgent and acceptable means of temporarily avoiding psychological or situational problems.

The harm reduction therapy (HRT) is used to identify the coexisting issues in the online addicts' lives. Internet becomes a fantasy world that can take them away from their problems. Through using the Internet, people recognize a safe and easily accessible way to escape. The HRT stresses on identifying and treating underlying psychiatric problems coexisting with compulsive online usage by administering, when indicated, appropriate medications. It focuses on treating dual diagnosis with depression, anxiety, or obsessive-compulsive disorder that is common among Internet addicts, as well as comorbid addiction to alcohol or drugs. Later on, 12-step recovery may be involved as part of treatment.

Harm reduction focuses on the client's strengths and capacity to change as the starting point. In this phase, the main focus of the treatment sessions is raising awareness toward the issues leading to compulsive online use. Addicts are encouraged to participate in setting up the treatment and selecting the useful goals and strategies. The addicts work to find healthy ways to deal with feelings of low self-esteem without Internet use. In addition, the addicts

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learn more effective stress management methods to assist them to relax instead of depending on the Internet in order to control job stress. The addicts are helped to find new jobs or career opportunities if they suffer from work difficulties. This thing minimizes the harmful consequences of Internet abuse and helps the recovered addicts develop new and healthy coping strategies.

2.8. Clinical applications regarding the effectiveness of CBT-IA

Relatively little research have been done to evaluate the efficacy and effectiveness of CBT in treatment of Internet addiction. In a previous study conducted by Orzack et al. [64] to evaluate the effectiveness of using group therapy treatment, readiness to change (RtC), cognitive behavioral therapy (CBT), and motivational interviewing (MI) interventions and to examine the impact of comorbidity on the outcomes of the treatment among 35 males suffered from problematic Internet-enabled sexual behavior (IESB) for 16 weeks. The addicts were classified into three groups: anxiety, attention deficit hyperactivity, and mood. The findings showed significant improvements in clients' quality of life and scores of depression symptoms; however, no significant improvement was reported in Internet use. Concerning comorbidity, the anxiety group reported the best response to treatment, while mood group response was positively relative and attention deficit hyperactivity showed no response.

Young [53] conducted a study on 114 Internet addicts by using cognitive behavioral therapy. The outcome variables were evaluated on the third, eight, and twelve sessions and over a 6-month follow-up. The results showed that the majority of clients achieved apparent clinical improvement in managing their complaints at the end of the eight session, and the clients had ability to maintain their improvements in symptoms management at a 6-month follow-up. Online time management was reported as the highest improvement in the early times of the therapy. Social problems including restoration of non-Internet relationships and attachment in non-Internet activities were resolved upon the 12^{th} session. Non-Internet sexual functioning was reported as the least improvement. Many clients reported keeping away from sexual chats and online pornography, but there were problems in their marital relationships. Five clients were divorced because of inability to restore a satisfactory sexual relationship with their partners.

In another study, Du et al. [65] studied the effect of a cognitive behavioral group therapy in treatment of Internet addiction. Two groups were selected randomly, in which the first group consisted of 32 clients aged between 12 and 17 years who had the school-based group CBT and the second group consisted of 24 clients who did not expose to any intervention. The clients were evaluated three times: pretreatment, immediately after treatment of eight sessions, and in the sixth month. The results showed the treatment group had improvements in time management skills, emotional, cognitive, and behavioral symptoms.

In a recent study, Young [59] evaluated the effectiveness of the model of CBT-IA in treatment of Internet addiction. A total of 128 addicts were recruited, the Internet Addiction Test (IAT) was used to assess and classify them, and then, they received twelve sessions of CBT-IA/week. The effect of treatment was evaluated at the end the 12 weeks, 1 month,

12 months and at 6-month posttreatment. The findings found that more than 95% of the clients had ability to manage the problem at the end of the 12 weeks, and 78% maintained recovery 6 months after treatment.

3. Conclusion

This chapter tried to review and describe epidemiological Internet addiction research. The prevalence of Internet addiction was identified, and the conceptualization of this issue was also assessed by using various assessment instruments. However, to date, there is no gold standard for Internet addiction diagnosis and assessment. Moreover, the risk factors and negative consequences were highlighted. Generally, research has suggested that CBT-IA model was effective at improving symptoms related to Internet addiction after 12 weekly sessions and over a period of time after therapy extended to 6 months. The results considered in the previous section suggest that future research for long-term effects of the model should be addressed

While the efficacy of the cognitive behavioral therapy (CBT-IA) approach described in this chapter has been relatively well documented, future studies should be conducted to compare CBT-IA with other treatment modalities to determine its therapeutic effect

Author details

Malakeh Zuhdi Malak

Address all correspondence to: malakehmalak@yahoo.com

Al-Zaytoonah University of Jordan, Amman, Jordan

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Chapter 11

The Internet and CBT: A New Clinical Application of an Effective Therapy

David Gratzer, Faiza Khalid-Khan and

Shawnna Balasingham

Additional information is available at the end of the chapter

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Abstract

Mental disorders are disabling and common. Depression, for example, has greater global burden of disease than any physical disorder, and almost a third of people will experience some form of mental disorder in their lifetime. The effectiveness of psychological interventions is well established. Cognitive Behavioral Therapy is particularly effective for mood and anxiety disorders. But CBT is demanding of time and resources, partly explaining its limited availability, even in public systems. More and more people have access to the Internet and smartphones, even in the developing world. Internet therapies (including smart-phone apps) have been developed, offering CBT. Can technology help with access to CBT? In this chapter, we will look at the effectiveness of iCBT for several illnesses, based on new evidence from recent randomized controlled trials and meta-analyses, noting that while there is evidence for this therapy, not all programs have the same results. We consider iCBT in the real world, by looking at some popular apps and websites, including MoodGYM, and also present a case from The Scarborough Hospital (where we implemented a free-at-the-point-of-use iCBT program), demonstrating how it can be applied in an outpatient setting. We also present the current strengths and limitations associated with iCBT. Finally, we consider future directions for this field, considering chatbots and the possibilities with Artificial Intelligence.

Keywords: cognitive behavioral therapy, CBT, Internet-assisted CBT, iCBT, psychological intervention, depression, anxiety, apps, access, physical illness, chatbot, artificial intelligence

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1. Introduction

1.1. Key points

- Strong evidence from controlled randomized trials shows that iCBT can be used in clinical practice for some patients.
- Practical considerations suggest that some forms of iCBT are more effective than others.
- Further experimentation, including with AI, has the potential to re-shape therapy.

Mental disorders are disabling and common. Depression, for example, has greater global burden of disease than any physical disorder [1]. 29% of people will experience some form of mental disorder in their lifetime [2]. Yet care is often difficult to access: only 45% of people in developed countries receive care, and the percentage of people who receive treatment is just 15% in developing countries [3]. Even when patients have access to mental healthcare, it may be inadequate. In North America, between 30 and 79% of patients treated for depression receive sub-standard treatment. In a study of patients in British Columbia, Canada, who received treatment for depression, Puyat et al. found that only 13% received any psychotherapy or counseling; women, older patients, and patients in rural areas were less likely to receive adequate psychotherapy or counseling [4].

Cognitive Behavioral Therapy (CBT) is an evidence-based treatment. Beck's Cognitive Triad, the conceptual basis of CBT, is built on the principle that people's thoughts, emotions, and behaviors are connected. By taking control of their thoughts, patients can reframe how they interpret the events around them [5]. CBT has been shown to be equivalent to medication for mild and moderate anxiety and depression. Combining psychopharmacology with CBT may have a synergistic effect [6]. However, CBT requires time and resources, which partly explains its limited availability, even in public healthcare systems like Canada's. Therefore, many primary care physicians and psychiatrists do not offer CBT [7]. As a recent JAMA Psychiatry editorial noted: "Traditionally, psychotherapy developers focused on interventions for specific diagnoses to be implemented by mental health professionals in mental health settings. Once established as evidenced based, these therapies often failed to be disseminated into mental health centres, let alone… primary care clinics" [8].

While access to mental healthcare is not always available, more and more people have access to the Internet and smartphones, even in the developing world [3]. CBT is a good intervention for technology-based applications because the concepts are easily adapted into broadly applicable sessions (or modules) that can be distributed by email, the web, or apps [9]. Not surprisingly, numerous programs have been developed. Studies show Internet-assisted CBT (or iCBT) is cost-effective for patients; it is also more convenient for patients and providers compared with traditional CBT (a literature review follows).

In this chapter, we will look at the effectiveness of iCBT for several illnesses, based on new evidence from recent randomized controlled trials and meta-analyses. We consider iCBT in the real world, by looking at some popular apps and websites. We present a case from a Canadian

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hospital where we implemented an iCBT program. We also review the current strengths and limitations of iCBT. Finally, we consider future directions for this field, with an eye on AI.

2. Literature review

iCBT continues to be a hot area of research in psychiatry. A PubMed search of "Internet cognitive behavioral therapy" yielded over 1600 articles, about 300 more than a search conducted just 2 years ago [9]. The literature has been reviewed extensively by ourselves and others [9–18]. Among the best-studied interventions are those for depression, anxiety, and physical illness. Presented here are some of the most recent systematic reviews, meta-analyses, and randomized controlled trials about treatment effectiveness and address some of the most pressing concerns and promising developments in the new field of iCBT.

