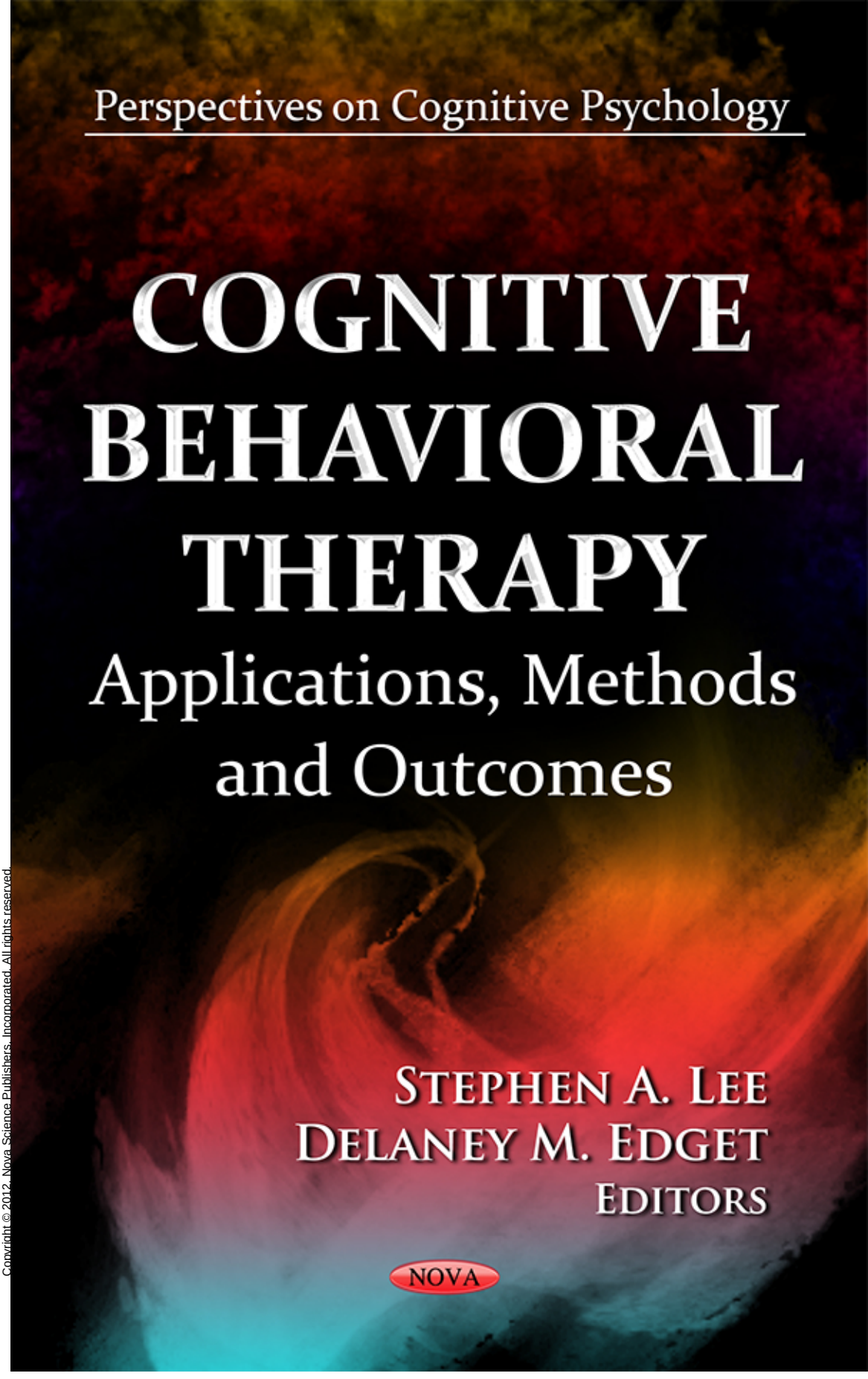

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PERSPECTIVES ON COGNITIVE PSYCHOLOGY

COGNITIVE BEHAVIORAL THERAPY

APPLICATIONS, METHODS AND OUTCOMES

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CONTENTS

PREFACE

Cognitive behavioral therapy (CBT) is a psychotherapeutic approach to solving problems concerning dysfunctional emotions, behaviors and cognitions through a goal-oriented, systematic procedure. It derives from theories of learning and memory. In this book, the study of the application, methods and outcomes of CBT are discussed. Topics include the school-based, cognitive-behavioral interventions of anxiety disorders, depression and obesity; cognitive processes in animals; CBT treatment of post traumatic stress disorder (PTSD) and CBT in ego-dystonicity and eating disorders.

Chapter 1 - Children and youth between the ages of 5 and 18 spend a significant amount of time in school, making schools a unique and potentially ideal setting for mental health promotion and early intervention efforts. Schools are a critical context for promoting child and youth social emotional development and wellbeing, as 75% of American children and adolescents provided with mental health services received these services in the school environment. There is a definite need for school-based supports, as current estimates indicate that one in five children and adolescents have a mental health disorder. Results from current research studies indicate that anxiety, depression, and obesity are prevalent in school-aged children and are associated with numerous psychosocial difficulties. This chapter reviews the use of school-based, cognitive-behavioral interventions, with a particular focus on the prevention and early intervention of anxiety disorders, depression, and obesity. Limitations of school-based interventions are outlined in the chapter and information is provided on maximizing the effectiveness of cognitive-behavioral interventions delivered in schools.

Chapter 2 - Behavioral therapy, including its extended form known as cognitive behavioral therapy, derives from theories of learning and memory.

Learning is the process by which new information is acquired; whereas memory is the process by which that knowledge is retained. Our understanding of these mechanisms has been greatly improved by the development of tools and tests to assess learning and memory in animals. Indeed, some of the experiments that helped shaping modern behavioral therapy were conducted almost 50 years ago in animal models and were the basis of the classical (or Pavlovian) and the contextual conditioning models of learning. Since then, the development and refinement of learning and memory tests and tools has greatly influenced our current understanding of the neurobiological basis of these complex processes. In this chapter the authors will review the various mechanisms that are thought to play a role in the neurobiology of learning and memory. Furthermore, they will also present an overview of the behavioral tests and tools that are commonly used to study these cognitive processes in animals. In particular, they will describe some of the protocols available to test conditioning learning as well as the several types of mazes and tools commonly used to study spatial learning and memory in rodents, discussing the advantages and disadvantages of each one of them. The authors believe that the use of these tests will continue improving our understanding of the mechanisms of learning and memory, ultimately contributing to the development of better strategies of behavioral and cognitive therapy.

Chapter 3 - This chapter consists of three parts. First the concept of Fantastic Reality is discussed, then the authors will introduce a new protocol for the treatment of psychotrauma using combined methods and emphasizing the centrality of imagination and last, they will discuss its uniqueness and distinction in comparison to the current cognitive behavior therapy (CBT) treatments of post traumatic stress disorder (PTSD).

Chapter 4 - The present chapter reviews empirical findings on the relationship between ego-dystonicity and eating disorders [EDs; anorexia nervosa (AN) and bulimia nervosa (BN)], and on the efficacy of current cognitive therapy for EDs. The chapter introduces a new cognitive therapy model that supplements current psychological thinking about cognitive domains shared by individuals with obsessive-compulsive disorder (OCD) and EDs. EDs affect 1-3% of the population. The *National Association of Anorexia Nervosa and Associated Disorders* reports that these pervasive disorders have the highest mortality rate of any group of mental illnesses. Resistance to cognitive-behavioral therapy in individuals with EDs is very common; nearly 50% of clients abandon or refuse treatment. Treatment resistance may result from a strong ego-syntonicity in AN and BN obsessions. Ego-syntonic obsessions are consistent with individuals' self-image and goals; in contrast,

ego-dystonic obsessions are characterized by behaviors, thoughts, or feelings that are personally unacceptable or incongruent with individual values. The presence of ego-syntonic obsessions in individuals with OCD has been associated with treatment resistance and non-adherence, treatment refusal, poor motivation and poor insight. Nevertheless, little is known about the relationship between ego-dystonicity and EDs. The relationship between these variables is particularly relevant because of the recognized overlap between OCD and EDs in phenomenology, epidemiology, comorbidity, and psychological characteristics.

Chapter 5 - Anxiety disorders are one of the most common forms of psychopathology in youth, with a prevalence ranging from 5% to 25% worldwide. Literature has usually investigated anxiety disorder according to developmental trends, issues for treatment and etiological aspects. Nevertheless, in the large amount of studies, there is a gap in identifying how the different subtypes of anxiety interact. In a large community sample of Italian children aged eight to ten years old, the aim of this study was to empirically validate a developmental-diagnostic model of anxiety disorders through a structural equation model (SEM) approach. Antecedents and moderators of anxiety disorders have been identified. Participants completed the Separation Anxiety Symptom Inventory for Children (SASI-C), the Separation Anxiety Assessment Scale (SAAS-C), the Fear Survey Schedule for Children Revised-Italian Version (FSSC-IT), the Spence Children Anxiety Scale (SCAS) and the Strengths and Difficulties Questionnaire (SDQ). The model of path analysis reported showed a good fit on data highlighting implication for the use of these measures as a screening battery for anxiety disorder in childhood.

Chapter 6 - Cognitive Behavioral Therapy (CBT) is a commonly used therapy among persons with major depressive disorder (MDD) and also among those with alcohol use disorders (AUD). However, less is known regarding the efficacy of CBT for treating persons with co-occurring disorders involving both MDD and an AUD. Studies assessing the efficacy of CBT in adolescent populations with co-occurring disorders are particularly sparse, especially studies designed to assess the potential longer-term efficacy of an acute phase trial of CBT therapy in that youthful comorbid population. We recently conducted a first acute phase treatment study involving comorbid AUD/MDD adolescents, which involved the medication fluoxetine as well as manualized CBT therapy. The results of that acute phase study suggested efficacy for CBT therapy but not for fluoxetine for treating the depressive symptoms and the excessive alcohol use of study subjects. The current chapter provides an

assessment of the long-term efficacy of CBT for treating comorbid AUD/MDD adolescents, based on results from our own long-term (four-year) follow-up study, which was conducted following the completion of our recent acute phase treatment study. The results of the study suggest long-term efficacy for acute phase CBT/MET therapy for treating both the depressive symptoms and the excessive alcohol use of comorbid AUD/MDD adolescents, but demonstrate no evidence of long-term efficacy for fluoxetine for treating either the depressive symptoms or the excessive alcohol use of that population.

Chapter 7 - The application of the cognitive-behavioral model to the management of depression and anxiety symptoms in Vietnamese clients is based on the understanding that these symptoms are complex experiences that are not only influenced by biological underpinnings, but also by an individual's thoughts, emotions, and behaviors. The goals of this chapter are fourfold: (1) to provide an overview of common characteristics of traditional Vietnamese culture, (2) to describe the historical background and conceptual underpinnings of cognitive-behavioral interventions (CBT) and how they are compatible with Vietnamese culture, (3) to discuss key components of CBT for depression and anxiety, and (4) to provide a case study to illustrate how these components can be used with Vietnamese clients suffering from depression and anxiety symptoms.

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Chapter 1

SPECIAL APPLICATIONS: A REVIEW OF COGNITIVE BEHAVIORAL MENTAL HEALTH INTERVENTIONS FOR CHILDREN IN CLINICAL AND SCHOOL-BASED SETTINGS

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ABSTRACT

Children and youth between the ages of 5 and 18 spend a significant amount of time in school, making schools a unique and potentially ideal setting for mental health promotion and early intervention efforts. Schools are a critical context for promoting child and youth social emotional development and wellbeing (Stewart, Sun, Patterson, Lemerle, & Hardie, 2004), as 75% of American children and adolescents provided with mental health services received these services in the school environment (Burns et al., 1995). There is a definite need for school-based supports, as current estimates indicate that one in five children and adolescents have a mental health disorder (Merikangas et al., 2010a).

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Results from current research studies indicate that anxiety, depression, and obesity are prevalent in school-aged children and are associated with numerous psychosocial difficulties (Birmaher et al., 1996; Costello, Egger, & Angold, 2004; Strauss & Pollack, 2003). This chapter reviews the use of school-based, cognitive-behavioral interventions, with a particular focus on the prevention and early intervention of anxiety disorders, depression, and obesity. Limitations of school-based interventions are outlined in the chapter and information is provided on maximizing the effectiveness of cognitive-behavioral interventions delivered in schools.

INTRODUCTION

The school environment is a place of academic teaching and learning. Students are responsible for mastering basic academic subjects with the goal of obtaining skills for future employment. For many children and youth, however, their academic experience is hindered by the development of a mental disorder. Recent studies indicate that one in every four to five children experience a mental disorder serious enough to have an impact on his or her development (Brauner & Stephens, 2006; Costello, Egger, & Angold, 2005; Merikangas et al., 2010a). The burden of suffering of children with mental health concerns is significant. In the United States, children's (ages 1-19) emotional and behavioral problems and associated impairments are most likely to lower their quality life and reduce their life chances. Yet, in any given year, it is estimated that about only one in five such children will receive specialty mental health services. Unmet need for services remains high.

Children with mental disorders are at a much greater risk for dropping out of school and of not being fully functional members of society in adulthood. Furthermore, child mental disorders persist into adulthood, with 74% of 21 year olds with mental disorders demonstrating earlier problems. The cost to society is high in both human and fiscal terms (Report of the Surgeon General's Conference, 2001). The research community, the policy sector, the media, and families themselves report complicating effects of life, distress, and hardship. If not prevented or treated in the early years, children’s mental disorders have costly consequences, including lost potential, school drop out and unemployment. Prevention efforts, also called mental health promotion, reduce rates of mental disorders, and are increasingly becoming a focus in young people’s welfare.

Mental health promotion focuses on increasing protective factors and decreasing risk factors in the general student population (National Center for Mental Health Promotion and Youth Violence Prevention, 2010). Although typically concerned with academic training, schools are uniquely positioned to promote mental health. One effective way to promote mental wellbeing is to teach skills of self-regulation and emotion management, broadly called Social Emotional Learning (SEL). A growing body of research demonstrates that social and emotional competencies can be taught effectively in the classroom, and that SEL school-based programs lead to significant increases in students' academic achievement. A recent meta-analysis of studies reporting on 213 school-based, universal SEL programs found that, compared to controls, SEL participants demonstrated significantly improved social and emotional skills, attitudes, behavior, and academic performance (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011).

SEL programs in school settings very often contain complimentary features of cognitive behavioral interventions. In schools, both SEL and CBT approaches use manuals; suggest a linear, developmentally appropriate approach; rely on solid teaching principles (i.e., psychoeducation); offer opportunities for peer modeling, role-playing and repeated practice; are taught in universal (or entire) classrooms of youth; and have a trained leader supporting the program (e.g., teacher, counselor, psychologist). SEL programs cover a wide variety of targeted childhood problems, from bullying to social skills acquisition to substance use prevention. We will now review specific mental health concerns that may be a direct focus of SEL programs that also include teaching skills of CBT.

COMMON DISORDERS

In a recent study by Merikangas and colleagues, anxiety disorders were found to be the most common mental health concern experienced by adolescents, followed by behavioral disturbances and mood disorders (Merikangas et al., 2010b). Further, the median age of onset is 6 years for anxiety disorders, 11 years for behavioral disturbances, and 13 years for mood disorders (Merikangas et al., 2010a), indicating that many affected children and youth spend much of their academic experience struggling with one or more of these mental disorders.

An anxiety disorder is diagnosed when an individual's level of anxiety or fear toward a situation or object exceeds what is developmentally appropriate

or socially acceptable (*DSM-IV-TR*, 2000). For example, it is developmentally appropriate for a three-year old child to be fearful of separating from a parent, but this same fear is often considered problematic in a 13-year old adolescent. Anxiety disorders significantly interfere in many domains of an individual's life. For instance, children and youth who experience Social Phobia, or extreme fear and discomfort toward social situations and public performances, may avoid certain situations (e.g., ask questions in class, make a presentation, or attend birthday parties or sleepovers) or if they cannot avoid them they may experience extreme distress when requested endure the situation. Further, children and youth who experience Panic Disorder, recurrent and unexpected panic attacks followed by a persistent fear of having another attack, may avoid certain situations such as crowded hallways or gym class if they believe the situation will lead to a panic attack (*DSM-IV-TR*, 2000, pp. 433).

Mood disorders are characterized by significant decreases in an individual's mood. Similar to the experience of anxiety, everyone experiences mood fluctuations. When these fluctuations significantly interfere with an individual's life, a mood disorder may be diagnosed (*DSM-IV-TR*, 2000, pp. 345). Major depression is the most common of the mood disorders and involves a distinct change in mood, characterized by sadness or irritability, and the presence of several psychophysiological symptoms such as changes in appetite, sleep, and loss of pleasure in hobbies or other favorite pastimes (Belmaker & Agam, 2008). While youngsters can experience major depression, mood disorders are far more common in teens. In a study of adolescents in the United States, Merikangas reported a lifetime prevalence of major depression and dysthymia (chronically depressed mood over 1 year) of approximately 11.7% (Merikangas, et al., 2010b). Individuals experiencing major depression or other mood disorders are more likely to drop out of school (Kessler, Foster, Saunders, & Stang, 1995), engage in risky sexual behavior, and are at a higher risk to attempt or commit suicide (Kessler, Avenevoli, & Merikangas, 2001).

Eating disorders are characterized by significant disturbances in eating behavior. Currently, the *Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, Text Revision* (*DSM-IV-TR;* American Psychiatric Association, 2000), recognizes two specific diagnoses, Anorexia Nervosa and Bulimia Nervosa. Binge-eating disorder is not listed as an eating disorder in the *DSM-IV-TR*, but is classified under Eating Disorder Not Otherwise Specified (*DSM-IV*-TR, 2000; Hudson, Hiripi, Pope, & Kessler, 2007). Given the prevalence of childhood and youth obesity in the U.S. and Canada, researchers are proposing that the new *DSM-V* recognize binge eating as a

separate disorder (Hudson et al., 2007; Styne, 2001; Wilfley, Bishop, Wilson, & Agras, 2007). Aside from potential health consequences such as hypertension, diabetes, and cardiovascular disease, childhood obesity has also been linked to psychosocial outcomes such as poor self-image, lowered self-esteem, and overall reduced quality of life (Strauss, 2000; Whitaker, Wright, Pepe, Seidel, & Dietz, 1997).

Each of these disorders can cause significant interference in children and youths' personal and academic lives, and much effort has been taken to develop and evaluate treatment programs for these disorders. One type of treatment, cognitive behavioral therapy (CBT), is recognized as the gold standard for a number of mental disorders including anxiety, mood, and eating disorders (Barrett, Lock, & Farrell, 2005; Bathrellou et al., 2010; In-Albon & Schneider, 2007; Miller, 2008; Sheffield et al., 2006). Following this discussion is a description of CBT interventions with youth and a review of intervention effectiveness. Although there are many CBT interventions available, this chapter outlines three programs that have been implemented in schools: *Coping Cat, FRIENDS for Life*, and *CHOOSE HEALTH*.

COGNITIVE BEHAVIORAL THERAPY (CBT): GENERAL OVERVIEW

CBT is an evidence-based approach used to treat a variety of mental health concerns. Many CBT programs have been evaluated for use with adults, and then adapted for child or youth populations. Once proved efficacious in clinical child settings (e.g., hospital in patient clinics, outpatient clinics, community mental health centers), some programs have been modified for use in classrooms, to be delivered by teachers, social workers, school counselors, or other school helping professionals. Cognitive behavior programs comprise a number of strategies aimed to help students notice and analyze their thoughts, emotional reactions, and behaviors. Students are challenged to implement these strategies to change problematic behavior and thinking patterns (Sheldon, 2011). CBT is a short-term treatment, usually consisting of 10-12 structured weekly one-hour lessons. Given the limited treatment timeline, people are not expected to leave treatment symptom-free. Rather, one goal of CBT is to empower the participants to become their own therapist, continuing the therapeutic work after sessions are complete. CBT has been shown to be effective in both individual and group formats for children and youth (Kendall,

Hudson, Gosch, Flannery-Schroeder, & Suveg, 2008; Miller, 2008; Sheffield et al., 2006; Stewart, Christner, & Freeman, 2007).

CBT programs share common components and strategies, however, depending on the target issue (e.g., anxiety versus depression), programs will differ in the way strategies are introduced and implemented. Psychoeducation plays an important role in all CBT programs. The main goal of psychoeducation is to inform clients about the causes of their specific issue (e.g., anxiety), and to familiarize them with the CBT model: a relationship exists between individual's thoughts, behaviors, and emotions. The form in which this material is presented will depend on the age of the student. For example, pictures and stories may be used to explain the experience of anxiety to very young children (Friedberg & McClure, 2002).

Skill building exercises teach children to identify negative self-talk or cognitions that exacerbate and maintain their worry. Students are then given strategies to challenge these negative cognitions and begin to make more accurate and positive predictions about their everyday experiences (Miller, Short, Garland, & Clark, 2010). Relaxation training is often introduced as a way to cope with sudden peaks in anxiety or as a way to manage anxiety symptoms throughout the day. Youth are taught to breathe deeply while relaxing specific muscles in their body. The goal of relaxation training is to provide the student with a quick, portable strategy to maintain control over their anxiety symptoms (Barrett, Lowry-Webster, & Turner, 2000). For teens with depression, CBT programs often include a behavioral activation component. School mental health providers work with youth to begin engaging in previously enjoyed activities. The goal of behavioral activation is for students to experience positive rewards from their environment by having greater contact with sources in their lives that bring them pleasure (Dimidjian, Martell, Addis, & Herman-Dunn, 2008).

In vivo exposure exercises challenge students to face the situations or objects causing them anxiety or discomfort. The goal of exposure exercises is not to achieve immediate symptom reduction, but to allow students the opportunity to understand that they are able to survive their anxiety or discomfort (Craske & Barlow, 2007). For example, an individual with Social Phobia who is afraid of giving a required speech in front of their classmates may be asked to give the speech in front of a small group of close friends or family members first. The youth would remain in the situation, giving his speech over and over again, monitoring his anxiety until his anxiety level dropped by half. Over many exposure sessions in the same situation, the

person will learn that he can withstand high levels of anxiety and that over time his anxiety will decrease in intensity.

CBT has received significant research attention in the last 25 years (Dobson, 2001; Hollon & Beck, 1994), and researchers have developed CBT approaches to address a variety of mental health concerns (Butler, Chapman, Forman, & Beck, 2006). CBT for childhood internalizing disorders (e.g., anxiety and depression) has been demonstrated efficacious by a number of researchers (see Compton, March, Brent et al., 2004 for a review). Regarding anxiety, studies compared CBT to alternative treatments and/or waitlist controls and found that CBT results in lower rates of anxiety symptoms (Beidel, Turner, & Morris, 2000; Flannery-Schroeder, & Kendall, 2000; Muris, Meesters, & van Melick, 2002). However, several studies have found no significant difference between CBT and control groups (i.e., attention-placebo control and waitlist) (Last, Hansen, & Franco, 1998; Miller, 2008; Nauta, Scholing, Emmelkamp, & Minderaa, 2003). Thus, school evaluations of anxiety reduction programs remain mixed. Although the length of follow-up period varies between studies (e.g., 3 months to 6 years), findings from some studies indicate that children and youth report lower levels of anxiety than those who did not receive CBT (Barrett et al., 2001; Flannery-Schroeder, & Kendall, 2000; Shortt, Barrett, & Fox, 2001; Spence, Donovan, & Brechman-Toussaint, 2000). Further, both group and individual CBT for anxiety have shown to be comparable in terms of anxiety symptom reduction (Mendlowitz et al., 1999; Muris, Mayer, Bartelds, Tierney, & Bogie, 2001). Overall, students and teachers report enjoying anxiety reduction programs in school settings. Other positive program outcomes have been reported related to high social validity, student reports of increased ability to use anxiety calming strategies, and high degree of parental understanding of CBT skills (see Miller, 2008).

Research findings on CBT for child and youth depression are mixed as in anxiety programming. There are fewer randomized control trial (RCT) studies to evaluate effectiveness of depression interventions, and several of the available studies have limited sample sizes resulting in questionable power to detect significant differences (Compton et al., 2004). A number of studies found CBT to be superior to waitlist control groups in terms of reduction of depressive symptoms (Ackerson, Scogin, McKendree-Smith, & Lyman, 1998; Asarnow, Scott, & Mintz, 2002; Wood, Harrington, & Moore, 1996). However, other studies found no significant difference in symptom reduction between CBT and other active treatment approaches (e.g., Interpersonal Therapy or treatment as usual) (Clarke et al., 2002; Rossello & Bernal, 1999).

Research findings continue to be mixed when examining long-term effects of CBT for depression in children and youth. Studies with shorter follow-up time spans generally report maintenance of reduced depressive symptoms (Vostanis, Feehan, Grattan, & Bickerton, 1996; Wood et al., 1996). However, studies examining effects of treatment over a longer time span (i.e., 9 months to 2 years) found increased levels of depressive symptoms (Birmaher et al., 2000; Wood et al., 1996).

Researchers report mixed results as to whether CBT is an effective treatment for obesity in children and youth aged 8 to 12 years of age (Powers, Jones, & Jones, 2005). Self-monitoring (Kirschenbaum, Germann, & Rich, 2005) and stimulus control (Golan, Fainaru, & Weizman, 1998) are two CBT techniques found to be useful in the treatment of childhood and youth obesity when combined with traditional dietary restriction and physical exercise. Problem solving techniques and goal setting are also integrated into many programs for obesity (Bathrellou et al., 2010). Some studies report that participants experienced significant weight loss (Braet & VanWinckel, 2000; Jelalian, Mehlenbeck, Lloyd-Richardson, Birmaher, & Wing, 2006), whereas other studies report no significant difference in weight reduction between CBT, behavioral therapy, or relaxation therapy (Duffy & Spence, 1993; Warschburger, Fromme, Petermann, Wojtalla, & Oepen, 2001). The importance of long-term support has been raised by researchers under the theory that genetic vulnerabilities to obesity continue throughout an individual's life (Flodmar, Lissau, Moreno, Pietrobelli, & Widhalm, 2004). A study by Braet and VanWinckel (2000) followed adolescent participants five years post CBT treatment, and reported maintenance of weight loss.

To summarize, CBT is a treatment for a variety of mental health concerns, and has received significant research attention. Many studies show that CBT is effective in the reduction of a number of symptoms of anxiety, depression, and weight reduction (when paired with exercise and dietary restrictions). However, a number of studies continue to show no significant difference between CBT and other available treatments, such as relaxation therapy (Warshburger et al., 2001) or attention control conditions, indicating that more research is needed to better understand the specific ways in which CBT benefits those with mental health concerns. Given the developmental differences between adults and children, CBT sessions with these populations need to be presented in a manner consistent with the client's cognitive and developmental level. The following section describes several differences between adult focused CBT and CBT sessions designed for children.

CBT AND CHILDREN

Children and adults differ in their level of cognitive processing and analytic thinking abilities (Grave & Blissett, 2004; Ollendick, Grills, & King, 2001; Southam-Gerow & Kendall, 2000). Younger children will require more concrete examples to understand certain CBT components. For example, when introducing the concept of cognitive restructuring, children may benefit from metaphors, drawings, or physical prompts to fully understand the process of cognitive restructuring, relaxation, and problem solving. In the CBT intervention *The Feelings Club* for childhood anxiety, feelings are identified through games such as charades (Manassis et al., 2010). The CBT intervention *FRIENDS* (Barrett, 2000) introduces relaxation by having children imagine different scenarios. For example, to isolate neck and shoulder tension, children are asked to imagine that they are a turtle that suddenly needs to pull her head into her shell (Barrett, Farrell, Ollendick, & Dadds, 2006). CBT for children may also include some level of parental involvement. A number of studies have demonstrated the benefits of parental involvement in CBT programs for children with obesity (Israel, Guile, Baker, & Silverman, 1994; Golan & Crow, 2004). As children age, the role of parents in treatment becomes mostly supportive and adult caregivers are less directly involved (Braet & Van Winckel, 2000).

Concerns have been raised by researchers whether CBT is an appropriate treatment for children aged 3 to 7 years of age, given its focus on identifying emotions and thoughts, and need for perspective taking and hypothetical thinking (e.g., "What if something different happened?" or "Is there another way to look at this situation?") (Grave & Blissertt, 2004). Current researchers, in a move away from the developmental stages hypothesized by Piaget, have shown that children under 7 years of age can reason if the question is presented in a specific way. For example, Robinson and Beck (2000) found that although children under 7 years of age had difficulty reasoning with past factual questions, they could understand and reason with these same questions when phrased in a future tense (e.g., "What if this situation does not happen next time?"). Although more research is needed to explore the use of CBT with young children, existing studies indicate that when tailored to a child's developmental level, CBT may serve as an effective treatment for mental health concerns.

CBT may be the treatment of choice for specific health difficulties, however, the treatment is costly to obtain from private practitioners and the number of people in need of the treatment far exceed the number of trained

professionals available (Kazdin & Blase, 2011). A review article published in *The Australian and New Zealand Journal of Psychiatry* estimates the cost of treating one episode of major depression in a child or adolescent is $1600 when CBT treatment is provided by a private practitioner (Haby et al., 2004). The significant cost associated with private mental health care is one barrier to delivering CBT to those in need. Another barrier that exists is the one-to-one service delivery model of private treatment. In the United States, the ratio of general mental health practitioners to the approximate number of people requiring help is 7:300, respectively (Kazdin & Blase, 2011). Out of the 300 professionals, even fewer may provide CBT due to the rigorous and time-consuming training required. Accessing CBT practitioners may impede parents from seeking help for their children through private practice.

In order for children to receive CBT through a private practitioner, parents must be able to identify that their child requires professional help. Identifying that a child is struggling with psychological difficulties can be difficult. Children with internalizing disorders, such as anxiety and depression, are often overlooked and their difficulties go undetected by parents (Barbosa, Tannock, & Manassis, 2002). Furthermore, some parents may know their child is experiencing difficulties and have access to services, but may choose not to obtain private treatment due to stigma associated with seeking mental health care (Manassis et al., 2010). These barriers to detecting and treating mental health difficulties in childhood emphasize the need for both home and community based services and supports.

MENTAL HEALTH CARE IN SCHOOLS

Family, school, and community all provide unique contexts for promoting mental health and wellbeing (Stewart et al., 2004). Schools provide general academic education in subjects such as English and mathematics, but can also assist in a child's psychosocial development. Safe and supportive school environments, where children develop positive relationships and have opportunities to experience personal successes, are associated with resiliency in children (Howard, Dryden, & Johnson, 1999; Battistich, Soloman, Kim, Watson, & Schaps, 1995). Resiliency is defined as the ability to cope or adapt in a positive manner to difficult life circumstances (Rutter, 1987). Personal resiliency is regarded as a protective factor against a variety of negative outcomes, including mental health difficulties (Stewart et al., 2004). Fostering

resiliency is one-way schools can help promote the mental health and well being of children.

Programs such as *I Can Problem Solve* (Shure, 2001) and *Promoting Alternative Learning Strategies* (PATHS; Kusche & Greenberg, 1994) were developed to help create positive school environments and teach children social competency skills, such as effective problem solving. The program developers report that their programs effectively increase resiliency in children (Shure, 1992a; 1992b; 1992c) as well as students' knowledge about feelings (Kam, Greenberg, & Walls, 2003; Kam, Greenberg, & Kusche, 2004). Fostering resiliency and emotional understanding helps protect students from mental health difficulties. Targeting specific health concerns, such as anxiety, depression, and obesity, is another avenue to supporting children and youth in schools.

Most children in America receive mental health services through providers within their school system (Burns et al., 1995; Huang et al., 2005). With over 52 million children attending school every day (Huang et al., 2005), the school environment provides an ideal setting to address the needs of a vast number of children on a daily basis. The number of students, who depend on their school system for mental health services, makes academic institutions an opportune setting for prevention and intervention efforts. The following section discusses the ways in which CBT fits within the context of the school environment.