2.1. Depression

Treatment of depression with iCBT has been well studied. For example, two meta-analyses of iCBT for adult depression – covering 12 studies and four studies, respectively – found pooled effect sizes of 0.41 (95% CI 0.29, 0.54) [19] and 0.22 (95% CI, 0.03–0.41), respectively, for iCBT compared with any type of control [20]. A third meta-analysis of iCBT, covering nine studies – in university students – showed a standardized mean difference of −0.43 (95% CI −0.63, −0.22) supporting iCBT over non-treatment [15]. When comparing iCBT with treatment as usual, a randomized controlled trial showed a significant effect size (0.2; 95% CI 0.00, 0.50) favoring iCBT [21]. Overall, the present data support iCBT as an effective treatment for depression that could have a greater benefit than standard treatment. (For a more comprehensive review of this literature, please see our CMAJ paper, available at: http://www.cmaj.ca/content/cmaj/early/2015/11/02/cmaj.150007.full.pdf)

But how can iCBT be done effectively? Could iCBT be offered without any therapist support – essentially, with patients told to use a website or an app? There is strong evidence in favor of therapist support of iCBT, including the results of a meta-analysis comparing iCBT with controls (effect size 0.61; 95% CI 0.45, 0.77) [19] and a Prioritization Summary conducted by the Australian and New Zealand governments (significant improvements in depressive symptoms through 8 months of follow-up; seven included studies) [22].

This raises a question: is self-guided CBT of any benefit? Researchers conducted a meta-analysis evaluating the efficacy of self-guided iCBT for the treatment of depressive symptoms. The authors identified 16 eligible RCTs and obtained patient data of 3876 participants from 13 of the 16 studies. They performed traditional and patient-level meta-analyses. iCBT was more effective at reducing symptom severity than controls, including placebo, no treatment, treatment as usual, or waiting list ($\beta = -0.21$; Hedges g = 0.27). iCBT also had a greater treatment response than controls ($\beta = 0.53$; odds ratio, 1.95; 95% confidence interval [CI]: 1.52, 2.50). Their analysis also showed an association between higher adherence and greater symptom reductions ($\beta = -0.19$; $P = 0.001$) and treatment response ($\beta = 0.90$; $P < 0.001$). Based on

their analysis, the estimated number needed to treat to achieve a 50% reduction in depressive symptoms was eight patients [23]. What is particularly notable about this study is the number needed to treat. As first glance, this number seems too high to be clinically relevant. However, when considering the low expense associated with self-guided iCBT and when applying iCBT to an entire population, the investment could be worth the cost.

Another question around implementation: can iCBT be adopted for more than one diagnosis? Depression is often comorbid with other psychiatric diagnoses, such as anxiety. To determine the effectiveness of a transdiagnostic and tailored approach for treating adult patients with depression and/or anxiety, Păsărelu *et al*. conducted a meta-analysis of randomized controlled trials. They included 19 trials with 2952 participants. Transdiagnostic and tailored iCBT yielded controlled Hedges' g values of 0.79 (95% CI: 0.59, 1.00) for depression, 0.82 (95% CI: 0.58, 1.05) for anxiety, and 0.56 (95% CI: 0.37, 0.73) for quality of life [24].

A final question around implementation: can iCBT be offered in the primary care setting? Depression, after all, is most often treated in a primary-care setting [25, 26]. One recent randomized controlled trial investigated the long-term effects of iCBT for depression administered through 16 primary-care centers (the PRIM-NET trial). Researchers compared a three-month therapist-supported iCBT program with treatment as usual for depression. Treatment as usual included in-person therapy, pharmacotherapy, sick leave, and any combination thereof. Patients were followed for 12 months. Within group effect sizes for iCBT and treatment as usual were high (Cohen's d = 1.42 and 1.29, respectively, at 12 months). No significant differences in depressive symptoms, quality of life, and psychological distress were observed between iCBT and treatment as usual at 3, 6, and 12 months. These data indicate that long-term iCBT with therapist support may be as effective as treatment as usual in a primary-care setting [27].

2.2. Anxiety

There is strong evidence in the literature supporting the use of iCBT for anxiety disorders. For example, there are three major meta-analyses that included between 12, 17, and 23 studies, and all showed the effectiveness of this intervention [14, 20, 28]. The Cochrane Collaboration recently updated their systematic review of therapist-supported iCBT for adults with anxiety disorders. They identified 38 randomized controlled trials (11 studying social phobia, eight studying panic disorders, eight studying multiple anxiety disorders, five studying generalized anxiety disorder, two studying PTSD, two studying OCD, and two studying phobias). Trial comparators included controls (i.e., waiting list, information, attention, online discussion groups), unguided iCBT, and face-to-face CBT. 11 trials compared therapist-supported iCBT with controls. For a clinically relevant improvement in anxiety symptoms, the pooled risk ratio (RR) was 3.75 (95% CI 2.51, 5.60; $I^2 = 50\%$) favoring therapist-supported iCBT over controls. Reductions in disorder-specific symptoms and general anxiety symptoms were significantly greater for therapist-supported iCBT compared with controls. Only one very low-quality study compared therapist-supported and unguided iCBT; thus, no conclusions could be drawn. Four studies compared therapist-supported iCBT with face-to-face CBT. For

a clinically relevant improvement in anxiety symptoms, the pooled RR was 1.09 (95% CI 0.89, 1.34; $I^2 = 0\%$), indicating no significant difference between therapist-supported iCBT and face-to-face CBT. Further, no significant differences were observed in disorder-specific and general anxiety symptoms. While most of the evidence was low to moderate quality, the data suggest that therapist-supported iCBT is an effective treatment for anxiety disorders and could be as effective as face-to-face CBT. However, additional, better-designed studies are needed to draw stronger conclusions [29].

Given the technological nature of iCBT, do children and adolescents respond well to this intervention? Recently, Ebert *et al*. conducted a meta-analysis of iCBT for anxiety and depression in children and adolescents. They identified 13 RCTs: seven studying anxiety, four studying depression, and two studying both. The studies used non-intervention or placebo controls. 11 studies used therapist-guided iCBT. Compared with controls, iCBT had a mean effect size of 0.72 (95% CI 0.55, 0.90; $P < 0.001$) on symptoms of anxiety or depression. To get one positive outcome, the number needed to treat was 2.56. Interventions targeted at adolescents had larger effect sizes than those targeted at children ($g = 0.95$ and 0.51, respectively). While the studies had a variety of treatment strategies and no long-term follow-up, the data seem to indicate that iCBT may be an effective treatment for anxiety and depression symptoms in children and adolescents [30].

2.3. Physical illness

One very promising direction for iCBT is its use to treat distress caused by physical illness. In 2013, researchers conducted a systematic review investigating iCBT as an intervention for psychological distress in patients suffering from physical illnesses. Illnesses included irritable bowel syndrome (five trials), tinnitus (four trials), chronic pain (three trials), chronic back pain (three trials), infertility (two trials), as well as for a variety of other diseases (diabetes, HIV, multiple sclerosis, migraines, early breast cancer, with a trial each). At the time of this chapter's writing, the quality of evidence for iCBT was low and few conclusions could be drawn [31].

Since then numerous programs have emerged, especially for patients with cancer [9]. For example, a recent randomized controlled trial compared iCBT versus care as usual in breast cancer survivors with severe fatigue. The iCBT program started with two face-to-face sessions with a therapist followed by eight web-based modules. Therapists tailored modules and supported patients through the program. One final face-to-face session was conducted approximately 6 months after beginning treatment. At 6 months, participants in the iCBT group had significantly lower fatigue scores (mean difference, 11.5; 95% CI 7.7, 15.3) with a large effect size (Cohen $d = 1.0$) compared with care as usual. The iCBT group also had reduced functional impairment (mean difference, 297.8; 95% CI 145.5, 450.1) and psychological distress (mean difference, 5.7; 95% CI 3.4, 7.9) and increased quality of life (mean difference, 11.7; 95% CI 5.8, 17.7) compared with the care as usual group. Effect sizes of those measures ranged from 0.6 to 0.8 [32]. Some studies of iCBT for use in patients with brain injury, heart disease, and recurrent headaches is provided in **Box 1**.

Brain Injury:

Patients with acquired brain injury often have cognitive symptoms. These symptoms can potentially be addressed with iCBT. Recently, a systematic review of studies using iCBT to treat cognitive symptoms in adult patients with acquired brain injury was published. Among the 14 included high-quality randomized controlled trials, there was strong evidence that iCBT improved processing speed in patients with multiple sclerosis. There was moderate evidence that iCBT improved memory in patients with multiple sclerosis or brain tumors. However, more evidence from trials that use activities, participation, and body structure outcomes is needed to draw a strong conclusion [74].

Heart disease:

Depressive and anxiety symptoms are common following myocardial infarction. CBT has been shown to be an effective treatment strategy for these symptoms, so researchers developed a therapist-supported, self-tailored iCBT program for patients following a myocardial infarction. In a randomized controlled trial comparing iCBT to standard care, patients in the iCBT group selected two to three modules from the ten available. Each module contained two to four steps, and patients were asked to complete a step per week. A pilot study showed that the study was acceptable (68% of eligible patients enrolled) and participants were sufficiently active (50% had completed at least one module assignment within 3 weeks). The full trial is currently ongoing [75].