TRANSLATING CBT INTO THE SCHOOL ENVIRONMENT

Schools are particularly well equipped for implementing evidence-based CBT programs. Schools have unparalleled access to children from a variety of backgrounds and ages. Furthermore, schools are natural learning environments, where children often practice new skills and discuss classroom lessons with their peers (Miller et al., 2010). Research has demonstrated the effectiveness of group-formatted CBT (Stallard, Simpson, Anderson, Hibbert & Osborn, 2007; Manassis et al., 2002). Treatment presented in a group, such as a classroom, is especially useful because the format facilitates normalization of difficulties and peer modeling (Miller et al., 2010). Classrooms may also be a good fit for CBT as teachers tend to have fewer students in their classroom as compared to the caseloads of school counselors (Miller et al., 2010). Training teachers to implement CBT with their students may increase teachers' ability to detect students who require more intensive levels of support.

There are a variety of reasons why CBT based interventions fit well within the school setting, however, numerous barriers provide challenges to implementation. Schools often operate within a strict budget limiting funds to train educators and purchase resources. The financial difficulties involved in implementing and sustaining school-based interventions are the most commonly reported concern (Forman, Olin, Hoagwood, Crow, & Saka, 2009), however, the cost of running CBT in schools is far less than the overall burden of mental illness (Kazdin & Blase, 2011). For example, in the United States, approximately $42 billion dollars is spent per year on health-care costs related to anxiety disorders alone (Greenberg et al., 1999). The fiscal burden associate with chronic physical and mental illnesses emphasizes the importance of allocating more resources to early prevention and intervention.

Scheduling is another challenge of school-based CBT, especially when conducting a CBT program in addition to required academic curricula. Teachers may find it difficult to adhere to the program amidst a busy schedule, and thus, may "drift" from evidenced-based practices and omit certain aspects of the program or make adaptations that are not supported in the research (Evans & Weist, 2004; Owens & Murphy, 2004; McHugh, Murray, & Barlow, 2009). Further, school calendars are full of activities and unexpected events that may require teachers to choose flexibility over fidelity to the program guidelines. A solution to the administrative challenges is modular CBT programs that have been developed and are currently being evaluated in schools regarding their effectiveness (Ginsburg, Becker, Kingery, & Nichols, 2008).

A third obstacle to implementing CBT in school systems is community support. Parents and community members often require more than research-based evidence to be convinced that CBT programs are worth the school's limited time and funds. Research from the health literature found that empirical results demonstrating the effectiveness of a treatment has little impact on people's decision making (Evans & Weist, 2004; Wedig & Tai-Seale, 2002). These findings also extend to education-based decision-making. For example, strong community support existed for open concept classrooms as well as the widely implemented anti-drug and alcohol use program, Project DARE (Drug Abuse Resistance Education). However, neither of these programs has research supporting their effectiveness (Evans & Weist, 2004), and some evidence to indicate negative outcome following program implementation. Educating parents and community members about the importance of using evidence-based practices, rather than simply

disseminating the research results, may generate stronger community support for implementing CBT based-programs in schools.

Educating parents is an important aspect of translating CBT into schools and may help generate demand for evidence-based interventions. Parent education and involvement is also a component to CBT interventions. Parental involvement in school-based treatments varies. Some interventions require parental involvement in the implementation of the intervention, whereas other programs do even require parental consent (i.e., if the intervention is adopted as curriculum). Parent involvement can be beneficial, but introduces challenges such as recruitment efforts and scheduling conflicts. All challenges must be considered and weighed prior to implementing an intervention in a school.

School-based CBT programs have many advantages and disadvantages when compared to alternative treatments in hospital or private practice settings. Schools are traditionally a place of learning, where teachers are responsible for transmission of knowledge. In many ways, school-based CBT programs fit naturally within this knowledge delivery model. Some of the barriers to implementing school-based CBT include securing the necessary finances, time commitment, and community support. In order to support the use of CBT in schools there must be a better understanding of the benefits of CBT interventions by professionals within school systems. In order to fully understand CBT school-based interventions, the various levels of interventions within the school system must first be understood. An outline of various levels of school-based interventions is provided, followed by three examples of CBT school-based interventions in anxiety, depression, and obesity. Research results on their effectiveness are also provided.

LEVELS OF SCHOOL-BASED INTERVENTIONS

School-based interventions are categorized as *universal*, *selective*, or *indicated*, depending on the population intended to receive the intervention. When a program is delivered to all students, regardless of their risk status, the program is deemed universal. Selective interventions are intended for students who may not demonstrate concerning symptoms but are "at-risk" for developing future behavioral or emotional difficulties, whereas indicated interventions are aimed at "high-risk" populations or students who currently have mild to moderate symptoms of a disorder.

Universal interventions that focus on early prevention are particularly appropriate for school-based administration, as all students require some level of support for their mental health and well being. When universal interventions are implemented early, healthy behaviors, such as coping skills, are promoted from a young age and students may avoid developing problems in the future (Elkins, McHugh, Santucci, & Barlow, 2011). Researchers have found there to be no harmful consequences associated with participation (Aseltine, 2003; Sheffield et al., 2006); however, findings are mixed regarding the effectiveness of universal interventions.

A review of 27 randomized controlled trials focused on anxiety prevention and intervention reported a significant reduction in anxiety for the majority of anxiety focused universal programs (Neil & Christensen, 2009); 78 percent of the programs investigated used CBT as a foundation for the intervention. From the studies that used CBT intervention, over 50 percent reported significant difference in anxiety scores between intervention and control groups (Neil & Christensen, 2009). Overall, results from studies examining universally administered CBT based interventions for anxiety are mixed, with just over half providing support for the use of these interventions in schools.

Stice and colleagues (2009) conducted a review of depression interventions for children and adolescents. The authors reported that most universal programs did not demonstrate effectiveness at post-test or follow-up (Stice, Shaw, Bohon, Marti, & Rhode, 2009). These lack of reported findings are supported by previous research on the effectiveness of universal depression interventions (Merry, McDowell, Hetrick, Bir, & Muller, 2003; Sheffield et al., 2006).

Schools and the community are considered the best setting for implementing effective health promoting strategies, such as healthy eating habits and weight levels (Flynn et al., 2006). Current research in adult obesity suggests that CBT may be the treatment of choice for obesity in young people (National Health and Medical Research Council, 2003; Shaw, O'Rourke, Del Mar, Kenardy, 2009); however, few studies have reported on CBT school-based intervention (Bathrellou et al., 2010; Kelly & Kirschenbaum, 2011). Due to the minimal amount of research conducted in this area, CBT for obesity will be discussed within the context of the *CHOOSE HEALTH* intervention.

Selective interventions provide services for students who require a higher level of support than most students, but are not experiencing difficulties at a level consistent with a clinical disorder. These students often demonstrate emerging symptoms of emotional or behavioral disorders or show early warning signs of difficulties in personal adjustment (Christner, Forrest,

Morley, & Weinstein, 2007). Students best served by selective interventions are those who could benefit from additional support to prevent future behaviors that may warrant intensive individualized support.

Research on selective CBT school-based interventions for internalizing difficulties tends to support the view that selective interventions demonstrate greater effect sizes than universal interventions (Nehmy, 2010). This may be because children involved in selective interventions have a greater opportunity for change due to their higher symptomatology. Results from a study conducted by Manassis and colleagues (2010) indicated a downward trend in anxiety symptoms following a selective program. However, these effects were not significantly different from those obtained from students in an active control group consisting of supervised non-CBT activities. Similarly, research comparing students in selective conditions (and universal and selective conditions combined) demonstrated reduced overall levels of anxiety and depression symptoms, but not more than the comparison group (Sheffield et al., 2006). Future research should aim to clarify the distinction between CBT, non-CBT, and control group factors that contribute to symptom reduction in students with internalizing disorders.

Universal and selected interventions are meant to reduce the number of students who require the most intensive level of support through indicated interventions. Indicated interventions are designed for students with clinical levels of an emotional or behavioral disorder. Indicated interventions typically take place in a one-to-one setting or in small groups with treatment plans unique to each student (Christner et al., 2007). Indicated support may be provided within the school setting, or, alternatively the school may outsource individual support for the child outside of the school and monitor the student's progress or supplement the therapy using in school services.

A meta-analytic review of school-based depression interventions reported that several selective and indicated programs produce greater effects than universal depression interventions (Clarke et al., 1995; Lowry-Webster, Barrett, & Dadds, 2001). The same analysis also reported that selective and indicated programs were the only interventions that prevented future levels of depression (Manassis et al., 2010). The findings are supported by a previous analytic review of depression interventions that reported significant effects observed in selective and indicated programs (Merry et al., 2003).

In general, results demonstrating the effectiveness of school-based CBT programs are varied. Importantly, certain restrictions exist when studying school-based CBT, such as the difficulty of monitoring or assessing fidelity of program implementation. Research is available comparing aspects of effective

versus ineffective treatment programs. Findings suggest benefits of ensuring a "goodness of fit" between the intervention and the individuals involved (Ollendick, Grills, & King, 2001; Elkins et al., 2011; Reever, 2008). This "goodness of fit" is important when implementing CBT interventions as some teachers may feel the need to modify elements of a program, depending on the developmental level of the students or the level of investment by the facilitator. Although altering a program may improve the goodness of fit, modifications will likely not be supported by the literature. In other words, modifications to a program may affect the program's effectiveness (McHugh et al., 2009; Beidas, Benjamin, Puleo, Edmunds & Kendall, 2010).

The following section provides an outline of the *Coping Cat*, *FRIENDS for Life*, and *CHOOSE HEALTH* programs, and provides a discussion of the research base for each program regarding implementation in school systems.

COPING CAT

The *Coping Cat* program is a CBT based anxiety program aimed at anxiety prevention and reduction in children aged 8 to 13 years. The four major components of *Coping Cat* are: (1) recognition of anxiety both mentally and physically; (2) clarification of anxious feelings; (3) effective ways to cope with anxiety, and developing a plan for anxious situations; and (4) self-evaluation of performance and self-reinforcement for positive behaviors (Kendall & Hedtke, 2006). The *C.A.T. Project*, a derivative of the *Coping Cat* program, exists for students aged 14 to 17 years. The content and objectives are similar to the *Coping Cat* program but contains developmentally appropriate pictures and examples. An outline of each of the Coping Cat program sessions is provided in Table 1 (Killburn, Coombe, Mattox, Shaw, Tan, & Phillips, 2006).

In two studies evaluating the effectiveness of the *Coping Cat* intervention, the children who received the program reported lower levels of anxiety and depression (Kendall, 1994; Kendall et al., 1997). In a more recent study, *Coping Cat* delivered in an individual setting was compared to *Coping Cat* in a group format, and a control group (Flannery-Schroeder & Kendall, 2000). No significant differences were found between groups, or in students' overall levels of anxiety or depression. However, parent reports of their children's anxiety indicated that children who received the intervention (individual or group) were less likely to meet criteria for an anxiety disorder compared to children in the control group. Future studies may benefit from the inclusion of an active control group in addition to a wait list control group to explore

whether increased attention or routine alone reduces anxiety symptoms. Although some research shows *Coping Cat* to be effective in reducing anxiety in the classroom, more research is needed.

Table 1. Coping Cat Program Outline

Session Number	Content Description
Session 1	The first eight sessions of the Coping Cat program involve an introduction of the basic concepts, followed by practice and reinforcement of the skill. The therapist builds rapport with the child and collects specific information about the kinds of situations and experiences during which the child feels anxious, and the ways in which the child responds to that anxiety.
Session 2	This session involves teaching the child to identify different feelings.
Session 3	Children construct a hierarchy of anxiety-provoking situations so that they can distinguish anxious reactions from other types of reactions and can identify their own particular somatic responses. After Session 3, a meeting is held with the child's parents to review the treatment goals, share impressions and ideas, receive parental input on particular problem areas for each child, and encourage parental involvement in the treatment.
Session 4	Children are taught how to relax outside of the sessions by listening to a cassette tape containing personalized relaxation content. The adolescent's dietary monitoring was used to target this material to improve their dietary habits. The adolescent was encouraged to set food choice goals aimed at using these strategies to reduce energy consumption and improve diet quality.
Session 5	This session consists of teaching the child to recognize and assess self-talk during anxious situations and to reduce self-talk that is anxiety provoking.
Session 6	This session emphasizes coping strategies such as coping self-talk and verbal self-direction, as well as developing appropriate actions to help cope with anxious situations.
Session 7	Children learn how to self-evaluate and self-reward.
Session 8	This session comprises reviewing concepts and skills covered in the previous sessions.
Session 9	During the second set of eight sessions, the child practices the newly acquired skills by using both imaginary and real life experiences with individualized situations that vary from low stress, low anxiety to high stress, high anxiety. The child practices the newly learned skills in nonstressful, low-anxiety situations that begin with imaginary experiences and progress to real-life exposure. Practice includes therapist modeling and role-plays.
Sessions 10 to 13	The child is exposed to imaginary and real situations that cause increasing levels of anxiety
Sessions 14 to 15	Children practice in high-stress, high-anxiety situations. The final session is used to discuss the therapy experience, to review the skills, and to encourage the child to think about how to apply the skills in everyday life.

Adapted from promising practices network website on Coping Cat (Killburn et al., 2006)

FRIENDS FOR LIFE

The *FRIENDS for Life* program, originally based on *Coping Cat* program but modified for an Australian audience, is a manualized anxiety and depression prevention program for children in Grades 4 through 6. Based on the principles of CBT, students are taught the following skills throughout the ten week curriculum: how to identify their feelings, relaxation strategies, problem solving skills, how to challenge their negative thoughts, and how to use these skills during exposure activities. The skills that are taught in the program can be recalled quickly using the FRIENDS acronym, F = Feeling worried; R = Relax and feel good; I = Inner thoughts; E = Explore plans of action; N = Nice work, reward yourself; D = don't forget to practice these new skills; and S = Smile, stay cool and calm (Barrett, 2004). The program is designed to be universal (delivered to all students); however, the manual outlines variations of the program for small groups, and individual formats (Barrett, 2004).

The *FRIENDS for Life* program is based on CBT principles and focuses on fostering self-esteem, positive relationships, and resilience in children. *FRIENDS for Life* also helps children understand their body sensations associated with anxiety and depression, including feelings of nervousness and worry. The program is meant to be delivered in a positive framework intended to teach children coping and problem solving skills in order to foster resilience, rather than a program for "anxious kids" or "abnormal" children (Barrett, 2004). Guidelines for effectively implementing the program are provided in the program manual, and an outline of each of the lessons is provided in Table 2 (Barrett, 2004).

FRIENDS for Life has demonstrated mixed effects in the treatment of childhood anxiety and depression, with positive outcomes in clinical (Shortt et al., 2001) and several school-based trials (Barrett et al., 2005; Barrett & Turner, 2001; Bernstein, Layne, Egan, & Tennison, 2005; Lowry-Webster et al., 2001), but equivocal findings in others when compared with attention-control condition (Miller, 2008; Miller et al., 2010). Aside from its effectiveness, teachers enjoy implementing the intervention and are often eager to attend training sessions (Miller, 2008). This enthusiasm is an important element to consider when teachers are implementing interventions in their classroom (Miller et al., 2010). More research is needed to better understanding how the *FRIENDS for Life* program is unique from other CBT school-based interventions. FRIENDS has been expanded to other

developmental versions of Fun FRIENDS (gr. K-gr. 1), and FRIENDS for Youth (Grs. 7-8).

Table 2. FRIENDS for Life Workbook for Children (Barrett, 2004)

Session Number	Content Description
Session 1	Introduction to group members and to each other. Discussion about the rationale of the program: Designed to help people feel more confident and brave by teaching ways of coping with new or difficult situations. Establishing group norms and review confidentiality. Participants are helped to understand that people are different and therefore may perceive and react to situations differently. Home activity: children are encouraged to identify achievable personal goals.
Session 2	Introduction to feelings. Participants learn to recognize the feelings that they and others have by focusing on facial expressions and body language; learn that people may express the same emotions in different ways; learn the difference between thoughts and feelings; are introduced to the link between thoughts, feelings and behaviors; and learn to understand that we choose to think and feel in different ways.
Session 3	Introduction to learning to feel confident and brave. Participants are introduced to steps 1 and 2 of the FRIENDS plan: Step 1 begins with the letter 'F' which stands for 'Feelings'. Students learn more about their feelings by paying attention to body clues. Students hear a story of Kelly Koala, drawing all places in her body where she feels worry, and then are encouraged to do the same with their own body. Step 2 begins with the letter 'R' which stands for 'Remember to Relax.' Students learn relaxation techniques (head to toe muscle relaxation through stories of animals. For instance, for shoulder tension and relaxation a script would be read for a few minutes as "Pretend you are a little turtle going down to the pond for a swim. Suddenly you hear a loud noise! Quickly pull your head in to your shoulders.") Diaphragmatic breathing is reviewed.
Session 4	Participants are introduced to step 3 of the FRIENDS plan: 'I' stands for 'I can do it!'. Participants are introduced to the concept of self-talk. Students learn to identify unhelpful or 'red' thoughts, and helpful or 'green' thoughts through reading stories of other children. For instance, "Julie jut got a birthday invitation from a friend." Children are encouraged to guess what the kids in the stories might be thinking ("Oh! I am afraid of dogs and they have a dog" might be a red thought. "I am invited along with everyone else!" would be a green thought). Students learn that there is more than one way to think about a situation and we can choose the way we think about situations. In addition, students learn that we can practice changing our unhelpful thoughts into more helpful thoughts.
Session 5	Participants are introduced to step 4 of the FRIENDS plan: 'E' stands for 'Explore solutions and Coping Step Plans.' (Introduction of graduated exposure). First students read a story of two kids rollerblading. One is afraid, but gradually with her friend's support and a plan to learn, slowly learns to skate. This is called a Coping Step Plan, and students are encouraged to come up with their own at home.

Table 2. (Continued)

Session Number	Content Description
Session 6	Participants are taught problem-solving skills: the '6-Block Problem-solving Plan'. The stages are: 1) What is the problem?; 2) What could I do?; 3) List what might happen; 4) Pick the best solution; 5) Do it!; 6) Did it work? For the home activity, participants are encouraged to practice using the 6-Block Problem-solving Plan at home, look for role models that different family members have and begin climbing the steps of their Coping Step Plan.
Session 7	Participants are introduced to step 5 of the FRIENDS plan: 'N' stands for 'Now reward yourself! You've done your best!' Participants are taught that this step is used whenever we try our hardest. Participants think of rewards that they can use when they try hard for each of the steps in their Coping Step Plan. In addition, participants are encouraged to evaluate their own performance in terms of partial success, as well as allowing them to practice empathy for others by considering their partial success when faced with difficult situations.
Session 8	The goal of this session is to introduce the last 2 steps of the FRIENDS plan and practice feeling confident and brave by using all of the steps they've learned. Step 6 begins with the letter 'D': 'Don't forget to practice!' and step 7 begins with the letter 'S' : 'Smile. Stay calm for life!' Participants are encouraged to practice their Coping Step Plan in order to feel more confident.
Session 9	The goal of this session is to assist participants to think about how they can generalize the skills they have learned to other life situations.
Session 10	Review and party. The goal of this session is twofold: to establish strategies to maintain participants' coping skills and to congratulate group members for their participation and hard work. Students anticipate challenging situations that may arise in the future and play 'The Quiz Game', an activity aimed at reviewing the content of the FRIENDS for Life program in a fun way and end with a party to celebrate their achievements.

Note. This FRIENDS program may not reflect the most recent edition. See www.australianacademicpress.com.au for more information.

CHOOSE HEALTH

Extant literature highlights the detrimental consequences of child and youth obesity (Reilly et al., 2003; WHO, 2008). In a recent review of obesity interventions, schools emerged as the primary setting where healthy weight levels are promoted (Flynn et al., 2006). *CHOOSE HEALTH* is an Australian-based CBT program that was initially developed for groups of children outside of the school setting. In 2008, Tsiros and colleagues modified the original 12-week *CHOOSE HEALTH* program into a 10-week after-school, group

treatment program followed by a 10-week maintenance program. A reduction in overall body composition was observed when comparing the modified program to a no treatment control group (Tsiros, Sinn, Coates, Howe, & Buckley, 2008). Limitations to these findings include a small sample size and unequal recruitment and remuneration methods between the control group and students who received treatment. A brief overview of each lesson is provided in Table 3.

Table 3. CHOOSE HEALTH Program Outline

Session Number	Content Description
Treatment Phase	
Session 1	*Psychoeducation, goal setting, and monitoring.* Adolescents and parents were provided with information about the definition, prevalence, causes and consequences of overweight and obesity. The methods commonly used to promote weight loss and the effectiveness of these different treatment options were reviewed. The program strategies and aims were outlined and individual assessment findings were reviewed. Following the provision of this information, adolescents were asked if they wanted to continue with the treatment program. Those choosing to continue were assisted to set treatment outcome goals. Adolescents were encouraged to set both body composition and fitness goals. They were required to measure these goals prior to Session 2.
Session 2	*Eating habits and family change.* Participants were initially taught to self-monitor their eating and physical activity habits using the Daily Eating and Activity Monitor sheet. External control strategies aimed at managing eating cues (e.g., storing food out of sight, using a shopping list), behaviours (e.g., slowing down the rate of eating, putting the fork down between bites) and consequences (e.g., rewarding yourself for healthy eating, avoiding food rewards) were introduced. The adolescent was encouraged to set behavior change goals aimed at using these strategies to reduce non-hungry eating.
Session 3	*Increasing daily activity and time management.* The information provided in this session was based on the Australian physical activity guidelines for children and young people which recommend that adolescents participate in at least 60 minutes (and up to several hours) of moderate to vigorous physical activity per day and do not spend more than 2 hours a day using electronic media for entertainment. Adolescents were assisted to estimate their weekly time spent in physical activity. Strategies aimed at teaching adolescents to manage activity cues (e.g., keeping running shoes near door), behaviours (e.g., walking to the corner store instead of being driven) and consequences (e.g., rewarding yourself for increased activity) were introduced. The adolescent was encouraged to set behavior change goals aimed at using these strategies to reduce sedentary time and increase physical activity.

Table 3. (Continued)

Session Number	*Content Description*
Session 4	*Healthy food choices.* The information provided in this session was based on the Australian Guide to Healthy Eating (AGHE). The AGHE aims to increase the consumption of wholegrain breads and cereals, and fruits and vegetables, while decreasing energy content, particularly fat content, of the diet. There is a strong emphasis on reducing the consumption of extra (non-core) foods; those foods high in energy that are not a required part of a healthy diet. The adolescent's dietary monitoring was used to target this material to improve their dietary habits. The adolescent was encouraged to set food choice goals aimed at using these strategies to reduce energy consumption and improve diet quality.
Session 5	*Physical activity, problem solving, motivation.* Following discussion of the potential benefits of exercise, adolescents were asked to identify their own benefits and barriers of exercise. Strategies aimed at tackling the many barriers to exercise were introduced. Adolescents were also provided with a list of exercise options. The adolescent was encouraged to set behavior change goals aimed at using these strategies to increase their participation in structured exercise.
Session 6	*Coping strategies.* The adolescent was also encouraged to rate their achievement of each behavior change goal on a scale of 1 to 10 with '1' indicating 'no change', and '10' indicating 'goal achieved'. This information was used to revise program and behavior change goals. The parent(s) and adolescent were then instructed on the development and use of a reward system for goal achievement. Finally, the notion of environmental, social, personal (cognitive and emotional) and organizational barriers to behavior change was introduced and the adolescent was assisted to identify some of their barriers to behavior change. The adolescent was encouraged to use the behavior chart and identify further barriers prior to the next session.
Session 7	*Body image.* The relationship between thoughts, emotions and behavior was discussed with a particular focus on eating and exercise behavior. The adolescent was then taught how to recognize their thoughts. The adolescent was encouraged to monitor their negative emotions and unhelpful thoughts prior to the next session.
Session 8	*Barriers and high-risk situations.* In this session, adolescents were taught to identify and use positive coping strategies and statements to deal with difficult situations that may trigger unhealthy eating and exercise habits. Adolescents were also taught to challenge the validity and utility of their unhelpful cognitions. The adolescent was encouraged to use coping statements and strategies and cognitive challenging prior to the next session to assist them in managing personal barriers to behavior change.

Session Number	Content Description
Session 9	Phone call maintaining change
	Maintenance and relapse prevention. This session focused on maintaining the changes that the adolescent had made to their eating and exercise habits. The relapse prevention model was introduced. Information collected from self-monitoring was used to identify high-risk situations. Adolescents were taught to plan ahead to manage these situations by using the program strategies in combination. The adolescent was encouraged to develop coping plans for at least two high risk situations they were likely to experience in the coming fortnight. These coping plans were then reviewed in the phone call session.
Maintenance Phase	
Session 11	Phone call maintaining change
Session 12	Phone call maintaining change
Session 13	Phone call maintaining change
Session 14	Phone call maintaining change
Session 15	Maintaining change
Session 16	Phone call maintaining change
Session 17	Phone call maintaining change
Session 18	Maintaining change

The contents of the table are adapted from Brennan (2006).

SUMMARY AND DISCUSSION

Research on CBT school-based interventions in childhood and adolescent anxiety, depression and obesity requires further examination; however, extant literature demonstrates its utility in supporting the mental health and well-being of students. It appears that some CBT interventions effectively reduce levels of mental health difficulties in school children, but more research is required to discover the necessary and sufficient elements of school-based programs. Further, there is a need for research evaluating the effectiveness of school-based interventions independent of the program developer.

Current research on anxiety and depression programs tends to report more effective results with anxiety treatments; however, the two disorders are highly related. Therefore, it is recently promoted that treatment should focus on the transdiagnostic model of general distress, anxiety, and depression, rather than specific symptoms of either disorder (Nehmy, 2010; Clark & Watson, 1991). A number of challenges remain with regards to implementing CBT with children and in school settings, including time constraints, cost-benefit analysis, mode of delivery (intact classrooms, targeted groups of children), including parents, and who should deliver these programs. As mental health concerns start to come to the attention of policy makers, school personnel, and

program developers, the social emotional education of children may finally be established as important as reading, writing, and mathematics.

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Chapter 2

STUDYING LEARNING AND MEMORY IN ANIMALS: A LOOK INTO COGNITIVE FUNCTION

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ABSTRACT

Behavioral therapy, including its extended form known as cognitive behavioral therapy, derives from theories of learning and memory. Learning is the process by which new information is acquired; whereas memory is the process by which that knowledge is retained. Our understanding of these mechanisms has been greatly improved by the development of tools and tests to assess learning and memory in animals. Indeed, some of the experiments that helped shaping modern behavioral therapy were conducted almost 50 years ago in animal models and were the basis of the classical (or Pavlovian) and the contextual conditioning models of learning. Since then, the development and refinement of learning and memory tests and tools has greatly influenced our current understanding of the neurobiological basis of these complex processes. In this chapter we will review the various mechanisms that are thought to

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play a role in the neurobiology of learning and memory. Furthermore, we will also present an overview of the behavioral tests and tools that are commonly used to study these cognitive processes in animals. In particular, we will describe some of the protocols available to test conditioning learning as well as the several types of mazes and tools commonly used to study spatial learning and memory in rodents, discussing the advantages and disadvantages of each one of them. We believe that the use of these tests will continue improving our understanding of the mechanisms of learning and memory, ultimately contributing to the development of better strategies of behavioral and cognitive therapy.

Key words: Animal model; cognition; conditioning; hippocampus; Learning; memory; Morris Water Maze

1. INTRODUCTION: WHAT IS LEARNING AND MEMORY?

Learning can be defined as a neural process that enables both humans and animals to adapt to their environments by using previous experiences to adjust their behavior. A simple example of learning is thus habituation. On the other hand, memory is the neural process by which experience acquired through learning is stored and eventually accessed (for review see Shen et al 1994). Memory involves a complex network of different brain functions located in various brain regions working together to manage information. For this reason, it is more appropriate to define it in terms of memory systems. These have been identified as a consequence of the increased understanding of the neuroanatomical and neurobiological bases of memory (for review see Paul et al 2009).

Memory systems can be broadly classified in two major categories, declarative memory and non-declarative memory. Declarative memory refers to information that is conventionally transmitted or expressed and supports the capacity to recollect facts and events. The formation of declarative memory is dependent on neuronal pathways anatomically connected in the medial temporal lobe and involving the hippocampus [in particular the dentate gyrus (DG) sub-region], the subicular complex, and the adjacent perirhinal, entorhinal, and parahippocampal cortices (Squire & Zola-Morgan 1991). On the other hand, non-declarative memory, also known as procedural memory, encompasses information related with motor or perceptual skills and habits (Squire 1986; Tulving & Schacter 1990), such as simple forms of

conditioning, which cannot be orally transmitted thus being expressed through performance rather than recollection (Squire 1992).

Another frequent distinction is made between long-term, short-term, and working memory. Long-term memory is a vast storage of knowledge and a record of prior events, being supported by all theoretical views. It includes both declarative and non-declarative types of memory. Short-term memory reflects the ability to hold a limited amount of information in a very accessible and temporary state. Finally, working memory is not completely distinct from short-term memory. It is a term that is used to refer to memory as it is used to plan and carry out certain behaviors (for review see Cowan 2008).

Another specific type of memory that cannot be strictly assigned to any of these classifications is spatial memory. Indeed, spatial memory encompasses aspects of non-declarative (procedural) memory, declarative (semantic and episodic) memory, as well as of both short- and long-term memory (Moscovitch et al 2006).

2. Role of the Hippocampus in Learning and Memory

The hippocampus is part of the limbic system and is a bilateral structure located within the medial temporal lobes of the cerebrum in humans. In rodents, it is an elongated, banana-shaped structure with its long axis extending in a C-shaped manner from the midline of the brain near the septal nuclei into the temporal lobe (for review see Andersen et al 2006). The hippocampus proper has three subdivisions: CA1, CA2, and CA3 (CA stands for *cornu ammonis*). The other regions of the hippocampal formation include the DG, subicular complex, and entorhinal cortex. The hippocampus is organized such that the main excitatory projections follow a unidirectional pathway. Axons from the entorhinal cortex project to superficial layers of the DG via the perforant pathway, which includes medial and lateral sub-divisions. These perforant path axons converge on granule cells of the DG, which then send axonal projections called mossy fibres to synapse with pyramidal cells in the CA3. These neurons transmit information via Schaffer collateral axons to pyramidal cells located in area CA1, which in turn send axonal projections to the subiculum and entorhinal cortex (Andersen et al 2006).

It is now well established that the hippocampus plays an integral role in the consolidation of declarative memory, as well as context-dependent and spatial learning processes (reviewed in Burgess 2002; Squire et al 1992). A classic example supporting this assertion is that of Henry Gustav Molaison, known only as H.M. until his death in 2008. H.M. suffered debilitating seizures for many years before undergoing a bilateral temporal lobe resection that resulted in the destruction of most of his hippocampus (for review see James & MacKay 2001). From that time on, H.M. suffered severe anterograde amnesia: although his memories of events from before the surgery were mostly unaffected and he was able to learn new procedural tasks, he was unable to form new declarative memories and was heavily impaired in spatial learning tasks (for review see Bohbot & Corkin 2007).

Using experimental hippocampal lesions, Richard Morris demonstrated that the hippocampus was similarly important for learning and memory in rodents (Morris 1981). Since this seminal research, other studies have further characterized the role of the hippocampus in the formation of declarative memory and spatial learning. In one such study, Eichenbaum and collaborators (1990) severed the fimbria-fornix of rats, in effect disconnecting the hippocampus from its sub-cortical input. As a consequence, the lesioned rats were unable to learn locations that were based on relative spatial cues, although they were still able to find locations if placed in the same starting point each time, suggesting the importance of the hippocampal formation in spatial navigation (Eichenbaum et al 1990). In 2000, Lassalle and co-workers chemically inactivated the mossy fibre pathway, thus severing the DG from the CA3 hippocampal sub-region. As a result, spatial learning (but not consolidation or memory retrieval) was impaired by this lesion (Lassalle et al 2000), implying that the DG is important for this type of learning. Similarly, irradiation-induced hippocampal hypoplasia in the neonatal rat and chemically-induced hippocampal hypoplasia in the adult rat were shown to result in impairments in place strategy-related learning (Xavier & Costa 2009), once again indicating that the DG is essential for a type of spatial learning that requires place knowledge. Indeed, functional imaging experiments using rats that were involved in spatial tasks has led to the idea of the existence of specialized “place cells” in the hippocampal DG that fire in response to location cues. It is currently believed that the specific pattern of firing of these cells allows animals to locate their spatial position with a good degree of precision (Moser et al 2008; Shapiro et al 1997).