Recurrent headaches

For children and adolescents with recurrent headaches, psychological interventions, including relaxation and CBT, have proved to be effective treatments. Researchers conducted a randomized controlled trial comparing the effects of iCBT, applied relaxation, and an educational control in children and adolescents with recurrent headaches. All patients received an educational module discussing headaches. The iCBT program had five additional modules that included stress management, cognitive-restructuring, and relaxation techniques. The applied relaxation program had more extensive relaxation training, which included the module provided to the iCBT group. All patients had email contact with a therapist. When comparing iCBT and applied relaxation with education, the numbers needed to treat were 2.0 and 5.2, respectively. Responder rate was significantly higher for iCBT (63%) at post-treatment compared with applied relaxation (32%) and education (19%) but not at the six-month follow-up. At post-treatment, iCBT had the largest within-effect sizes for headache duration and frequency as well as pain catastrophizing. Further studies are needed, but these results support the use of iCBT to treat recurrent headaches in children and adolescents [76].

Box 1: Evidence for using iCBT to treat psychological distress associated with physical illness.

3. Practical applications

As noted above, implementing iCBT in a primary-care setting would be important. To successfully do this, we must first understand how programs perform in the real world rather than the tightly controlled setting of a clinical trial. The REEACT trial was conducted in the UK, and considered how patients in a primary care setting could access iCBT (a pragmatic randomized controlled trial). The study included three groups of patients: those using a commercial program (Beating the Blues) in addition to general practitioner (GP) care, those using a free program (MoodGYM) in addition to GP care, and usual GP care (that is, access to antidepressants, counseling, psychological services, and secondary mental health services). Those patients who used iCBT also received weekly phone calls from trained technicians. In this trial, no differences in depressive symptoms or health state utility were observed between commercially available iCBT, free-to-use iCBT, and usual care. iCBT had a statistically significant benefit over usual care in the mental component of health-related quality of life and general psychological wellbeing at 12 months but not at 24 months. Even with telephone support, adherence was poor in both iCBT groups with only one completed session (as the median

number of sessions completed). There was no observed advantage to using a commercially available program versus a free-to-use one [33]. Neither program was more cost effective than usual GP care [34]. When interviewed, participants liked the autonomy and flexibility of the program, but disliked the lack of interpersonal communication and customizability [35].

Because the patients in the REEACT trial expressed desire for more support, investigators conducted a second trial comparing the effectiveness of MoodGYM alone versus MoodGYM with telephone support (the REEACT-2 trial). The telephone support worker introduced patients to CBT, helped identify issues and set goals, motivated the patient, and discussed future steps. The study showed that telephone support made a difference, with significantly improved depression symptoms. The largest between-group difference was observed at 4 months (Cohen's d = 0.32), but the difference was no longer significant after 12 months. The odds ratio of not being depressed at 4 months was 2.05 (95% CI 1.23, 3.42; P = 0.0030) when telephone support was added to MoodGYM. There were also significant between-group differences in depression and anxiety scores. However, the adherence to the program did not increase substantially with 45% of patients completing the first session in the MoodGYM alone group and 65% completing the first session in the telephone-support group. An economic analysis indicated that telephone support could increase quality of life (in quality-adjusted life year [QALY]) and reduce healthcare costs with a likelihood of being cost effective at £6933 per QALY [36, 37].

While the literature is vast, a pattern is clear: iCBT can be effective. Even unguided iCBT, with its number needed to treat of eight, is beneficial to some patients [23]. But it should be noted that the number needed to treat jumps up to 2.56 for children and adolescents with anxiety using therapist-guided iCBT [30]. The emerging data on iCBT effectiveness and cost seem to support a stepped-care model, where patients with less severe illness and more motivation can be treated with unguided iCBT. As illness severity and desire for interaction increases, there is a role for iCBT programs with progressively more support. This model would balance the cost of treatment while providing the most benefit to individual patients and the population as a whole.

4. iCBT and the real world

Beyond the research, there are more and more iCBT programs available to the public. While most iCBT programs contain eight to 12 self-guided goal-oriented modules [22, 38], they can vary in quality and type of care. Speaking to the latter point: iCBT has a broad spectrum of therapist involvement, ranging from none to high-level involvement. Some programs are free, while others

Features	Options
Level of support	Self-guided, staff-supported, therapist-supported, chatbot-supported
Cost	Free, app purchase price, subscription fee
Teaching style	Tutorial, story-based, game-based

Table 1. Available features of iCBT.

are available for a fee. Depending on the country in which the patient lives, iCBT may be endorsed and even funded by government. **Table 1** shows a sample of the various options offered to patients by existing iCBT programs. Below, we explore a few of the currently available iCBT options.

4.1. MoodGYM

One of the most popular and best-studied iCBT programs is MoodGYM. The program comprises an introduction module, five learning modules, and a review module. MoodGYM uses fictional stories built around a set of six cartoon characters to present the principles of CBT in an approachable manner. As the participant progresses through the modules, they learn: (1) how negative thoughts affect their feeling, (2) how to identify those thoughts, (3) how to remove themselves those thoughts to view them objectively, (4) how to reduce stress, and (5) how relationships can affect thoughts and feelings. There are online worksheets, workbooks, and downloadable materials as well as games and activities to complete with each module. Outcome measures are collected before starting and after completing the five modules to determine if MoodGYM improved the participants' symptoms [39].

MoodGYM was developed with the support of the Australian government and is available in five languages. MoodGYM was initially free, but currently this program charges patients $39 (AUD) for a 12-month subscription to the materials. There are about 850,000 registered users. Recently, a meta-analysis of the effectiveness of MoodGYM for depression and anxiety was performed. For patients with anxiety, MoodGYM had a medium effect size ($g = 0.57$, 95% CI 0.20, 0.94; $I^2 = 85\%$). For patients with depression or general psychological distress, MoodGYM trended toward effectiveness, but fell short of statistical significance ($g = 0.17$, 95% CI -0.01, 0.38 and $g = 0.34$, 95% CI -0.04, 0.68; respectively). Adherence in the included studies ranged widely, from 10–100% of patients completing all modules, though the authors noted that: "adherence rates can be problematic" [39]. The effect size was higher in studies with high adherence (>50% of modules completed) versus those with low adherence ($g = 0.64$, 95% CI 0.15, 1.14, $I^2 = 79\%$ and $g = 0.22$, 95% CI 0.42, 0.41, $I^2 = 72\%$; respectively).

4.2. CBT-I Coach

CBT-I Coach is a smart-device app that can be used for insomnia. The app is available for iOS and Android platforms, and as of February 2016, it has been downloaded over 80,000 times. CBT-I Coach was developed by the United States Department of Veterans Affairs to support their clinician-guided CBT-I program. One of the major components of CBT-I Coach is keeping a Sleep Diary. The app has a diary function built in to keep track of sleep behaviors. The diary function includes drop down menus and places to enter text to facilitate documentation of sleep quantity and quality. The app also includes the Insomnia Severity Index (ISI) scores so the patient can keep track of their progress without visiting their clinician. The app can plot the quantitative diary data and ISI scores graphically so the user can easily see change over time. Both the diary and ISI scores can be sent to the user's clinician to provide a more comprehensive picture of patient progress. Users can set up notifications to remind them to fill out their diary. CBT-I Coach also has extensive educational material, recommendations for sleep hygiene and stimulus control, dynamic checklists to encourage health habits and prevent relapse, audio-guided relaxation exercises, and tools for cognitive restructuring [40].

While the CBT-I program has been studied extensively and has been shown to decrease insomnia symptoms and improve sleep efficiency, fragmentation, and onset latency [41–49], there has been little formal review of the CBT-I Coach app itself. A small pilot RCT assessed the app for feasibility, acceptability, and effects on adherence and sleep outcomes. All participants found the app helpful, and greater than 50% used the educational materials and reminders in the app [50]. Another study survey CBT-I clinicians prior to releasing CBT-I Coach and again 2 years after its release. Before the release of the app, clinicians thought that the app was at least moderately likely to improve care, and most (87%) intended to use the app. 2 years after the release of the app, ~60% of clinicians reported using the app and thought it improved homework adherence and outcomes [40].

4.3. FearFighter

FearFighter is a web-based iCBT program offered by a for-profit company in the UK. The program offers nine sessions that offer patients basic information on CBT, and a focus on negative thinking and overgeneralizations. This program is somewhat unique is the inclusion of videos, helping patients better understand basic concepts. At the end of the program, participants are given access to worksheets and summaries for later reference.

The program was endorsed by the UK's National Institute of Clinical Excellence (NICE), and can be "prescribed" by a primary care doctor (allowing for public coverage in some parts of that country), but patients can also self-refer. FearFighter have been the subject of numerous studies [51–56]. FearFighter has been shown to be superior to computer-guided non-exposure controls and as good as clinician-guided CBT for at least 3 months, though adherence to FearFighter was lower than clinician-guided therapy [56]. Both patients and clinicians were satisfied with how easy FearFighter was to use and the results of the program [52, 54–58].