3. MECHANISMS OF LEARNING AND MEMORY

It is generally accepted that the neurobiological mechanisms underlying the processes of learning and memory formation include various forms of synaptic plasticity involving neuronal networks that are activated during learning. Since the discovery of long-term potentiation (LTP) in 1973 (Bliss & Gardnerm 1973; Bliss & Lomo 1973), the role of synaptic strengthening in learning and memory has been the subject of considerable investigation, and numerous studies have provided new insights into how this form of plasticity can underlie memory function.

There are, however, other forms of synaptic plasticity including synaptic elimination or weakening through long-term depression (LTD) (Dudek & Bear 1992; 1993), synaptogenesis (i.e., the growth of new synaptic connections), synapse remodelling (Waites et al 2005), and neurogenesis (i.e., the generation of new neurons in the adult brain) (Altman 1962; Altman & Das 1965), and several lines of evidence have also implicated these additional forms of synaptic plasticity in learning and memory (see below).

Importantly, the two functional forms of neuronal plasticity (LTP and LTD) were first discovered to occur in the hippocampus (for review see Bliss & Collingridge 1993) and the hippocampal DG is one of the two regions in the adult mammalian brain that sustains neurogenesis throughout adulthood (for review see Cameron & McKay 2001), further implicating this brain region in certain types of learning and memory (Section 2).

3.1. Synaptic Strengthening and Long-Term Potentiation

Early theories of learning and memory postulated that memories might be formed by strengthening the connections between existing neurons, thereby improving the effectiveness of their communication (Hebb, 1949). In the early 1970's, the first reports emerged showing that synapses in the hippocampus could sustain long-lasting changes in synaptic efficacy (Bliss & Gardnerm 1973; Bliss & Lomo 1973).

LTP refers to a long-lasting increase in the size of an evoked post-synaptic potential or current. The physiological and pharmacological characteristics of LTP make it a viable mechanism for learning and memory as it can be long-lasting (from weeks to several months) and is input-specific and associative in nature, endowing it with the ability to process converging input in a manner reminiscent of associative learning (for review see Bruel-Jungerman et al

2007a). In agreement, recent studies have confirmed that increases in synaptic strength occur in different brain regions during the formation of memories. For example, LTP was observed in hippocampal circuits during forms of associative learning that require an intact hippocampus (Gruart et al 2006; Whitlock et al 2006), and in the motor cortex during procedural learning (Rioult-Pedotti et al 1998).

While several mechanisms of LTP have been elucidated, one of the best characterized is mediated by the glutamate *N*-methyl-D-aspartate (NMDA) receptor. Importantly, NMDA receptor-dependent LTP exhibits several properties that make it an attractive candidate as a memory mechanism (for review see Bliss & Collingridge 1993), being suggested to play an incidental role in memory formation, rather than in memory storage and retrieval. Furthermore, it has also been postulated to be the neuronal equivalent of an arousal or attention device (Shors & Matzel 1997).

LTP induction occurs when repetitive synaptic activation leads to the release of the excitatory neurotransmitter glutamate and the consequent depolarization of the post-synaptic cell through the activation and opening of glutamatergic *a*-amino-3-hydroxy-5-methyl-4-isoxazolepropanoic acid (AMPA) receptor channels. The combined effect of AMPA-mediated depolarization and glutamate binding to post-synaptic NMDA receptors relieves the magnesium blockade of these receptors and allows the entry of calcium ions. The rapid rise in intracellular calcium concentration triggers the activation of protein kinases, including calcium/calmodulin-dependent protein kinase II (CaMKII) and protein kinase C (PKC). One of the substrates of both CaMKII and PKC is the AMPA receptor (Barria et al 1997; Lee et al 2000) and the phosphorylation of existing AMPA receptors by these kinases results in an increase in their activity, as well as the insertion of additional AMPA receptors into the post-synaptic membrane (Malenka & Bear 2004).

While early phases of LTP are dependent on protein phosphorylation, maintenance of LTP over a long period of time requires gene transcription and protein synthesis to occur in the post-synaptic cell (Abraham & Williams 2003; Lynch 2004; Pittenger & Kandel 2003). The persistent activation of protein kinases, including protein kinase A (PKA), calcium/calmodulin-dependent protein kinase IV (CaMKIV) and mitogen-activated protein kinase (MAPK), leads to the activation of the transcription factor cyclic-AMP response element binding protein (CREB) and consequently, to cyclic-AMP response element (CRE)-mediated gene expression (Abraham & Williams 2003; Lynch 2004; Silva et al 1998). It is believed that these changes in gene expression may trigger the synthesis of proteins that underlie the maintenance

of LTP. Such proteins may contribute to an increase in dendritic spine number, spine surface area and post-synaptic sensitivity to glutamate (Lynch 2004).

In support of this hypothesis, it has been shown that suppression of LTP after learning can erase a previously established memory (Pastalkova et al 2006). The authors showed that inhibiting one of the kinases that is involved in the maintenance of LTP, can reverse this form of synaptic plasticity. Furthermore, inhibition of this kinase several days after spatial learning was shown to cause retrograde amnesia, abolishing the stored memory (Pastalkova et al 2006). This finding provides strong support to the idea that the maintenance of LTP over days is a necessary condition for the maintenance of memory (Bliss et al 2006).

3.2. Synaptic Weakening and Long-Term Depression

Synaptic weakening, or the retraction and disappearance of synaptic connections within complex networks may reflect retrieval failure. Alternatively, it may serve as a means to weaken unused connections, thereby promoting the emergence of patterns of reinforced connections in the network, which could potentially benefit the storage of information (for review see Bruel-Jungerman et al 2007a). Indeed, synaptic elimination or pruning is known to play a crucial role in specifying the wiring of neuronal circuits during development. Moreover, recent evidence suggests that these processes can also play an important role in learning and memory (for review see Bruel-Jungerman et al 2007a). The discovery that activity-dependent LTD, a long-lasting reduction in the efficacy of neuronal synapses, can occur at hippocampal synapses under certain conditions of stimulation (Dudek & Bear 1992; 1993) indicates that neurons have the mechanisms to reduce synaptic strength in a form that can be functionally equivalent to synaptic elimination or selection.

Currently, it is thought that LTD can occur at most excitatory synapses in the brain, allowing for bidirectional synaptic plasticity to be established (for review see Bear 2003). In the hippocampus (DG and CA sub-regions), LTD is typically induced by repetitive stimuli at low frequencies (0.5-5 Hz) for extended periods of time (10-15 minutes) (Dudek & Bear 1992; 1993). The induction of LTD can also require the activation of NMDA receptors; however a small, slow rise in post-synaptic calcium levels is thought to induce LTD, as opposed to the sharp increase in intracellular calcium concentration that is responsible for inducing LTP (Mulkey & Malenka 1992). Furthermore,

calcium release from intracellular stores has also been proposed to contribute to LTD (Nishiyama et al 2000).

While the activation of protein kinases is essential during the early phase of LTP, the activation of calcium-dependent phosphatases such as calcineurin and protein phosphatase 1 (PP1) is involved in the early stages of LTD (Kirkwood & Bear 1994; Mulkey et al 1993). These protein phosphatases dephosphorylate post-synaptic PKC and PKA, while CaMKII remains relatively unaffected (for review see Malenka & Bear 2004). Furthermore, LTD is also associated with the dephosphorylation of post-synaptic glutamate AMPA receptors (Lee et al 1998), which results in a decrease in the receptor open channel probability (Banke et al 2000) and its removal (i.e., internalization) from the cell membrane (for review see Malenka & Bear 2004).

At present, it is unclear whether LTD acts as a cellular storage mechanism or whether this form of plasticity merely serves to adjust or counterbalance LTP-mediated synaptic strengthening. There are, however, some indirect arguments that support the first hypothesis. For example, a recent study has shown that LTD can be induced by low-frequency stimulation in the hippocampus when rats explore novel environments with objects, but not when this environment has become familiar, suggesting a role for LTD in complex spatial mapping (Kemp & Manahan-Vaughan 2007). Furthermore, mutant mice with forebrain-specific deletion of the serum response factor, an enhancer site for the expression of many immediate early genes (IEGs), show impaired hippocampal LTD with no apparent alterations in LTP. Interestingly, these mice display selective deficits in memory for novel contexts in association with a decreased expression of serum response element–containing genes including various LTD-related genes (Etkin et al 2006). Based on these studies, it has been suggested that the LTD-mediated synaptic weakening that occurs during memorization of a novel context may result in a greater potential for LTP-mediated synaptic strengthening during the subsequent synaptic recruitment that occurs when animals learn an explicit memory related to that context (for review see Bruel-Jungerman et al 2007a).

3.3. Synaptogenesis and Synapse Remodelling

Although it has long been speculated that structural rearrangements and remodelling of neuronal networks could be one of the mechanisms underlying learning and memory, it is still not clear whether memory formation involves

the formation of new synapses, or merely the morphological remodelling of pre-existing synapses (for review see Bruel-Jungerman et al 2007a; Geinisman 2000).

Indeed, while several studies have shown changes in spine density after certain learning paradigms (Leuner et al 2003; for review see Markham & Greenough 2004), others have failed to find an overall increase in synapse number after learning (Geinisman 2000). Nevertheless, many aspects of synapse restructuring have been observed in a consistent manner (Geinisman 2000; Leuner et al 2003). Moreover, even when no changes in the overall synapse density are observed, increased densities of certain types of spines at the expense of others, or increases and decreases in different portions of dendrites or in different neurons might still be found (Harris et al 2003; Rusakov et al 1997).

Similarly, there is little evidence indicating that the overall number of synapses changes with LTP, although the localized outgrowth of dendritic protrusions has been observed in the immediate vicinity of synapses upon LTP (Marrone & Petit 2002). Nevertheless, several types of morphological changes in existing synapses have been repeatedly reported after LTP induction or learning (for review see Geinisman 2000; Harris et al 2003). These morphological changes include the spatial clustering of synapses (Rusakov et al 1997), alterations in synapse curvature (from convex to concave) (Vanreempts et al 1992) and in the size of the active zone (Devoogd et al 1985; Horn et al 1985; Stewart & Rusakov 1995; Vanreempts et al 1992), as well as the appearance of perforations (Buchs & Muller 1996; Geinisman et al 1991; Toni et al 1999) and of multiple-synapse boutons where one pre-synaptic terminal makes contact with distinct post-synaptic spines (Marrone 2007). On the other hand, LTD has been shown to induce spine shrinkage (Zhou et al 2004). Importantly, these alterations in the morphology of synapses appear to occur sequentially, contributing to an overall increase in synaptic efficacy (for review see Bruel-Jungerman et al 2007a).

In summary, both LTP-mediated synaptic plasticity and behavioral learning are accompanied by structural modifications of synaptic connectivity. However, while the formation of new spines and synapses has been demonstrated to occur following LTP induction (Engert & Bonhoeffer 1999; Toni et al 1999), there is no direct evidence that the same process also occurs during learning. Nevertheless, both LTP and learning can remodel existing neuronal circuits through a range of morphological changes that can lead to increased synaptic strength and the appearance of new functional synaptic units.

3.4. Adult Neurogenesis

During the past 50 years it has become convincingly apparent that the adult mammalian brain retains the capacity to generate new neurons (Altman 1962; Altman & Das 1965; Cameron et al 1993; Kaplan & Hinds 1977; Kuhn et al 1996), a characteristic that is preserved in humans (Eriksson et al 1998). This process is not ubiquitous however and neuronal proliferation and differentiation only continue to occur in restrict areas of the brain.

Interestingly, the DG of the hippocampus is one of such regions where neurogenesis occurs during adulthood. Here, newborn neurons migrate just a short distance from the DG sub-granular zone to the DG granule zone where they integrate into the existing circuitry (for review see Lie et al 2004). A dividing progenitor cell gives rise to daughter cells which differentiate, migrate, and integrate extending dendrites towards the molecular layer and an axon towards the CA3 region of the hippocampus (for review see Kempermann et al 2004). New neurons are fully mature within approximately four weeks of mitosis. About 9000 new cells are generated each day in the rodent hippocampus (hundreds of thousands of cells each month, accounting for 6% of the total granule neuronal population) of which about 80-90% differentiate into neurons (Cameron & McKay 2001).

Adult neurogenesis and each one of its phases are tightly regulated and can be influenced by many factors. While being partially regulated by genetics, the generation of new neurons in the adult brain is also regulated by physiological, pathological, and behavioral factors. For example, stress (Gould et al 1998), inflammation (Ekdahl et al 2003), and aging (Kuhn et al 1996) can down-regulate adult neurogenesis. Conversely, antidepressant drugs (Malberg et al 2000; Manev et al 2001), growth factors (Aberg et al 2000; Zigova et al 1998), physical exercise (van Praag et al 1999a; van Praag et al 1999b), environmental enrichment (Kempermann et al 1997), and learning (Gould et al 1999), can up-regulate the capacity for neurogenesis in the adult mammalian brain.

Importantly, newly generated neurons have particular physiological properties that make them more susceptible to behavioral-dependent synaptic plasticity (for review see Bruel-Jungerman et al 2007b). Indeed, new DG neurons present a low threshold for LTP induction and the ability to produce stable LTP more readily than mature neurons (Saxe et al 2006; Snyder et al 2001), which might be due to their specific membrane properties such as greater NMDA receptor sensitivity and calcium entry upon synaptic activation (Schmidt-Hieber et al 2004). On the other hand, LTP has also been shown to

induce adult hippocampal neurogenesis (Bruel-Jungerman et al 2006), which further strengthens the link between structural and functional hippocampal synaptic plasticity.

Since these newly generated neurons are linked to the functioning of the hippocampus, it is reasonable to speculate that they might play a role in the mechanisms of hippocampal-dependent learning and memory. In agreement with this hypothesis, numerous correlative studies have shown that hippocampal neurogenesis can be modulated by learning and behavioral experience, and that loss of hippocampal neurogenic function can have consequences on memory formation (for review see Bruel-Jungerman et al 2007b; Koehl & Abrous 2011).

In a pioneer study by Gould and collaborators (1999), both spatial learning in the Morris water-maze (see Section 4.2.1) and trace eye-blink conditioning (see Section 4.1.1) were shown to enhance the survival of newborn neurons in adult rats, whereas learning tasks that do not involve the hippocampus had no effect on neurogenesis (Gould et al 1999). Similar findings have since then been reported by others (Lemaire et al 2000; Leuner et al 2004). However, various studies have failed to detect an effect of hippocampal-dependent learning on adult hippocampal neurogenesis (Olariu et al 2005; Snyder et al 2005; van Praag et al 2000). The reasons for these discrepancies are not fully understood, but may involve differences in the methods used to induce learning as well as in the protocols utilized to evaluate neurogenesis (e.g., use of different neurogenic markers).

Nevertheless, it was recently shown that new neurons are indeed recruited into neuronal circuits involved in spatial learning and memory in the hippocampus (Kee et al 2007). Furthermore, other studies have shown that disrupting or ablating adult hippocampal neurogenesis results in impaired hippocampal-dependent learning and memory. Indeed, experimental reduction of adult neurogenesis impaired hippocampal-dependent trace eye-blink conditioning (see Section 4.1.1) but not hippocampal-independent delay conditioning (Shors et al 2001). Similar results were obtained with other hippocampal-dependent tests, including place-recognition tasks (Madsen et al 2003), contextual fear conditioning (see Section 4.1.1) (Saxe et al 2006; Winocur et al 2006), and a non-matching-to-sample task, which measured conditional rule learning and memory for specific events (Winocur et al 2006). Based on these studies, it is currently believed that hippocampal new neurons are required for the separation of events based on their spatial and temporal characteristics (a process that preserves the uniqueness of a memory representation), as well as space representation, long-term memory retention,

and flexible inferential memory expression (for review see Koehl & Abrous 2011).

4. ANIMAL MODELS OF LEARNING AND MEMORY

Animal models have provided a rich source of information about the neurobiological basis of learning and memory and have been instrumental in shaping our understanding of how the normal and damaged or diseased brain processes information.

4.1. Rodent Models of Conditioning

Associative learning occurs when an animal learns to connect two events with each other and tests of conditioning continue to be the most important techniques to study associative learning and memory (Maren 2001; Watson & Rayner 1920). Conditioning can be further divided into classical conditioning, a form of associative learning that involves the association between two stimuli, and operant conditioning, which occurs when a response and a stimulus become associated (Powell et al 1991).

4.1.1. Rodent Models of Classical Conditioning

The first model of classical conditioning was developed by Ivan Pavlov, who noted that salivation in a dog, normally evoked by a food placed in the dog's mouth, could also be evoked by stimuli that, on repeated occasions, had preceded the feeding of the dog. In light of his pioneering contribution to the field, classical conditioning can also be referred to as Pavlovian conditioning (Pierce and Epling, 1999; Maren 2001).

Fear Conditioning. In fear conditioning an unconditioned stimulus (US) such as a tone or static feature of the training context (i.e., light and smell) is paired with a conditioned stimulus (CS), in this case an aversive stimulus. During the course of learning, the CS acquires the ability to elicit a response, which was originally only evoked by the US (Maren 2001; Watson & Rayner 1920). The fear conditioning paradigm has been quite successful as a model to study the cellular and molecular mechanisms underlying learning and memory (Fanselow et al 1994; Frankland et al 2001). Furthermore, this behavioral

paradigm has potential relevance as a model for human anxiety disorders (Indovina et al 2011).

Cue-plus-contextual fear conditioning is one variation of fear conditioning that is used in studies of rodent learning and memory (Brunzell & Kim 2001; Phillips & Ledoux 1992). In a typical cue-plus-contextual fear conditioning experiment animals are placed in a fear conditioning apparatus for about two minutes followed by a 30 second period when an acoustic CS (tone or preferably white noise) is delivered. During the last two seconds of the tone, a mild foot shock (US) is applied to the floor grid of the apparatus. This pairing protocol can be repeated with a brief interval (e.g., two minutes) between pairings (Balogh et al 2002). When trained in this fashion, the animals learn that the context in which they are trained is a place to be feared and that the noise or light CS predicts an upcoming foot shock, and thus it should also be feared. These two components of the learning are referred to as contextual and cued fear conditioning, respectively (Maren 2001). The brain regions that are thought to be involved in the response to these types of fear conditioning are the amygdala and the hippocampus (Ji & Maren 2008; Maren 2008).

Eye-Blink Conditioning. Eye-blink conditioning uses the association of a neutral stimulus, such as tone or light CS, paired with a nociceptive US, such as an air puff delivered to the eye or a mild periorbital shock. Representation of the CS results in an eye-blink conditioned response (CR) in anticipation of the US (Takehara et al 2003). Depending on the time between CS onset and US onset, eye-blink conditioning can be sub-divided into delay eye-blink conditioning (when the CS onset precedes the US onset and the two stimuli overlap and co-terminate) and trace eye-blink conditioning (when the CS precedes the US and there is a stimulus free period, called the trace interval, between the CS offset and the US onset). Importantly, while both of these procedures require the involvement of the cerebellum, the trace procedure also requires the hippocampus (Takehara et al 2003). Classical conditioning of the eye-blink response is typically performed using rabbits as the experimental subjects, although the procedure can also be performed in rats and mice.

4.1.2. Rodent Models of Operant Conditioning

The operant conditioning task is one of the most important learning paradigms used in rodents for studying goal-directed behaviors. Edward Thorndike first observed operant conditioning in cats in the so-called puzzle box. Animals locked in the box with food outside the door, would eventually by trial and error, push the right levers to open the box, and obtain the food.

After only a few trials, cats learned to open the box quickly and efficiently (Thorndike 1898). Accordingly, in paradigms of operant conditioning a stimulus is paired with a response, for example, an animal that must press a lever to receive food as a reward (Skinner 1953). The animal thus learns from the consequences of its behavior, changing it accordingly.

An operant conditioning chamber (also called Skinner box) permits experimenters to study behavior conditioning (training) by teaching a subject animal to perform certain actions (e.g., pressing a lever) in response to specific stimuli, like a light or sound signal (Skinner 1953). When the subject correctly performs the behavior, the chamber mechanism delivers food or another reward. In some cases, the mechanism delivers a punishment (e.g., foot shock) for incorrect or missing responses. Thus, with this apparatus, experimenters perform studies in conditioning and training through mechanisms of either positive reinforcement (i.e., reward) or negative reinforcement (i.e., punishment). In rodents, two of the areas involved in learning an operant conditioning task are the medial prefrontal cortex and the hippocampus and recent studies have shown that a reward-dependent task differentially induces structural plasticity (i.e., cell proliferation, cell survival, astrogliogenesis, neurogenesis and neuronal maturation) in these brain regions (Rapanelli et al 2011).

4.2. Rodent Models of Spatial Learning and Memory

Spatial memory evolved in different species possibly because it provides information on spatial locations, object configuration and specific routes that are relevant to the preservation and survival of the species (O'Keefe and Nadel 1978). By means of this memory system, animals can locate food sources while preventing risky situations on the basis of previous experiences.

Edward Tolman (1949) was the first to study spatial behavior in rats. Tolman observed that when hungry rats were put at the entrance of a maze and provided food at the end the error rate to find food decreased with the number of trials (Tolman & Gleitman 1949). Since the initial experiments by Tolman, evaluation of hippocampal-based spatial learning and memory has been assessed by numerous behavioral paradigms in rodents (D'Hooge & De Deyn 2001; Holmes et al 2002; Koopmans et al 2003; for review see Paul et al 2009).

Learning tasks based on mazes are the most frequently used methods to investigate spatial learning and memory in rodents because they use the

natural tendency of the animals to navigate through a complex environment based on spatial information (for review see Paul et al 2009). The animal begins at a specific starting position in the maze and then must navigate to a goal position in order to receive a reward (e.g., food or water, which constitute examples of positive reinforcement) or avoid a negative event (e.g., foot shock, bright light, or cold water, which represent examples of negative reinforcement) (Sharma et al 2010).

Although there are different mazes that can be employed to evaluate spatial learning and memory in rodents, those more commonly used are the Morris water maze (MWM) (Morris 1981), the Barnes circular maze (Barnes 1979), the radial maze (Olton & Samuelson 1976; Olton 1979), and the T-maze (Deacon & Rawlins 2006). In this chapter, we will focus on these mazes, outlining their applications, advantages and limitations (Table 1).

Table 1. Characteristics of the behavioral paradigms most commonly used to assess spatial learning and memory in rodents

Behavioral Test	Labor Intensive	Food/water Deprivation	Stress Level	Learning of the Task
Morris Water Maze (MWM)	Yes	No	Stressful	Fast learning
Barnes Maze	Yes	No	Not stressful, uses natural motivation	Slow or absent learning
Radial Maze	No	Yes	Moderately stressful	Possible use of non-visual/spatial strategies
T-Maze	No	Yes in some versions of the test	Moderately stressful	Fast learning when testing for working memory

4.2.1. Morris Water Maze

One of the most widely used procedures to study spatial memory is the MWM (Morris 1981; D'Hooge & De Deyn 2001; Hodges 1996). The water maze apparatus (see Figure 1) consists of a large, circular pool filled with

opaque water in which a small escape platform is hidden (spatial version of the test). The animal has to locate the platform hidden under the water from four different starting points (or quadrants). Over a number of trials the animal learns the location of the hidden platform based on distal cues and with time the latency to locate the platform decreases. The memory is tested afterwards by a probe trial in which the hidden platform is removed and the amount of time spent in the former region of the platform is measured (Morris 1981). Both learning and memory tasks are hippocampal-dependent, as hippocampal lesions can compromise the performance in this classical version of the MWM (for review see D'Hooge & De Deyn 2001). On the other hand, animals can also be assessed in the MWM for their ability to locate a visible platform, independently of its spatial location within the maze environment. Importantly, this non-spatial version of the task is unaffected by hippocampal damage (Morris et al 1982).

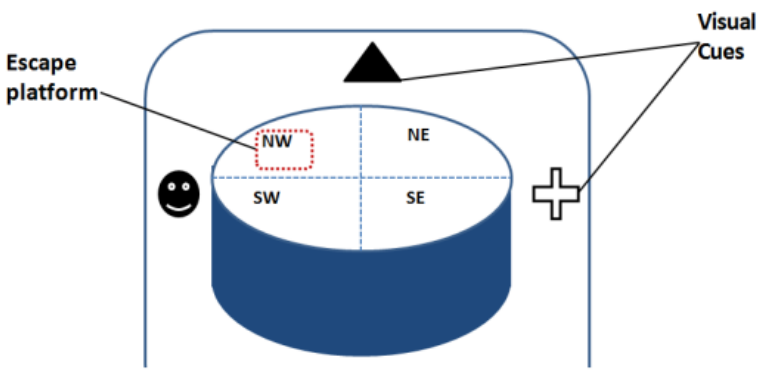

Figure 1. The Morris water maze (MWM) apparatus. The MWM apparatus consists of a large, circular pool filled with opaque water in which a small escape platform is hidden in one of the four quadrants. A series of visual cues are placed on the walls around the pool in order to aid the animal navigate and learn its path to the hidden platform. Abbreviations: MWM, Morris water maze; NE, north-east quadrant; NW, north-west quadrant; SE, south-east quadrant; SW, south-west quadrant.

The use of the MWM to assess learning and memory presents several advantages. To begin, learning has been shown to occur faster on the MWM when compared to other mazes, possibly due to the exposure of the animal to water, which can be perceived as an aversive stimulus (Hodges 1996). Furthermore, and in contrast to the radial maze (see Section 4.2.3), this test

does not require water or food deprivation, thus limiting the number of days needed to proceed with experimentation and eliminating additional stress related with hunger or thirst. Moreover, the use of water in this maze eliminates the possibility of animals using aromatic cues to orient themselves in the escape search, which is a potential confounding factor that occurs in the dry-land mazes. On the other hand, although simple to build and adapt, the MWM requires video-recording systems and software for complete analysis of behavioral parameters, equipment that may not be readily available to all researchers. Finally, the exposure of animals to the water might be perceived as a stressful event, which can potentially add an external confounding variable to the study.

4.2.2. The Barnes Maze

Carol Barnes developed a circular hole-board maze task to use as an assessment of spatial learning in aged rats (Barnes 1979). The Barnes maze consists of an elevated circular platform with holes along its perimeter (12, 20 or 40 depending on the diameter). The maze is surrounded by black curtains with visual cues placed on them (see Figure 2). Rodents find open, well-lit spaces aversive and they will search around the platform trying to find a safe, dark refuge. The escape hole is always placed in the same location of the room with respect to distal cues in the environment and animals use these visual cues in the extra-maze environment to learn the spatial location of the escape hole. During testing, animals receive reinforcement to escape from the open platform surface to a small, dark, recessed chamber located under one of the holes called the "target box" (Barnes 1979).

The use of the Barnes maze presents some advantages over the three other most popular tests of visual-based spatial learning and memory (MWM, radial maze, and T-maze). First, in contrast to the radial maze (see Section 4.2.3), food or water deprivation are not required to motivate animals in the Barnes maze and therefore performance is not influenced by individual variability in hunger or thirst. Moreover, walking in the Barnes maze is less stressful and less physically exhaustive than swimming in the MWM (Harrison et al 2009) and the performance of animals is not influenced by reduction of body temperature caused by the session of swimming over multiple training trials which are required in the MWM (Holmes et al 2002; Miyakawa et al 2001; Pompl et al 1999). In addition, like the MWM (see Section 4.2.1), it allows for the evaluation of learning, working memory, and spatial reference memory (Harrison et al 2006).

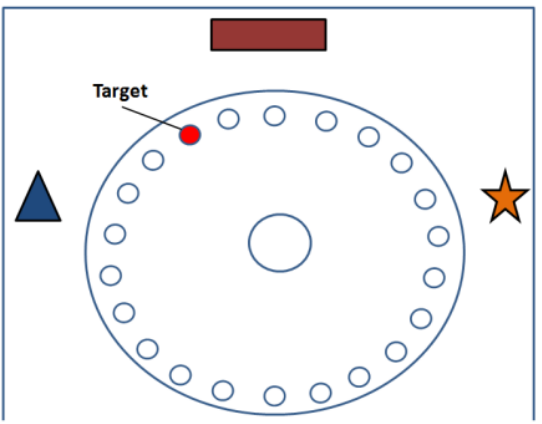

Figure 2. **The Barnes maze apparatus.** This apparatus consists of an elevated circular platform with several holes along its perimeter. One of the holes constitutes an escape refuge and different visual cues are placed around the maze. Animals use these visual cues in the extra-maze environment to learn the spatial location of the escape hole. Target = escape hole.

One disadvantage of the Barnes maze is that learning can be very slow or even absent in some cases. This can be explained by the lack of stressful stimuli, thereby producing more exploratory behavior than escape responses in animals that are not sufficiently motivated to escape (Sunyer et al. 2007). Another disadvantage of the Barnes maze is that it can also stimulate non-spatial strategies (for example, if the maze is not cleaned appropriately, the animals can use "aromatic cues" to solve the maze) (Sharma et al 2010).

4.2.3. Radial Maze

The radial maze was developed by Olton and Samuelson in 1976 and consists of 8–17 equally spaced arms radiating from a central platform (5 cm wide and 35 cm long for mice or 10 cm wide and 50 cm long for rats; see Figure 3), which the rodent has to enter in order to obtain a reward of food or water that is placed in some of the arms (Olton & Samuelson 1976). An animal that has been deprived from either food or water is placed in the center and is allowed to collect food pellets or drink water from each arm (sampling without replacement). The optimal strategy for obtaining all the rewards in the least amount of time is to visit each arm only once during a trial. The number

of visits to empty arms is calculated as errors made (Wenk 2004) and can give information regarding the animal's spatial working memory (Olton et al 1977).

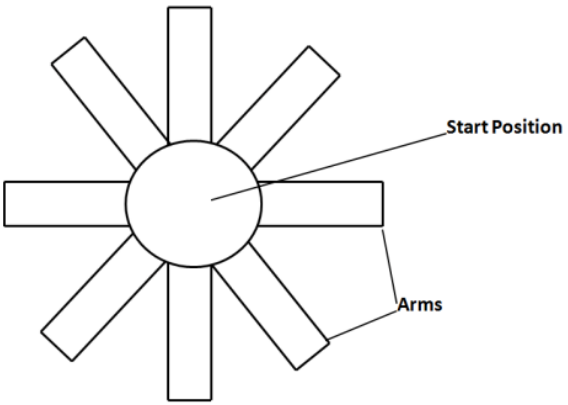

Figure 3. **The radial maze apparatus.** This apparatus consists of several equally spaced arms radiating from a central platform. Traditionally, small food pellets are placed in some of the arms. An animal that has been food-deprived is placed in the center of the apparatus and in order to collect the maximum number of food pellets, has to learn which arms have been previously visited.

Olton also developed a variant of the radial maze that allowed assessing reference memory in addition to working memory. To test both, only three or four arms are baited with a food or water reward (Olton 1979). Re-entry into a previously baited (now empty) arm is defined as a "working memory" error. Entries into never-baited arms are counted as "spatial reference memory" errors. Further studies have confirmed that the animal uses spatial cues to recognize the arms previously visited, making this an hippocampal-dependent task (Mazmanian & Roberts 1983).

However, while this task permits the examination of both reference and working memory, major limitations include the use of food or water deprivation, as well as the presence of odor confounds (Detoledomorrell et al 1984; Ikegami 1994; Morgan et al 2000).

4.2.4. T-Maze

T-maze tasks are well characterized and are widely used for cognitive behavioral testing in both mice and rats (Deacon & Rawlins 2006). The T-maze is an elevated or enclosed apparatus in the form of a T placed

horizontally (Figure 4). Animals are placed at the base of the T and allowed to choose between the two goal arms located at the other end of the stem. If two trials are given in quick succession, the natural tendency of rats and mice in a T-maze is to alternate their choice of goal arm (Dember & Richman, 1989). Alternation reflects the motivation of the animal to explore its environment and locate the presence of resources such as food, water, mates or shelter. Therefore, in some versions of the test, a reward of food or water is placed at the end of the goal arms and animals are deprived of food or water before being submitted to the task. However, animals do not need to be deprived of such resources to show alternation behavior, as they tend to show "spontaneous alternation", as a form of exploratory behavior. This strategy involves the use of working memory, since the response obtained in each trial varies according to what the animal has previously just done (Olton et al 1979). Alternation behavior, whether rewarded or spontaneous, is excellent for detecting hippocampal dysfunction (Deacon & Rawlins 2005; Rawlins & Olton 1982; Reisel et al 2002).