4.4. SuperBetter

SuperBetter is an online and app-based game designed to help build "social, mental, and emotional resilience" to overcome challenges in life. Players are encouraged to set a goal for themselves in real life. Based on the goal, the game will offer appropriate activities for the player. "Power-ups" are activities that you can do in real life to improve resilience. "Quests" are in-site activities the player can participate in to teach them coping skills. "Bad Guys" are physical or mental bad habits that the player must battle. The site recommends completing three Power-ups and three Quests as well as battling one Bad Guy per day. Players can earn points for improving their resilience. Once you have met your goal, you achieve an "Epic Win." If the player sets a new goal, then they start a new game. The site has custom daily and weekly questionnaires to track progress in terms of the amount of time a player is happy, expressed as a percentage, and their resilience. Players can also recruit "allies" (e.g., friends, family). Allies can view the player's progress and offer support in the form of likes or comments. The game is highly customizable and can be adapted to address any challenges, from general life changes to mental and physical illness.

There is one randomized controlled clinical trial where patients with significant depression symptoms used SuperBetter. Players were asked to play the game 10 min a day for 1 month.

Patients playing SuperBetter had larger reductions in depression symptoms, based on CES-D scores, than waitlisted controls at 1-month (Cohen's d = 1.05). The game has also been evaluated in an NIH-funded clinical trial but the results are pending.

These different programs are very different in their approach to iCBT. And, of course, there are many other programs available. And while we acknowledge that there is no one right approach to iCBT, we recognize that many of the products on the market today have little or no evidence to support their effectiveness. We offer this advice: potential iCBT users should be careful when deciding on a program (or programs) to use. Users should look for government endorsements, affiliations with academic and/or medical institutions, and published results in peer-reviewed journals. If the program includes therapist support or uses therapists as a content source, a list of their qualifications should be easily accessible on the program's website. However, users should still check the therapist's credentials [9]. Users also should be careful not to be deceived by certifications, as they are not necessarily an indicator of quality. While many of the high-quality programs available do charge a fee, users should be wary of programs that try to sell them products or "cures" [17]. A little due diligence should help users identify a program that can help them address their symptoms rather than simply separate them from their own money.

5. The Scarborough Hospital experience

The authors have been actively involved in the development and implementation of an iCBT program at The Scarborough Hospital (TSH, now part of the Scarborough and Rouge Hospital). This hospital serves Toronto, Canada's diverse east end, and receives roughly 500 outpatient referrals a month. Here we review a case, and then consider the program and outcome data.

A.K. is a 27-year-old woman who suffers from severe anxiety. In the 2 years before her first outpatient appointment with the TSH clinic, she had left her apartment just a half dozen times – all to attend doctor's appointments. She was originally referred by her neurologist (who she had been seeing for non-specific dizziness). In her early 20s, A.K. had a major depressive episode, and a past trial of an SSRI antidepressant. At TSH, she was seen by the first author of this paper, then referred for therapy with diagnoses of Generalized Anxiety Disorder and Panic Disorder. A.K. was bright and motivated – and ready for therapy. But when first offered a referral for CBT she hesitated: it was almost impossible for her to take the bus to the clinic, how could she come on a weekly basis? Like A.K., there are many patients that need CBT but have difficulty accessing the help they need – think of the single mother with childcare obligations and the small businessman who needs to attend meetings during the day.

In 2014, the TSH Mental Health Outpatient Program was completely revamped to increase access to evidence-based interventions. Staff were provided training in CBT, and patients were provided a combination of group and individual CBT sessions. After building staff capacity to provide CBT, we shifted our focus to increasing access to our interventions. We started by offering evening hours for more convenience but better access to in-person CBT did not address access barriers for people like A.K.

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Every industry has turned to digital solutions for faster, easier, and more efficient services – could these types of solutions work in mental health service delivery as well? We developed a mental health app library in which apps vetted by our staff were included in our treatment regimen. Therapists used these apps to augment the in-person CBT, allowing patients to keep up with the material even if they had missed several sessions. But it was not enough to just offer CBT, we wanted to ensure that those in need had every chance of receiving it. It was this line of thinking that led to the development of our iCBT.

After a literature review looking at various international models of iCBT, and in collaboration with Queen's University (where they were piloting a small iCBT program for adolescents), we developed our own modules closely mirroring our in-person CBT. The iCBT model consists of a therapist-guided Internet version, where patients complete the program on their own schedule and from a convenient location of their choice (where they have access to the Internet). Originally, patients were provided a total of eight modules that outline the main principles of CBT. This includes the importance of noticing the connections between our thoughts, feelings, and behaviors, scheduling mastery and pleasurable activities, utilizing breathing and relaxation exercises, and reviewing thought logs and restructuring inaccurate thoughts to more accurate ones. Each patient referred is assigned a therapist who communicates largely through email. The patient is emailed a module on a weekly basis for 8 weeks, and is asked to read the module and fill out the attached worksheets to be completed within a week.

Before launching the program, staff were provided 4 hours of training in providing e-therapy from a psychiatry resident at Queen's University. We launched our program with the hope that we could replicate the results achieved in Sweden or Australia. However, a review of the results at 6 months showed that we had completely missed the mark. We had an alarming 90% dropout rate; many patients reported that they did not find the program helpful.

To understand the high dropout rate, we reached out to the patients in the program and asked how the program had failed to meet their needs. We gathered their feedback by asking questions such as, "Why did you drop out?" and "What three things would help you complete the program?" The responses were eye opening and a common theme emerged – the program was too rigid. Some patients felt that the deadlines for homework completion were too anxiety provoking; they could not possibly read through the modules and begin working on their thoughts within a week. The pace was overwhelming, so they did what made them feel better – they avoided the program altogether. Others who were higher functioning found the pace too slow and were eager to get through the concepts faster. Some found the concepts too confusing and wanted more examples and videos to better highlight the material. And some ran into technical issues – they could not download the document and type directly onto them. We had designed the program with what we thought the patients needed without asking them what would work best for them. The result was an inflexible program that did not take individual needs into account. We went back to the drawing board to incorporate the useful feedback provided by our patients and 3 months later relaunched our second version, iCBT 2.0.

With iCBT 2.0, we streamlined the modules to a total of six modules (from eight). We included more examples and visuals to better highlight the material. We addressed the technical concerns by creating the homework sheets as Microsoft Word documents, with which patients

expressed more familiarity. However, the most important change we made was making the program more flexible and increasing interactions with the therapist. We worked collaboratively with our patients to determine timeframes that best worked with their schedules and presenting symptoms. For those whose symptoms were less distressing, we provided one or two modules per week, and for those who were struggling more with their symptoms, we gave them as much time as they needed to complete the modules. However, our therapists did check in weekly to let the patients know that they were available for support and to answer any questions regarding the modules. They also provided phone sessions when needed, to better explain the concepts and to troubleshoot. **Table 2** shows key differences between iCBT 1.0 and 2.0.

A.K. was enrolled in iCBT 2.0 and did well. It took her about 4 months to complete the program, meaning she needed a few weeks per module, and she requested five telephone sessions. However, working collaboratively with A.K. and allowing her the time she needed, resulted in the best outcome for her. When she completed the program, her symptoms of depression, anxiety, and stress had decreased; she had added a number of a number of pleasurable activities to her weekly schedule; she was socializing outside of the house.

iCBT allowed A.K. to receive a gold standard treatment for her symptoms – a patient who otherwise would have fallen through the cracks. Many patients like A.K. never receive the services they need or others who can decline to the point of needing a hospitalization while waiting to gain access to services. We had a program that, if scaled up, could serve more patients without sacrificing quality. But was our iCBT as effective as our in-person CBT? We allowed patients to choose between traditional (group) CBT and iCBT. We collected outcome measures using the short version of Depression, Anxiety, Stress Scale (DASS 21) and the Quality of Life Enjoyment and Satisfaction Questionnaire for all patients receiving CBT whether it was in person or Internet-delivered. This allowed us to make a direct comparison between the two. To date we have had 80 patients complete this program. Preliminary data shows that those who have completed iCBT show a significant reduction in their symptoms of depression, anxiety, and stress with comparable results to our in-person CBT. The dropout rate is even lower for iCBT at 33% than our drop-out rate of 40% for the in person (group) CBT.

iCBT allowed TSH patients to receive CBT with easier and quicker access, at a lower cost. We found a way to serve more patients with no additional resources and without sacrificing quality. For the record, A.K. has welcomed her first child to the world this year, and hopes to return to the workforce in the coming months.

	iCBT 1.0	**iCBT 2.0**
Focus	General CBT	Behavioral Activation, then CBT
Modules	8	6
Deadlines	Strict	Flexible
Contact	Email	Email + Phone Calls
Content	Powerpoint Slides	Powerpoint Slides + Videos

Table 2. iCBT 1.0 vs. 2.0.

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6. Limitations and strengths

Despite substantial research on iCBT in recent years, the limitations and strengths of this treatment modality remain relatively unchanged.

There are several notable limitations of iCBT. The first is the poor adherence. Several studies have looked at potential barriers to adherence. These barriers include lack of motivation, skepticism about iCBT, time constraints, and symptom improvement (reviewed in [59]). Several studies of primary-care-managed iCBT indicated that the lack of engagement may contribute to decreased adherence [26, 60, 61]. Further, depressive symptoms have been reported to interfere with patient engagement even among patients who felt favorably about the program [35], indicating that baseline disease severity can contribute to poor adherence. This hypothesis is supported by several studies showing an inverse association between adherence and baseline symptom severity or baseline psychological distress in patients with anxiety (reviewed in [62]). Oversight by a therapist, primary-care physician, or a trained staff member may be needed for some patients to adhere to iCBT. When patients regularly meet or speak with an individual or if their progress is being monitored regularly, they are more likely to continue to put effort into the program because someone is holding them accountable (reviewed in [60]). However, given the high heterogeneity of the results, it seems likely that the level of support required varies depending on the individual patient's needs and preferences.