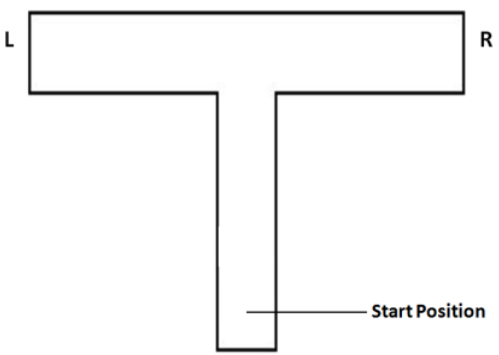

Figure 4. **The T-maze apparatus.** This maze is an elevated or enclosed apparatus in the form of a horizontal T. Animals are placed at the base of the T and allowed to choose between the two arms located at the other end of the stem. A reward of food or water can be placed in each arm of the maze. When repeated sessions of the task are performed, the animal's natural tendency will be to alternate between the two arms. Abbreviations: L, left arm; R, right arm.

The original T-mazes required constant handling of the animals, potentially inducing stressful responses that could affect the results of the test. For this reason, an alternative T-maze called "continuous alternation task" has been developed. In this apparatus removable doors to the entrance of each arm have been built in order to block the access to the unselected arm. With this

simple modification it was possible to avoid excessive manipulation and thus considerably decrease the procedural stress (Gerlai 1998; Spowart-Manning & van der Staay 2004).

CONCLUSION

While learning and memory are very complex processes that are just now beginning to be elucidated, they represent a very important aspect of cognition. Several brain regions are thought to play important roles in these mechanisms, and their specific involvement may vary according to the type of learning or memory process. Among these brain regions, the hippocampus assumes a predominant role in specific types of learning and memory, such as conditioning and spatial navigation.

The development of sophisticated electrophysiology and imaging techniques has helped the elucidation of the molecular and cellular underpinnings of hippocampal-dependent learning and memory processes. As a result, it is now believed that various mechanisms of functional (i.e., synaptic strengthening and weakening) and structural (i.e., synaptogenesis and neurogenesis) plasticity constitute the basis of these cognitive processes. Key questions that warrant future research include the precise identification of which conditions, phases, or processes of learning and memory these four types of brain plasticity are involved and which brain regions and neuronal circuits engage in these mechanisms in relation to different types of memories.

Several behavioral tests have been devised in order to assess learning and memory in rodents, including various classical and operant conditioning paradigms as well as tasks of spatial learning and memory. Noteworthy, while non-hippocampal brain regions such as the amygdala, the cerebellum, and the medial prefrontal cortex are also known to play a role in the mechanisms of learning and memory involved in tasks of classical and operant conditioning (Maren 2008; Rapanelli et al 2011; Takehara et al 2003), the spatial behavioral tests discussed here are very sensitive to hippocampal dysfunction (Paul et al 2009; Sharma et al 2010). Furthermore, these tests do not require pre-training in order to evoke a particular response because behavioral output is based on the natural tendencies of the animal (Gerlai & Clayton 1999). These considerations should be taken into account when designing behavioral experiments and consequently, the tests should be carefully chosen in accordance with the research questions that the investigators wish to answer.

Ultimately, understanding the mechanisms underlying the processes of learning and memory and how these processes are behaviorally manifested will be essential not only for the development of better cognitive-based therapies, but also for the screening of novel therapeutic strategies for the treatment of several neurocognitive disorders.

LIST OF ABBREVIATIONS

AMPA, *a*-amino-3-hydroxy-5-methyl-4-isoxazolepropanoic acid; CA, cornu ammonis; CaMKII, calcium/calmodulin-dependent protein kinase II; CaMKIV, calcium/calmodulin-dependent protein kinase IV; CS, conditioned stimulus; CR, conditioned response; CRE, cyclic-AMP response element; CREB, cyclic-AMP response element binding protein; DG, dentate gyrus; IEGs, immediate early genes; LTD, long-term depression; LTP, long-term potentiation; MAPK, mitogen-activated protein kinase; MWM, Morris water maze; NMDA, *N*-methyl-D-aspartate; PKA, protein kinase A; PKC, protein kinase C; PP1, protein phosphatase 1; US, unconditioned stimulus.

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Chapter 3

THE HEALING POTENTIAL OF IMAGINATION IN THE TREATMENT OF PSYCHOTRAUMA: AN ALTERNATIVE EXPLANATION FOR THE EFFECTIVENESS OF THE TREATMENT OF PTSD USING FANTASTIC REALITY

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This chapter consists of three parts. First we will discuss the concept of Fantastic Reality, then we will introduce a new protocol for the treatment of psychotrauma using combined methods and emphasizing the centrality of imagination and last, we will discuss its uniqueness and distinction in comparison to the current cognitive behavior therapy (CBT) treatments of post traumatic stress disorder (PTSD).

FANTASTIC REALITY (FR)

Fantastic Reality (FR) is the "as if" space, where every "if" is possible. It allows the psyche to play again as it did in early childhood, in a space where laws of reality do not govern. In this space it is possible to invent stories as part of a journey in quest of answers and insights for real life situations for

which logical solutions are no longer satisfactory. In FR, it is possible to search for logical metaphorical answers and solutions and images, with the aim of ascertaining how applicable they may be in the future. Often, the journey to FR and back brings about relief, even when there is no practical application of the "insights" or "gaining of knowledge" experienced. This relief may stem from the "distancing for the sake of bringing near" principle. Being in FR is often experienced as a state that simulates a trance. It is possible that the resulting relief comprises the sensorial experience of all early childhood abilities that enable the adult sharing this to experience that Winnicott calls creating a world (Lahad, 2006).

Findings of various studies show that between a third to a half of our waking hours as adults are spent daydreaming, holding imaginary conversations, fantasizing about an upcoming vacation or in imaginative re-narration of a past rendezvous with a loved one (Klinger, 1990). In his book *Halom Hanefesh* (The Dream of the Soul) (Cohen, 1996, pages 21-22), the author quotes the following excerpt from Coch-Strauss and colleagues:

> "The potential images of dreams and the awakening fantasies offer us the necessary materials to discover and define ourselves. All we must do is to use them wisely. With these channels we can win a fresh, personal, creative perspective of ourselves and the world around us. This will help us go beyond our usual points of reference in our search for solutions to problems we encounter."

During childhood, there is no differentiation or separation made between reality and imagination. As all children who believe in fairies will testify, Tinker Bell, Peter Pan's fairy, demands that we declare our belief in fairies, otherwise they are doomed to die. What child would allow such a sweet fairy to die?

Children can easily move back and forth between reality and imagination. The younger they are, the more this is considered advantageous. But adults in our culture try to wean themselves from the ability to imagine, or at least to conceal and hide this ability, lest they lose points in the race to "appear sane."

This mechanism is at our disposal during times of crisis and grave danger. It enables us to temporarily detach ourselves from the terrible, life-threatening event (Horowitz, 1986; Putnam, 1993; 1997; Merckelbach and Candel, 2004). We know about this detachment from accounts of rape victims, survivors of traumatic disasters, torture victims, prisoners and hostages.

The victims report this amazing detachment – this dissociation in the service of survival. "It is possible to see these conscious situations as one of nature's small graces that shield against unbearable pain… detached conscious situations are similar to a hypnotic trance. In both cases there is a relinquishing of voluntary action, suspension of initiative and critical judgment, subjective distancing or peace, increased conceptualizing of images, changes in feelings including sensory numbness, analgesia, distortion of reality, including detachment from the self, detachment from reality and changes in the sense of time." (Hilgred in Herman, 1992, page 62).

FR is the link between the infinite ability of the creative imagination to create a world picture, desired or required, and the actions taken to solve problems in reality in the shared space of therapy. In FR the three laws of the "real" world: Time, place and role, do not rule. In reality things can happen only at a certain time and in a certain place, and preferably the person participating will have a specific role. Sometimes people must play several roles simultaneously. This is usually experienced as a burden or a heavy load that impairs functioning. We tend to refer to it as "dual or multiple responsibilities" that prevents us from feeling that we are fully in the moment.

In FR one can shrink time or stretch it, and have things happen 'here and now' and 'then and there' at the same time. The place can be simultaneously the real space (therapy room) and another magical venue. This place can be inside (a palace, for example) or outside (a dense forest). The client can simultaneously be himself and play another role. The roles can be realistic, desirable, imaginary, etc.

Landy (1993) explains the paradox at the core of the dramatic experience: "It is possible that the most significant aspect of the dramatic paradox has to do with the fact that the actor and the role are at the same time separate and united and the reality of the existence of the actor lies in his coexistence with the fictitious reality of the role he is playing" (p. 11).

Winnicott (1971) discusses a similar space called "the potential space." This is the psychic space where positive, fulfilling experiences occur; where there is no need for a realistic object and one can move between reality and imagination. The potential space differs from person to person. Its existence depends upon life experiences and not on genetic tendencies. According to Winnicott (1971), play takes place in the in-between space, the space between the child's inner and outer worlds, between reality and imagination.

Healing or relaxation is experienced by permitting the psyche to play like a child's. This experience is possible in a noncritical, nonjudgmental, non-self-righteous space; a space that is creative, encouraging and where play is

encouraged. This is a space where the invention and fabrication of stories is permitted, a space in which to daydream and to fantasize while fully aware that the movement from reality to FR is in the service of the coping self, and its goal is not to detach from real life.

FANTASTIC REALITY AND DISSOCIATION

In mainstream psychology and psychotherapy, the transcendence into FR during or immediately following a traumatic incident (and certainly later on) is considered to be dissociation.

Dissociation is described by the Webster new world medical dictionary as detachment of the mind from the emotional state or even from the body. Dissociation is characterized by a sense of the world as a dreamlike or unreal place and may be accompanied by poor memory of the specific events, which in severe form is known as dissociative amnesia (Cardena and Spiegel, 1993). The term dissociation refers to the act of separating or the state of being separated, and is one of the strongest predicators of PTSD. In some studies, the closer in time this occurred, the greater the chances of it being a major risk factor predicting the possible development of PTSD. In 2003, Ozer and colleagues found that peritraumatic dissociation – (PTDIS) that occurs in close- time proximity to the event, predicts a higher risk of developing PTSD (they claim that 70 percent of those who have experienced PTDIS at the acute stage (ASR) will develop PTSD) (Ozer, Best, Lipsey and Weiss 2003).

However, in a critical review of dissociation, Bryant (2007) questions whether it is in fact a critical predictor. An attempt to study PTDIS was recently made by Kaplansky in her doctoral research (2009). She examined the link between the ability to transcend to FR and PTSD. Looking for definite PTDIS, she decided to work with people who had been in life-threatening traumatic situations and voluntarily described a situation that was closely associated with FR. Kaplansky examined a group who had had near death experiences (NDE) Greyson,(1991; 1993; 2000).

The people in this group were exposed to an extreme life-threatening event (cardiac arrest, rape, terrorist act, road accident). They gave an account of the event which included the following elements of FR: Transcendence; a tunnel with light at the end; an encounter with spirit beings; a feeling of being out of one's body; and a sense that ,life flashed before my eyes like in a movie. (Kaplansky, 2009). As this phenomenon occurs at the PTDIS stage, it may present a risk that the members of the group will develop PTSD (Brooks,

Bryant, Silove, Creamer et al., 2009). Kaplansky's research replicated Greyson's findings from 2000 and found that the NDE group not only did not suffer PTSD but its scores on the anxiety and dissociation scales were low in comparison to both the general population and to clients diagnosed as suffering from PTSD. When she checked the PTSD group she therefore expected that they would not report NDE experiences; however, this was not the case.

The study shows that clients suffering from PTSD also had NDE. Nevertheless, unlike those who transcended into FR (almost 70% of the stories included floating, light, meeting spirit beings and other NDE features) the PTSD group's most common NDE experience was "seeing my life flash before my eyes" (over ten times more). This means the client was aware of its life's termination of all that have happened to him, in other words out of all the NDE experiences this is the closest to reality. It may include elements of guilt,remorse, deep sorrow at relinquishing life, and no joy that those encountering the light or the spiritual beings, report on.

Looking for a potential explanation in the childhood experiences of the NDE group that might have "trained them to transcend into FR," Kaplansky asked them about childhood imaginative activities. Her study demonstrates a clear distinction between the NDE group, the control group and the group suffering from PTSD in the way they used imagination and its outcomes in their childhood (i.e. playing musical instruments, dancing, painting, participating in drama or theater and most of all, telling and listening to stories). Those who reported experiencing NDE surpassed the rest in the length of time and the intensity of their stay in FR, and yet maintained their ability to move back and forth between FR and reality. In addition, the study raises the possibility that children who "practiced" transcending into FR and whose parents encouraged such activity, may developed some protective feature for encountering extremely threatening situations, or some resiliency.

Kaplansky maintains that dissociation is an attempt by the human brain to protect the individual from the horror of exposure to death and to psychotrauma, however, not everyone manages to exploit this mechanism to its fullest potential. The study proposes making a distinction between complete dissociation – NDE – and partial dissociation. The former "saves" the one exposed from the horror of death, while the latter continues for a time in the brain's desperate, but unsuccessful attempt to conclude the process of transcendence into FR. The PTSD sufferer remains trapped in the fragments of dissociation that embitter his life (Kaplansky, 2009). This study is one of the foundations upon which we propose to use FR in treatment or in re-narration

of trauma. This will enable the individual to combine fantastic elements with an otherwise impossible and unbearable event so that he can undergo the healing experience that dreaming and transcending make possible.

The findings regarding the excessive use of imaginative involvement in childhood and the subsequent experience of NDE, supports findings of researchers 25 years earlier. Council and Greyson (1985) found that 63 participants who reported prototypical NDE were found to be significantly high in personality trait called Fantasy Proneness. Coined by Wilson and Barber (1983), such personality disposition involves a childhood history of intense imaginative involvement in reading, play activities, and mystical/religious experiences. Further evidence that may support the theory about the efforts of PTDIS to attempt to be a conduit to FR is the finding of Candel and Merckelbach (2004) who reported a positive correlation between PTDIS experiences and indices that report a tendency to fantasize. As mentioned earlier, researchers describe people with a tendency to fantasize (e.i fantasy proneness) as "fantasizers" in childhood and adulthood, who, among other things, have difficulty distinguishing between "real" and fantastic events that occur in subjective reality (Wilson and Barber, 1983). Recently, this personality trait was found to have a direct and unmistakable connection to the tendency to cope via the mechanism of imagination in time of stress, as measured by the *BASIC PH* integrative multi-dimensional model of coping mechanisms inventory (Lahad and Leykin, unpublished data). Furthermore, a positive correlation between a tendency to fantasize and standard dissociation indices was also found in earlier studies (Dissociative Experiences Scale; Bernstein and Putnam, 1986). (See Merckelbach, Horselenberg and Murris, 2001.) From the perspective of memory theory, we may understand that combining fantastic elements in the treatment of trauma victims is founded on the complexity of the human memory, as seen especially in the memory of traumatic events. The dual representation theory of Brewin et al. (1996) proposes that the traumatic information is processed in one of two memory systems and creates two separate representations. The first system is the verbally accessible memory (VAM). This system processes autobiographical memories of the event and is associated with the later verbal description of the trauma. Information that did not receive enough attention to be saved in the VAM, is codified in the situationally accessible memory (SAM). This system saves sensory information, especially visual-spatial data, in the form of images. Hence, using images in therapy, including creating positive images and associating them with negatively charged ones, rests on the dominance of

the SAM system and the traumatic memory. Our clinical experience suggests that this kind of work has proven most effective.

And so, the preceding leads to our proposition for the application of the FR concept and practice in treatment, or in the reconstruction of a traumatic story. Using FR in the suggested manner enables the individual to merge fantastic elements into the story of the event in such a way as to benefit from the potential healing experience enabled by the transitioning and the fantasizing.