The second limitation of iCBT is misdiagnosis or inappropriate treatments. In an ideal world, trained individuals would diagnose patients and refer them to the appropriate iCBT program. The reality is that patients often rely on self-assessment of their mental status and select a program they think might help them. Many programs mitigate this issue by including the same validated diagnostic surveys researchers used to measure symptoms. Inclusion of these surveys has proven highly effective (reviewed in [60]). Further, advances in tailored and transdiagnostic iCBT have created an a la carte treatment plan that can be used to address comorbidities and patient-specific issues that might not be included in disease-specific iCBT [24]. It seems likely that this limitation will prove overblown as more trials are conducted, but it cannot yet be ruled out as a concern.

The third limitation is accessibility. A 2015 Pew Research Center survey showed that Internet and smartphone use is on the rise; however, there are some significant disparities in access. In countries with advanced economies, such as Canada, 90% of adults report they use the Internet or own a smartphone. In countries with developing economies, such as those in sub-Saharan Africa, the percent of adults who use the Internet or own a smartphone falls into the teens. There are large age, education, and income gaps for Internet usage and smartphone ownership. Further, in many countries, men have more access to Internet than women [63]. All of these disadvantaged groups, many of whom are the target audience for iCBT, could potentially be underserved. There is also the issue of comfort using a computer. ICBT is less likely to be used by patients who are not comfortable with technology [64], which is why user-friendliness is critical for achieving effective, sustained responses [65].

The fourth limitation is the variable quality of iCBT programs available. There is almost no barrier to creating a website or an app, and the number of iCBT programs available make

it difficult to identify those that might be helpful. For example, a recent study attempted to characterize mobile phone apps for depression that were available on any app marketplace as of March 5, 2013. Apps were included if they used "depression" in the title or app description, targeted health consumers (i.e., patients, caregivers), and had an English language interface. Their search yielded 1054 apps; however, only 243 met the inclusion criteria. Of the 190 app developers, only 9.5% were medical centers, universities, or institutions; 29.5% were clearly labeled as coming from a commercial developer; and the rest did not provide any affiliation. Regarding content, only 29.6% of the 243 included apps reported an external or expert source as the basis of their app [17]. To the best of our knowledge, there has been no research on the potential harms of using a poor-quality iCBT program.

Despite the limitations, there are numerous strengths of iCBT programs. The first is the flexibility and privacy of iCBT, which can increase patient empowerment. The only thing a patient needs to get treatment is an Internet connection [14, 19]. Treatment is not confined to office hours, which means it can accommodate work schedules and personal responsibilities. It also lets patients have access to treatment as symptoms arise. Geography is not an issue with iCBT. In countries with iCBT, studies have shown that it can be remarkably successful in rural areas where access to mental healthcare is limited [55, 61, 66, 67]. For countries that lack programs specific to their population and culture, well-researched programs can be adapted for a fraction of the cost of making a new program and still yield substantial gains [68]. iCBT provides treatment options for patients who cannot access treatment due to physical, psychological, or mobility issues [10]. Regarding privacy, iCBT lets patients address their symptoms anonymously. This anonymity might help circumvent the social stigma associated with treatment and encourage patients who might not otherwise have sought treatment to get the help they need [19, 69].

The second benefit of iCBT is its increased efficiency. Even for cases of therapist-supported or tailored iCBT, which require clinician input, fewer resources are needed to treat an individual, and responses to patient concerns can be addressed whenever the therapist has time available [19]. One study comparing in-person CBT and iCBT showed that iCBT patients required only 7.5% of the time that in-person patients needed to achieve similar gains [70]. Further, much of the iCBT support can be performed by trained staff rather than a clinician [37, 71]. Many of the behaviors that therapists teach patients, such as task reinforcement, psychoeducation, and deadline flexibility [72], can be performed by trained staff rather than a clinician. Overall, iCBT has been shown to be more resource efficient even with clinician input, which would give more patients access overall.

The third strength of iCBT is its cost efficiency. Numerous studies have evaluated the costs of iCBT [16, 73]. It has been shown to be cost effective and reduce societal cost compared with waitlisted controls and in-person CBT [16, 36, 73]. As discussed above, it is relatively inexpensive to adapt an existing iCBT program [68], indicating that iCBT could potentially be implemented cost effectively.

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7. Conclusions and future directions

Increasingly, payers – governments, employers, private insurance companies – are considering new ways of offering CBT. At the same time, people are looking to the Internet for solutions for their mental health problems. Australia has invested in iCBT, as have private companies; iCBT websites and apps are more and more popular; MoodGym has more than 850,000 registered users.

While we applaud the interest in evidence-based care, we offer a word of caution: not all iCBT programs are created equal. Yes, the literature is now rich in research studies on iCBT for common illness – for mental health illnesses, and also for physical health problems. And while the growing if young literature does support the use of iCBT, effectiveness is clearly tied to patient engagement. Clearly, therapist-guided iCBT has better results than non-therapist-guided iCBT.

As the experimentation grows, we suggest two forces will transform iCBT – and therapy itself. First, with declining stigma and increased demand for care, iCBT will be considered more of an option, given its effectiveness, and its advantages over traditional CBT – that is, the convenience and accessibility of iCBT, coupled with its lower costs and privacy. Second, as technology advances, iCBT could well be improved, moving beyond visually-pleasing graphics and – empowered with AI – entering into a world where programs learn from and adapt to the patients that they serve, offering CBT concepts, perhaps delivered with machine-learned empathy.

With regard to the latter point, we note that several products have already been developed with AI. An Indian group developed a therapy chatbot called Wysa. This interactive program claims to learn signs of anger and distress from its patients, and then employs evidenced-based therapy techniques when appropriate. Wysa is simple – but it is available 24 hours a day, 7 days a week – already offering more flexibility than its human therapist rivals.

We are in the early days of AI and mental health. Over time, iCBT programs will grow more sophisticated. How therapy changes exactly, of course, is impossible to predict. This much is clear: the 1970s, Beck-style approach to CBT, with one therapist and one patient, is being replaced as therapy gets modernized.

Author details

David Gratzer[1,2]*, Faiza Khalid-Khan[3] and Shawnna Balasingham[1]

*Address all correspondence to: david.gratzer@camh.ca

1 Centre for Addiction and Mental Health, Toronto, Canada

2 University of Toronto, Toronto, Canada

3 Ontario Shores Centre for Mental Health Sciences, Whitby, Canada

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Chapter 12

Internet-Delivered Cognitive Behaviour Therapy

Derek Richards, Angel Enrique, Jorge Palacios and Daniel Duffy

Additional information is available at the end of the chapter

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Abstract

The delivery of cognitive behaviour therapy over the internet (iCBT) has developed in tandem with recent technological advancements. In this chapter, we briefly explore the background of iCBT and its ongoing evolution in the relatively short period that has been available. We summarise the empirical evidence that supports the efficacy and effectiveness of iCBT in different settings, and for different populations. We provide an overview on how an iCBT platform works for service users, and we offer some thoughts on the processes involved in repurposing an evidence-based treatment protocol into an online format. Using iCBT service, users can avail of the benefits of cognitive behaviour therapy in a flexible manner, with or without support. The case presentation provided an illustrative on some of these advantages and highlights opportunities for the individual. The service delivery examples describe the use of iCBT and its application in different contexts. Lastly, we discuss several areas of importance for the future research and practice of iCBT.

Keywords: internet-delivered cognitive behaviour therapy, psychological treatments, brief therapeutic interventions, depression and anxiety disorders

1. Introduction

In recent decades, technological developments have significantly changed people's lives. The pervasiveness of technology has impacted almost every aspect of living in the modern world. Countless examples are illustrative of this influence, including almost complete automation of many communication tasks through e-mail, instant messaging, etc. This technological revolution has impacted how we socialise, shop, bank, learn, travel, and live our lives. The changes that these developments have delivered have been massive and have not gone unnoticed by health care professionals.

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Cognitive behaviour therapy (CBT) is the most widely researched and established evidence-based treatment for psychological disorders [1]. In recent years, internet-delivered cognitive behaviour therapy (iCBT) interventions have become a method for the dissemination of evidence-based treatments for a broad range of psychological disorders including depression and anxiety. More recently, iCBT is being used to address the psychological distress associated with the management of long-term conditions in individuals with, for example, diabetes, coronary heart disease, and chronic pain.

The first complete cognitive behaviour therapy (CBT) treatment was delivered through the use of compact disc-read only memory (CD-ROM) that contained the full programme, such as Beating the Blues. As technology developed and the web evolved, such treatments were offered entirely online, thus heralding the dawn of internet-delivered interventions (e.g., MoodGym). The majority of internet-delivered interventions deliver cognitive behaviour therapy (CBT)-based treatments, as it is a structured and modular-based treatment that lends itself readily to being repurposed into an online format.

Internet-delivered treatments are named variously as online interventions, web-based interventions, e-therapy, e-health, and computerised cognitive behaviour therapy (cCBT) [2]. Some of the developments in the field have used brand names such as Interapy for PTSD [3], Deprexis for depression [4], and SilverCloud for depression, anxiety, and long-term conditions management [5]. Technology-delivered psychological interventions have a rich history, and it is still very much a developing field of study and clinical practice.

Results profit from many features and benefits of web development and design, where CBT protocols have been repurposed for use online. These features include the use of multimedia, open and unlimited access to the intervention, as well as delivering a secure platform, which protect the service users' confidentiality and data. Internet-delivered treatments place the pace and direction of the treatment in the hands of the service users and reduce the burden on therapists' time. The capacity to deliver evidence-based treatment protocols in this way could have enormous impact on healthcare provision into the future, some of which we have already seen today.

This chapter focuses on internet-delivered cognitive behaviour therapy (iCBT) interventions for depression and anxiety as a way of illustrating the field of internet interventions. It will describe their development, adoption, and implementation in various settings, including, for example, healthcare and employee assistance programmes. We begin by summarising the empirical evidence that supports the use of iCBT interventions for depression and anxiety disorders. After that, we will describe iCBT interventions function in practical terms. This description will illustrate using a case study example. Service delivery examples follow, which help demonstrate the flexible use of iCBT in various settings. The chapter will end by addressing future directions for both academic study and the practical implementation of iCBT.

2. Empirical support for internet-delivered cognitive behaviour therapy

Apart from some early research on computerised cognitive behaviour therapy [6, 7], efficacy trials began in earnest from the year 2000, and in recent years there has been a verifiable explosion

in the number of published reports that support iCBT for a broad range of psychological disorders. Most notably, clinical trials have established a sound empirical base for the treatment of the major depressive disorder and a range of anxiety disorders (social anxiety, panic disorder, and generalised anxiety disorder) and emerging evidence for others (severe health anxiety, specific phobias).

Given the high prevalence of depression and anxiety disorders and their global ubiquity, interest on iCBT has grown due to its potential to support the dissemination of evidence-based CBT. It is fair to say that internet-delivered cognitive behaviour therapy interventions find their historical roots in the treatment of depression and anxiety disorders. Several meta-analytic studies have now demonstrated the efficacy of iCBT for depression. The earliest of these studies included computerised and internet-delivered interventions, and consistently reported the same results that iCBT is effective as an intervention for the treatment of depression. Andersson and Cuijpers [8] examined a group of 12 studies and reported an overall post-treatment effect size of d = 0.41versus control groups. Their analysis showed that the effect size estimate was moderated significantly between supported (d = 0.61) and unsupported (d = 0.25) treatments. Another systematic review and meta-analysis conducted by Richards and Richardson [9], examined the efficacy of computer-based psychological interventions for depression and concluded that, while the outcomes of computer-assisted interventions for depression are generally positive, these results also vary depending on the type of support provided throughout the intervention. Specifically, therapist-supported studies demonstrated the highest effect size at post-treatment and follow-up (d = 0.78), followed by administrative-supported studies (d = 0.58); that is, the non-therapeutic support provided. Interventions that did not include a support component obtained the lowest estimated effect size (d = 0.36). The results support the inclusion of any form of support, either a professional therapist, or a trained para-professional, or indeed a trained peer volunteer, or technician, as beneficial for optimising the efficacy of iCBT interventions [5, 10, 11]. Also, a recent individual service user data meta-analysis has shown that adherence to treatment predicts better outcomes [12].

The ability of internet-delivered interventions to maintain clinical gains at follow-up can contribute significantly towards their acceptability, adoption, and implementation in clinical practice. Many trials incorporated follow-up to 6- or 12-months post-treatment [13–15], demonstrating that iCBT has the potential to achieve and maintain significant clinical gains for service users. A smaller number have shown lasting impacts up to 3-years post-treatment [16, 17]. In one non-inferiority controlled trial of iCBT for depression that included a face-to-face control group, 3-year follow-up data demonstrated sustained improvements for both groups, with no significant differences between them [16].

Achieving outcomes that are similar to what has been offered in face-to-face treatments for depression only strengthens the validity of iCBT interventions for depression. A small number of trials have attempted this comparison, and in a review of this work, the authors [18] concluded that any differences were non-significant. In fact, they report that the effect size (g = 0.12) favoured the supported iCBT over the face-to-face interventions. What is not clear and requires further attention is whether the mechanisms of change that facilitate the success of face-to-face interventions are equally relevant in iCBT interventions [19].

The science in this area is rapidly expanding with trials conducted in countries including Ireland [5], Switzerland [14], Germany [20], Australia [21], England [11], Canada [22], and the USA [23]. Besides, while most of the work has been with adults, there is some work with adolescents [24]. Recent avenues for research in iCBT for depression have included the cultural adaptation of interventions [25] and tailoring interventions to more appropriately meet the needs of individual users [26].

A similar picture of clinical efficacy for the anxiety disorders is established with trials for panic disorder, social anxiety disorder (SAD), generalised anxiety disorder, specific phobias, and severe health anxiety. The most recent review contributing to our understanding of the efficacy of iCBT for anxiety disorders is a Cochrane review on therapist-supported iCBT for anxiety disorders that included 30 studies [27].

The review [27] consisted of eight trials for panic disorder with or without agoraphobia and showed significant post-treatment and follow-up effects for iCBT for panic compared to waiting list controls. Some of these trials included a direct comparison with face-to-face treatment and demonstrated comparable outcomes. The evidence for panic disorder treatment delivered online is therefore good, although the diversity of trials and interventions is limited. Eleven trials of iCBT for social anxiety disorder (SAD) treatment were included in the review. Several different groups have researched treatment protocols for SAD and demonstrated large post-treatment and follow-up results, with effects being maintained up to 5-years [28]. What is also interesting is the comparison of iCBT for SAD with face-to-face treatment, and similar to panic disorder there is some good evidence to show similar outcomes [29].

Due to strict eligibility criteria, the Cochrane review included only a small proportion (four studies) of the available literature on generalised anxiety disorder (GAD). Another recent systematic review and meta-analysis of internet-delivered interventions for GAD considered a total of 17 studies and included 11 in a meta-analysis, where the treatment intervention delivered in 9 of the 11 studies was cognitive behaviour therapy [30]. Three of these studies are disorder specific, with interventions that directly addressed GAD [31–33]. The remaining six studies were transdiagnostic, treating either multiple anxiety disorders [34–36] or anxiety disorders and depression [21, 37]. The review concluded that across the studies there were significant improvements for internet-delivered interventions for GAD compared to waiting list controls.

Preliminary research has emerged that supports the use of iCBT in the treatment of severe health anxiety and specific phobias, but more studies are needed to establish this method in treating these disorders [38–41].

3. How does internet-delivered cognitive behaviour therapy function?

Throughout this chapter, we use the generic term ‘service user’ to include patients, clients, or other types of users of iCBT in different settings. Likewise, we use ‘supporter’ as a category to include clinicians, para-professionals, healthcare workers, nurse practitioners, peer mentors, technicians, and volunteers who may be providing support to service users of iCBT interventions in different settings.

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Service users can avail internet-delivered CBT in several ways, the two most common methods being through self-sign-up or via an invitation from a supporter. Self sign-up to iCBT occurs where the service user acquires access automatically through a website of a particular provider organisation (e.g., healthcare, employer, and educational) without the need for a formal triage or assessment. One example of this would be an employee having access to an internet-delivered stress management intervention as part of his/her employee assistance intranet. In contrast, an invitation from a supporter can be generated from the platform to a service user. In some cases, supporter sign-up involves an initial assessment of psychopathology and suitability for an iCBT intervention (e.g., in a mental health service setting or a university counselling clinic setting). For the purpose what follows, the treatment pathway within a mental health service organisation will be used to illustrate how iCBT functions.

Post clinical assessment, a service user can be identified as suitable and be requiring an iCBT intervention. They provide their e-mail address to their supporter (clinician in this setting), who then invites them through their supporter account on the platform to use the intervention. An e-mail is posted to the service user that provides them with some preliminary information about the platform and a definite URL/web link that directs them to the sign-up process. The service user will then be prompted to create a unique username and password. As with all online utilities associated with potentially sensitive information, users should be required to create a password that is composed of upper and lowercase letters, numbers and special characters. Once the service user has completed the necessary sign-up steps, they will gain access to their intervention.

In a supported mode of treatment, service users are expected to log-in to their account several times throughout the prescribed course. The supporter is supposed to review the service users' progress at regular, pre-determined intervals. These core expectations should be presented to the service user from the outset, along with other goals that may be of importance to the service providing the iCBT intervention. Support to iCBT is provided in one of two modalities:

Synchronously: where both the service user and supporter are online at the same time, and the review is conducted over video conferencing or live chat.

Asynchronously: where the service user and supporter are online at different times to engage with the programme content and providing a review, respectively. This type of contact takes the form of either e-mail or post-session review on the iCBT platform.

As with all psychological treatments, service user reported outcomes are an important aspect of iCBT. Incorporating an assessment protocol for treatment can provide a supporter with further insight into the progress of the service user. For example, a series of measures on depression, anxiety, or other related constructs could be applied at baseline, at the intervals corresponding to the date of review set by the supporter and subsequent discharge. Administering the measures through an iCBT platform would allow supporters to gauge the improvement (or deterioration) of the service user over the course of their use of the intervention, where the information is presented in an easy-to-interpret manner. Assessments conducted in this way facilitate the assessment of risk during the intervention and automated alerts can be established to inform supporters to take appropriate action.

In general, an iCBT intervention will consist of modules that reflect the active ingredients of a CBT protocol, such as behavioural activation, cognitive restructuring, problem-solving, and self-monitoring for instance. Usually, the modules are designed to be administered on a weekly basis. These modules can be presented in either a prescriptive or non-prescriptive fashion. A prescriptive intervention will require service users to go through modules in a specific order, where certain items unlock depending on the service user's progress, while a non-prescriptive intervention will allow the service user to access the modules in any order they choose. The core skills and strategies of a CBT intervention will also be incorporated through the various interactive activities that help the service user learn new concepts and skills and apply their new learning. For example, service users should be able to know about the relationship between their thoughts, feelings, and behaviours, and later apply this through an interactive activity that helps them to create their own thought-feeling-behaviour cycles. Furthermore, the pedagogy of iCBT typically includes personal stories or clinically informed vignettes of fictitious service users. These are presented with a specific symptomatology, or they may also illustrate how to apply specific CBT skills as a way of providing examples that facilitate the integration of the content. Users can return to prior modules and review specific content if they feel the need to do so. Once the user finishes with the intervention, they are assessed to determine whether the intervention has been effective or if they require further assistance.

3.1. The process of developing an iCBT programme

Before deployment to service users, an iCBT intervention will go through several rounds of research, development, and testing by an interdisciplinary group of psychologists, software developers, and user experience (UX) designers.

Psychologists:

These individuals are involved in the researching and writing of the psychoeducational/interventional content on the iCBT platform, where the content requires validation and they may lead to research trials to establish the efficacy of the intervention.

User experience (UX) designers:

When designing an iCBT platform, a critical component is the user experience and acceptability, where the display of content is unappealing, or a therapeutic tool is poorly designed, the service user will not interact with it. UX designers work to create a user-friendly and appealing experience for any service user.

Software developers:

This group takes what psychologists and UX designers create, and implement it online. Another side to this role is coding the entire platform, as well as ensuring that everything is working as intended, such as any data collection measures and the functionality of tools.

Initially, a review of the literature is conducted on the treatment protocols for the disorder the iCBT intervention intends to target. From this, a content map is developed; this document details the structure of the iCBT programme, the content of the modules, as well as the therapeutic goals and intended user objectives for service users. The preliminary content map is circulated to subject matter experts in the field for further feedback and critique. With the final

draft of the content map, a beta version of the intervention is designed online, which is then administered to users for acceptability and usability testing. This will provide an insight into the needs and experiences of the target populations. Once all feedback has been gathered and applied, the intervention can then be implemented into service provider settings and research can be conducted to establish its efficacy and effectiveness.

Key points in developing an iCBT intervention:

1. Include evidence-based and empirically supported content.
2. Incorporate subject matter experts' (SMEs) clinical expertise.
3. Deliver the intervention on robust, engaging, secure, and responsive technologies.
4. Be service user-centric and involve users in the development and testing.
5. Undergo research and evaluation to support its efficacy and effectiveness.
6. Deliver effective clinical outcomes for service users [42].

4. Case presentation

Karen is a 35-year-old divorcee with two children in shared custody with her ex-husband. She has a degree in chemistry, and she works in a ceramic company as a full-time laboratory assistant. She lives in a small village with her two children.

Two years ago, Karen suffered a sudden panic attack for the first time when she was in a shopping centre with a friend. She went to the emergency room because she thought she was about to suffer a heart attack. The doctor told her that it was anxiety and that her heart was fine, so she was prescribed anxiolytics by the doctor on duty. Medication resulted in a reduction of her symptoms, and she got better quite quickly. However, she developed a fear of suffering more panic attacks, so she started to avoid specific activities such as taking public transport or attending school meetings, as she was worried about the possibility of suffering high levels of anxiety and not being able to escape from those situations without other people noticing. Over time, she started to develop higher levels of awareness of interoceptive symptoms, and Karen started noticing the beats of her heart while she was in bed, along with other ordinary signs that she believed were dangerous, so she decided to avoid other activities, such as drinking coffee and working out.

Despite the burden of these limitations, Karen continued with her routine, and it was not until 1 year later, when she suffered another panic attack while attending a family event, that she decided to take matters into her own hands. She went again to the emergency room, and she was given medication and seen by the psychiatrist on duty. It was explained to her that she most likely had an anxiety disorder and that she needed to receive psychological therapy. Therefore, she made an appointment with her GP, who after a brief assessment, decided to refer her to specialised care. Karen was then enrolled on a waiting list which took 1 month for the first screening with the psychologist, given that it was not a severe condition. However, during that month,

the panic attacks became more frequent and intense. Innocuous situations such as watching TV or washing the dishes could trigger an attack, and they even occurred in the middle of the night. After being screened by the psychologist, Karen was diagnosed with Panic Disorder and Agoraphobia, meeting all the criteria of the DSM-V, and she also obtained a clinically significant score on the Panic Disorder Severity Scale. She made an appointment for further face-to-face therapy; however, factors such as the distance to the service, the difficulty to fit her work schedule with the schedule of the service, and not least the care of her children, prevented her from attending regularly. Given this situation, the psychologist offered her the possibility of being enrolled in a supported iCBT programme that had proven to be effective for this disorder. Karen always enjoyed independent learning, therefore, she felt more enthusiastic about the online treatment. Furthermore, the possibility of accessing the programme at any time and in any location, allowed her to juggle taking care of her children, her work and receiving psychological treatment.

In the morning, she received an e-mail to create an account on the platform, and once she logged in, she received a message from her supporter. The treatment comprised eight modules that she could complete on a weekly basis and the supporter would give her feedback on her progress at the end of every week. In treatment, she benefitted a lot from knowing the rationale of the panic attacks and knowing the anxiety curve, since she learned through this that anxiety was not dangerous. Moreover, the personal stories included in the programme made her feel that she was not alone and she identified with the stories. Every week she was encouraged to do homework tasks, and she shared the activities with her supporter, who acknowledged her progress and encouraged her to keep going.

She found the CBT techniques very useful and practiced these when she began to negatively interpret her physical sensations, allowing her to address these negative thoughts, and to reduce her worrying. She practiced these techniques for some weeks, and she reviewed the content to ensure she was applying them correctly. For Karen, the most beneficial part of the iCBT intervention was the exposure component. She was able to identify which physical feelings produced her fear and she rated them by intensity. She developed a graded exposure hierarchy and started practicing these exercises each day. She was very pleased with herself, when, after a few weeks of treatment she looked at the mood chart and realised that her symptoms had decreased and that she was feeling much better. Once she finished the modules, she made an appointment with the psychologist for the post-treatment assessment, at which point Karen's symptoms had reduced to asymptomatic ranges. Karen was delighted that she had succeeded in facing her anxieties.

5. Service delivery examples

The following examples serve to illustrate the flexibility and adaptability of iCBT in various settings. The examples also show some real-world benefits of this mode of delivering interventions.

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5.1. Workplace interventions using iCBT

Within a workplace environment, it is known that depression and anxiety are detrimental not only to individual's wellbeing and quality of life but also to employers and companies, through accumulated absenteeism (absence from work due to illness) and presenteeism (lost productivity while attending work when sick).

iCBT has already been tested in the workplace environment and produced positive results for some outcome measures, including distress, anxiety, sleep, and productivity. Employees can be made aware of the tools available to them for stress, depression, and anxiety related to their work. However, within the employee space, it can be difficult to access face-to-face counselling and therapy due to stigma, fears about confidentiality, and potential judgement from peers. Using an internet-delivered intervention helps to overcome some of the barriers for seeking and accessing treatments.

Employees can, for instance, access a unique webpage where they may complete some screening measures to establish levels of symptoms and after that directed to appropriate content. As individuals progress through the intervention, clinical staff provides support and feedback through the online reviews. Measures of symptomology and productivity can be collected to assess the overall effect.

iCBT in the workplace enjoys the same advantages as in other services including increased access, for example, in companies with several locations wherein the support could come from a central location. Anonymity when accessing the program tackles the barrier associated with stigma, and constant availability allows the worker to access the program at suitable times. Lastly, service users can also return to the information and content for months after the intervention ends.

5.2. ICBT in IAPT services

The UK National Health Service (NHS) Improving Access to Psychological Therapies (IAPT) programme is a five-step approach aimed to facilitate access to psychological care for individuals with depression and anxiety disorders. It endeavours to alleviate the burden and reduce the costs associated with these conditions. Specifically, IAPT follows an escalated treatment pathway depending on the severity of service users. Step 1 includes watchful waiting by general practitioners; step 2 offers low-intensity interventions (i.e., iCBT, bibliotherapy) for service users with mild to moderate conditions; step 3 includes high-intensity treatment (i.e., face-to-face); step 4 offers specialist mental health care; and step 5 provides in-patient procedures.

As mentioned, iCBT recommended as a low-intensity intervention for service users with mild to moderate symptoms (step 2). These interventions are aimed to provide evidence-based treatments that reduce therapist time [43]. They are supported by Psychological Wellbeing Practitioners, who are graduate psychologists with training in delivering low-intensity interventions, and support is offered through electronic communication means or by telephone. However, at step 3, some IAPT providers may struggle with waiting lists, given the high levels

of demand and the lack of trained clinicians. Therefore, iCBT is considered as a supportive tool implemented as a prequel to high-intensity therapy at step 3, for individuals with depression and anxiety disorders. In this particular case, a therapeutic package is offered to those eligible for step 3 that includes iCBT before commencing face-to-face or group treatment. Individuals using iCBT are informed that they can withdraw from the treatment at any point and still avail of other services. Service users are monitored weekly, and any deterioration in their symptoms is attended to. If an appointment for face-to-face therapy becomes available, they are then offered to begin this high-intensity treatment.

Service users are given immediate access to the platform so that they can start their treatment while being supported by their clinician. Each week throughout the intervention, service users complete a minimum data set, as per the national requirements regarding IAPT services, which includes the care provided to each service user and his/her clinical progress. The clinician reviews these assessments and the progress of the service user on a weekly basis. In this sense, the clinicians are not only expected to review the progress of the service users, but also to keep service users adhered to the intervention by acknowledging the efforts that the service users are taking, and by encouraging them to logon to the platform and practice the exercises. Once the service user finishes with the interventions, they can follow some potential trajectories in the treatment pathway. Firstly, the service user may recover and therefore get discharged from the service. Secondly, the service user might continue needing high-intensity therapy and consequently, would take up face-to-face or group therapy. Finally, it may be the case that the service user would prefer to continue with other low-intensity treatments (i.e., bibliotherapy). In sum, iCBT at stage 3 is expected to reduce the burden of the waiting lists by providing a treatment at the time the service users are waiting to start with the high-intensity therapy.

5.3. Primary care using iCBT in US health systems

In the US, healthcare systems are service bodies that provide physical and mental healthcare to large populations with diverse and changing needs of some primary, secondary and tertiary settings. They are also known as accountable care organisations (ACOs), which consists of one or several care providers uniting to provide mapped-out models of care under a predefined and limited budget.

Healthcare commission solutions are innovative, cost-effective, and evidence-based with proven clinical outcomes. Where users of healthcare services enter a treatment pathway principally through primary care, iCBT can be an efficient first step for those that present with mild to moderate mental health difficulties. Service users frequently present with depression and anxiety to primary care clinics, and physicians generally refer service users to face-to-face treatment services, which often have long waiting lists. Deploying an iCBT intervention into primary care can address these difficulties without the need for a referral to higher intensity face-to-face services, allowing for a form of treatment which is more efficient in its use of resources.

In considering the successful implementation of an iCBT intervention in primary care, the service user pathway is important. When service users present for routine assessment, they can be administered either the 9 or 4 item version of the Patient Health Questionnaire to assess symptom severity. If the service user is within a clinical range of symptoms, they can

be signed up for the iCBT intervention in a supported or unsupported modality. Primary Care Physicians (PCP) could create a referral in the patient management system and this could be managed by care advocates in the system, to onboard the service user to the iCBT platform. The platform content can be explored independently by the service user on either a smartphone or computer and their progress can be reviewed at pre-determined intervals set by the healthcare provider. Where technology allows, service user risk is routinely monitored, and alerts can be generated when a specific risk is flagged, which can then be escalated appropriately within service frameworks.

5.4. Blended delivery using of iCBT

In many US and UK behavioural health services, CBT is the treatment of choice and is typically delivered face-to-face for a period of between 12 and 16 sessions, depending on the presenting problem. Many of these health services face the continuous challenge of meeting the demands with a lack of trained resources to see people face-to-face. Recently, such services are investigating the utility of incorporating iCBT in innovative ways. In some cases, an implementation is a blended approach, where services now deliver a model of care that includes both face-to-face and internet-delivered CBT. This can be achieved in many different formats, for instance where service users are assessed and after that complete their first face-to-face session with their CBT therapist. After that, the service user has access to the iCBT platform where they are encouraged to access the intervention in the time between the sessions. In this model, the sessions are spaced at intervals of every two or even 3 weeks. The intention is that the service user receives both face-to-face support, but also has access to content and tools between sessions that enable and support their trajectory through their therapy.

This model of implementing a blended service has the advantage of increasing throughput of service users, embracing the benefits of early intervention to treatment, and preventing drop-out from long waiting lists. In these ways, successfully implementing a blended care model could have significant implications for service development and delivery.

6. Future directions

The efficacy of iCBT in addressing the symptoms of depression and anxiety disorders has been presented. However, more effectiveness studies conducted in various settings are needed to examine the potential barriers and find appropriate solutions for successfully implementing iCBT. It would seem reasonable to understand that achieving solutions for implementation will be critical to support large-scale adoption of iCBT in practice.

Another issue which merits further study is the effect of mechanisms of change, that is, the underlying factors that aid the efficacy of the interventions. Understanding these mechanisms further will allow for the adaptation of the content to the specific needs of each service user, improving the provision of these treatments in a more efficient way (determining precisely what works and for whom). Indeed, to date, little has been achieved in understanding the relative contribution of mechanisms of change to specific outcomes in iCBT [19]. Further, studies with

large sample sizes or individual data meta-analyses are needed to be able to detect any effects of different variables, such as sociodemographic factors or personality traits (i.e., neuroticism).

Lastly, different modes of implementation of iCBT interventions need also to be explored further. Recent reviews suggest that mobile interventions are also a feasible tool for delivering interventions as a standalone treatment or as an adjunct to face-to-face therapy [44]. Furthermore, innovative devices, such as apps or wearables, could facilitate the inclusion of ecological momentary assessments that allow a more accurate data collection. Hence, more research is needed to explore possibilities for integrating these devices with iCBT. The potential for blended treatments, in which internet interventions act as a supportive tool for the face-to-face therapy, should not go unnoticed. However, this field still needs more research to explore the best ways to integrate both forms of treatment [45].

7. Conclusions

To conclude, iCBT is an evidence-based intervention that can address the symptoms of depression and anxiety disorders. Technological advancements have allowed for the development of robust platforms and interactive content. Research has focused on the efficacy and effectiveness of these, and outcomes have been positive and encouraging. The intervention has cemented itself as a valid alternative to face-to-face or group therapy in a wide range of settings. In contexts such as primary care where, apart from pharmacological treatments, no specific psychological therapy may be offered, it can create simple service user pathways that allow for the treatment of depression and anxiety presentations. In psychological services, it can be administered to service users on waiting lists to manage their symptoms while they wait for face-to-face therapy to become available. As part of employee assistance programmes, iCBT can play a role is reaching workers and equipping them with skills that they can use to manage stressful live events. While future research should attempt to focus on the role of the supporter in the iCBT process, the science of implementing iCBT, alternative methods of delivery (applications, wearables), and mechanisms of change, the scope of the literature to date, summarised in this chapter, shows the undeniable advantages of iCBT. Its use will only increase as further research in this young field truly taps into the potential of iCBT to improve the management and quality of life of service users along the way.

Author details

Derek Richards[1,2]*, Angel Enrique[1,2], Jorge Palacios[1,2] and Daniel Duffy[1,2]

*Address all correspondence to: derek.richards@tcd.ie

1 E-mental Health Research Group, School of Psychology, University of Dublin, Trinity College, Dublin, Ireland

2 Clinical Research and Innovation, Silver Cloud Health, Dublin, Ireland

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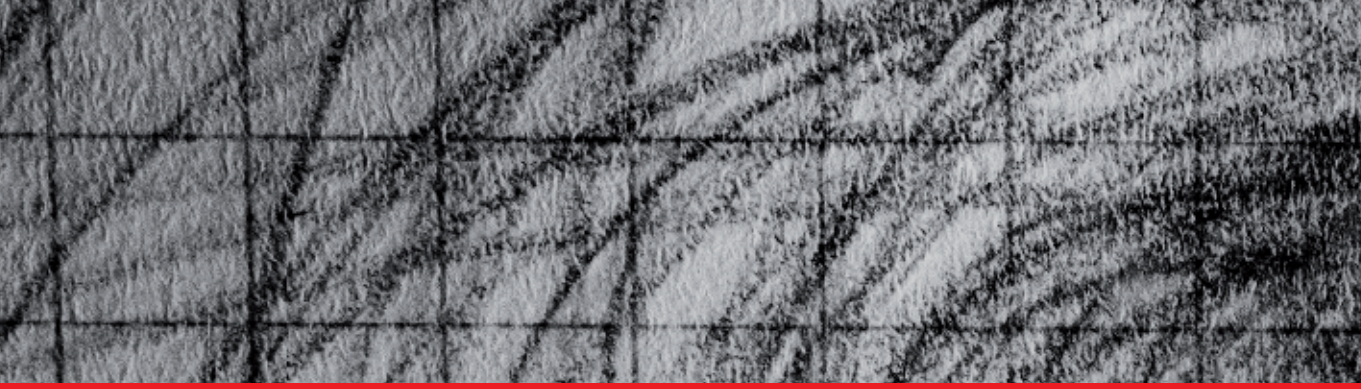

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The main purpose of this book is to be useful in daily practice to clinicians, including less-discussed subjects that are frequently encountered in practice. For this, it was aimed to explain the formulation of the disorder in light of the basic CBT model in each chapter and then to present the treatment approach of the disorder with case examples. We believe that the case examples, which came from the authors' own practices, are the strength of the book.

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