PTSD AND THE TREATMENT OF PSYCHOTRAUMA

For years it was believed that there was no remedy or solution for those suffering from acute psychotrauma. A breakthrough occurred during the past decade when efficient treatment methods , CBT in their origin, were discovered that relieve symptoms and even enable a significant number of people to recover from most of the syndromes (Bisson et al., 2007).The cognitive treatment that focuses on symptoms, that has been found to be unequivocally effective in treating post-traumatic clients (Seidler and Wagner, 2005), explains its effectiveness in cognitive models of memory, but in practice uses the imagination (although no attempt has been made to conceptualize this parameter and its contribution to the effectiveness of the treatment). This can be seen both in Prolonged Exposure in the stage of Imaginal exposure where the client is instructed to imagine the incident "as if" he is experiencing it and to retell the story as if it were happening now, as well as with eye movement desensitization reprocessing (EMDR), when the person imagines (visualizes) the traumatic event.

Cognitive-behavioral models for the treatment of PTSD indicate the importance of the following aspects: chronological reconstruction of the narrative, the exposure to in vivo situations otherwise avoided, and the return to normal, daily functioning. The processing component of the session – during which the client explores his new attribution of significance to the event, as compared to the original meaning it had for him at the time of, or following, the occurrence of the trauma – was found to be very important (Foa, Keane and Friedman, 2009).

Prolonged exposure and cognitive reconstruction are clearly valuable means of relieving the effects of the trauma, mainly in the transition from emotional memory to verbal memory, or from Implicit Memory to Explicit Memory (Foa et al., 2009). This process activates the governing of the frontal

parts of the brain (sequence and reasoning) also responsible for regulation of emotions. It is in fact the translation of the experience into "secondary language" which is important in regulating the terror beyond words experience. Still, as it is 'translation', it is not tapping into the experience itself and may leave traces intact such as body memory and other non verbal aspects that cannot be expressed verbally, beyond words, (i.e. images and physical/bodily memories).

SEE FAR CBT PROTOCOL COMPONENTS

The proposed treatment model is based on the concepts outlined in Johnson, Lahad and Gray's (2009) chapter in the book *Effective Treatments for PTSD - Practice Guidelines from the International Society for Traumatic Stress Studies*, in which they describe the similarities between the creative therapy techniques and several widely-used techniques for the treatment of psychotrauma (such as psycho-education, exposure, cognitive restructuring, re-narration, somatic reactions). However, they also point out that, to date, despite their potential, the creative therapies have not been examined in even a quasi-experimental framework. SEE FAR CBT is an attempt to test the hypothesis that a creative conceptualization, integrated into a treatment protocol that emphasizes the creative process, can be effective in the treatment of PTSD. Thus, SEE FAR CBT has modified and adapted elements from several approaches to the treatment of psychotrauma that have proven successful in changing and improving the situation of trauma victims (Leith, Vanslyke and Allen, 2009; Mendis et al., 2008; Parker, Doctor and Selvam, 2008). The combined effective trauma-treatment methods in the model involve: (a) aspects of Somatic Experience (SE) (Levin and Fredrick, 1997), (b) Fantastic Reality (FR) (Lahad, 2000, 2005) and (c) Cognitive Behavioral Therapy (CBT) (Foa et al., 2009). SE is a method focusing on the "body memory" (Rotschild, 2000; Van der Kolk, Van der Hart and Marmar, 1996), or the physiological memory (which is embedded in the limbic system). The basis of this therapeutic process rests on the client's ability to report on subjective physical sensations through focusing on positive sensations and emotional resources (i.e., bodily grounded sensations), as well as on negative sensations (i.e., the implicit traumatic memory), to achieve physiological energy discharge and improved self-regulation of the physical experience.

Table 1. SEE FAR CBT components and Terminology

Component	Source Approach	Therapeutic Purpose
Psychoeducation	CBT, SE	Normalizing client's behavioral reactions, enhancing sense of control, strengthening therapist-client relationship and trust.
In Vivo Exposure	CBT	Live exposure to situations, places, and avoided behavior results in learning control over anxiety.
Desensitization	CBT	Gradual habituation to the aversive stimuli (memory or behavior), which results in emotional extenuation and adaptation.
Relaxation Techniques	CBT, SE, SIT	Prevents hyper-ventilation states and increases control in the level of the anxiety.
Resourcing	SE	Bringing to consciousness positive and pleasant as well as negative experiences, and being alert to the physiological sensations – as therapeutic tool for emotional and bodily discharge.
Safe Place	SE, FR, NLP	Creates a sense of security and control, along with the experience of confidence and dominance.
Metaphoric Theraputic Cards	FR	Symbolic and associative cards which enable access to deep feelings and assist in narrating the experience by distancing from it.
Exposure in FR	FR, CBT	Recollection and reprocessing of the traumatic memory via re-narrating the subjective story with therapeutic cards aiming to reconstruct and conceptualize the fragmented memory in a coherent narrative.
"As if space"	FR	Theoretical space elicited by the cards, which enables imaginative play and cognitive flexibility, thus providing an opportunity to modify the traumatic memory without changing the outcome.
Pendulation	SE, EMDR	Discharging mechanism of the stressful/traumatic memory, by movement between resourced areas in the body, or between different therapeutic cards.

Note: CBT=Cognitive Behavioral Therapy, SE=Somatic Experiencing, FR=Fanastic Reality, SIT=Stress Inoculation Techniques (Meichenbaum & Deffenbacher, 1988), NLP= Neuro-linguistic programming (Andreas & Andreas, 1992), EMDR=Eye Movement and Desensitization Reprocessing

FR is a theoretical construct suggested by Lahad (2000, 2005, 2009) as was elaborated above, to describe the ability of people facing traumatic situations to transcend into a fantastic space where they feel safe and secure and where they can deal with and change the unchangeable. The FR concept is

based on several theoretical ideas: (1) Winnicott's concept of potential space (Winnicott, 1971), interpreted by Ogden (1985) as the "intermediate area of experiencing that lies between fantasy and reality" (p.129); (2) Jennings' approach to dramatic space (Jennings, 1994), described by Chesner (1994) as the place where "the context of illusion and play give permission for more freedom of exploration and expression" (p. 116); and (3) Landy's ideas of aesthetic distancing (Landy, 1996), summarized by Jenkyns (2001) as "the state when the individual, while in the act of dramatic engagement, is in a state of emotional balance" (p.70). What is common to all these approaches is that they use play and playfulness as part of the healing process (Jennings, 1994; Landy, 1996; Winnicott, 1971).

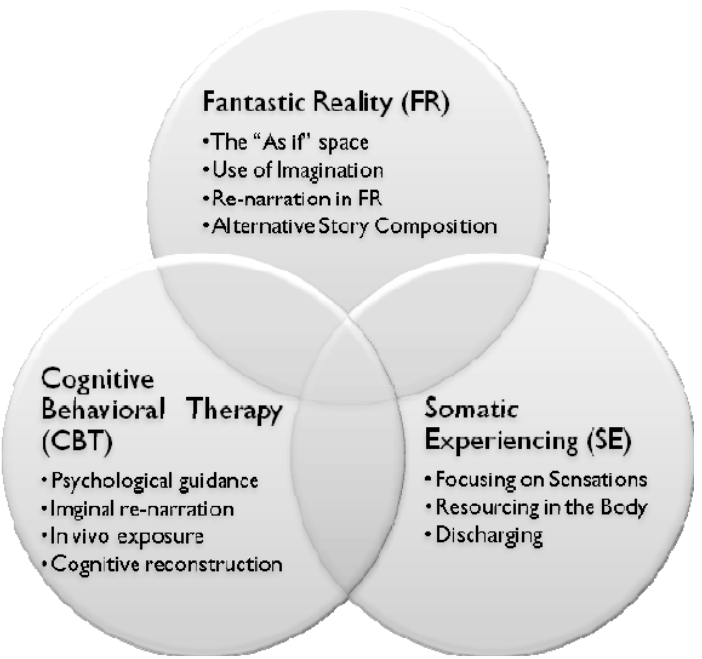

Figure 1. SEE FAR CBT Model components.

In practice, FR is introduced by the use of metaphoric therapeutic cards (TC) (see Ayalon, 2007) to represent both "a pleasant/safe place" (i.e., a subjective feeling of comfort and security) and the re-narrating process of the traumatic story. The use of cards as an "externalization" of the otherwise internally haunting images or as "distancing" (Landy, 1996; White and Epston, 1990), facilitates a sense of control and manageability over the incident.

Moreover, FR allows the client to make use of the "as if space," a space where all the "ifs" are possible and where the impossible becomes possible. This practice reintroduces the client to his ability to play and to experience empowerment. The "as if" space is explained in detail in the coming pages.

The cognitive-behavioral components of SEE FAR CBT, influenced by PE and other cognitive behavioral therapies (Ellis and MacLaren, 1998; Foa, Doron and Yadin, 2006; Foa et al., 2009) adopt the following: Repetition of the story because of the impact this has on the desensitization or habituation processes; verbalization of the story, because this has the power to make it an accessible coherent story that can be referred to as past; *in vivo* gradual exposure because this is a necessary part of the treatment that diminishes non-threatening, non-dangerous avoidance behavior, thus granting the client a sense of control and a sense of coherence; a reflective learning experience discussion at the close of each session; and on-going psycho-education where the client is made aware of each step in the process thereby becoming a partner in the quest that moves from hurt to healing. It should be noted that in its clinical practice, SEE FAR CBT protocol does not apply each one of the treatment protocols separately, but integrates the elements that have been found to be clinically effective into a new treatment protocol.

SEE FAR CBT PROTOCOL (LAHAD AND DORON, 2007, 2009)

Therapy consists of several stages (described in Table 2) and clients receive a weekly, 90-minute session. This is the "gold standard" in the treatment of psychotrauma and enables efficient and gradual work during the different stages, especially during the Fantastic Reality (FR) desensitization process and the FR re-narration sessions.

Thus, there is more time available to establish engagement on the one hand, and to offer a sufficient "recovery" phase for the client on the other. Transition from stage to stage is not constrained by the number of sessions and is a function of the gradual personal process (practicing re-narration in Fantastic Reality without sufficient desensitization practice or in the absence of sufficient knowledge of the possible physiological reactions, would not be effective).

After the initial stages of intake and PTSD diagnosis, followed by psycho-education and the setting of therapy objectives, which are similar to most

therapies (Foa et al., 2009), the client studies how to reduce arousal and how to control fearful reactions so that a sense of safety is achieved. Next, the client practices Somatic Experiencing modalities (i.e., focusing, resourcing) and is given an explanation about the importance of the discharge of the blocked physical energy caused by the trauma.

The client is introduced to the power of FR and externalization through a process of creating an external safe space using therapeutic cards (see Figure 2). The establishment of association between the image and the experience of relaxation and pleasant sensations assists the client during the therapy whenever anxiety prevails and the need for stress reduction arises. Then he can focus on the card, (the external sign for reducing tension and arousal) and than resume the therapeutic process.

Figure 2. Stage 5: Creating safe place through therapeutic cards with extension in drawing (21.0 × 29.7 cm).

A CBT component includes making an avoidance list, an in-vivo exposure task list and a plan for therapy. In-vivo exposure is regularly practiced and monitored until the end of the treatment. During the next stage, the client is encouraged to confront an unpleasant/difficult discomfort-inducing memory in order to practice desensitization and control physiological arousal.

Using the safe place card opposite a symbolic representation of a distressing (non-traumatic) memory on another card, the client goes through a process of "pendulation" between the cards until anxiety habituation is established. In addition, the client is invited to introduce Fantastic Reality (or playfulness and empowerment), by adding a third card that may "protect" the quality of the safe space as a calm and reassuring one.

Figure 3. Stage 7: Re-narration in the fantastic reality using therapeutic cards.

This new card, placed between the safe space card and the unpleasant card, is referred to as a "protective card." It is fascinating to observe how this card moderates arousal. During the last part of the therapeutic process, the client practices re-narration of the traumatic experience in Fantastic Reality, using therapeutic cards (see Figure 3).

During the re-narration phase, the client chooses several cards representing the traumatic event and is encouraged to observe the cards and then to narrate the story. In the sequel, the client is asked to choose and remove the cards he "wishes to" exclude, or to reorder the sequence of cards, and retell the story. This helps him to experiment with possibilities, to "play" with alternatives and to gain control over his story. Last, the client is instructed to add new "as if" cards to the array. These cards should represent things or people which, if the client had had them during the incident, could have assisted him, without them (the *as if* cards) changing or erasing the outcome of the incident..

Observing the client's re-narration through the cards, help the therapist to identify where the client is "stuck" or "freezes" (i.e. dissociates) and which parts of the story are too painful. This is unique to this method as the therapist can practically see where in the sequence it happens. Thus the therapist can assist the client, after reducing the anxiety level to resume retelling by pointing to him where the story was previously overwhelming or causing the client to stop. At the conclusion of treatment the therapist and the client summarize, evaluate and discuss the therapeutic process.

To summarize this section we argue that SEE FAR CBT has a different focus in its effectiveness, proposing a new therapeutic model in which three main elements are stressed: (1) The visual stimulus that is thought to be the most likely to lead to activation of the visual cortex; (2) The observation point known as "aesthetic distance;" and (3) The ability to present the positive elements of empowerment and wishful thinking in Fantastic Reality.

The model was tested with clients suffering from post-traumatic disorder following rape, violence in the family, robbery, terrorism, war and military activity. In quasi experimental study comparing EMDR and SEE FAR CBT conducted among adults suffering from PTSD after the Second Lebanon War (2006), the treatment method was found to be as effective as EMDR, with SEE FAR CBT found to be slightly more effective in the continuing improvement a year later, during follow-up (Lahad, Farhi, Leykin and Kaplansky, 2010). Findings indicate that the protocol is also beneficial in reducing post-traumatic symptoms to a below-clinical level among children (Lahad, Farhi and Leykin, unpublished).

THE UNIQUENESS AND DISTINCTION OF SEE FAR CBT IN TREATING PTSD - A CRITICAL DISCUSSION

Evidence from neuroscience studies suggests that during repeated trauma-related imagery tasks, PTSD participants exhibit many more non-verbal patterns of memory retrieval, characterized by a right-lateralized pattern of activation, including paralimbic and visual areas (Lanius, Williamson, Densmore, Boksman, Neufeld, Gati et al., 2004).We suggest that by asking the client to consciously choose images on cards that represent the traumatic incident (a subjective choice of images, colors, and shapes) and arranging these cards in a sequence, we offer better access to the situationally accessible memory (SAM) memory system, hypothesized by Brewin, Dalgleish and Joseph (1996) in their dual representation theory.

To initiate the intrusive images and physiological responses among PTSD clients, the image-based SAM system contains lower level perceptual processing of the traumatic scene, such as smells and sights which were not stored in the verbally accessible memory (VAM). Memories in the SAM are not represented within a complete personal context comprising past, present, and future, and must be processed in order to be recorded in the VAM system. Thus, the repeated recollection of the event coupled with the images on the

cards activates the visual cortex and establishes a connection with the prefrontal cortical areas activated by the narration which follows it. We assert that the use of therapeutic cards (that are associative and idiosyncratic) facilitates accessibility to this memory and works both within it and on it. It is only in the second phase that the cognitive narrative organization (VAM) takes place that enables a more cognitive organization of the experience that is influenced by processes involving the inhibition of impulse (the role of the frontal lobes).

Tulving and Craik (2000) point out that the lapse in concentration that appears with trauma influences the way that memory is encoded, which creates gaps in the sequence of memory. Since the exact semantic memory is disrupted following the trauma, the emotional memory completes the picture. The emotional memory comprises images, sensations and information that is not accessible to semantic processing. In other words, we are of the opinion that the traumatic memory is not the memory of a story as recorded by a journalist or news photographer, but rather is composed of associative, visual, emotional and non-verbal elements. Similarly, Van der Kolk and Fisler (Van der Kolk and Fisler, 1995) point out that the memories of the traumatic experience held by subjects with PTSD are initially characterized by fragments of dissociative patterns of visual, emotional, audio, sensory and kinesthetic experiences. Over time, subjects report the appearance of a personal narrative that can be linked to Explicated Memory. Therefore, reconstruction by means of therapeutic cards enables a reconstruction of the subjective memory composed of visual, emotional, associative experience without pretending to be a virtual reconstruction of the "true" event. as opposed to innovative technological attempts, such as Virtual Reality,

We argue that in our method re-arranging the narrative by means of the therapeutic cards is likely to stimulate simultaneously visual cortex (the images), emotional memory (the association that goes along with the personally choice of specific cards whilst making contact with the prefrontal cortex (through the verbalization of the perceived images) .

In a previous study, Spiegel, Hunt and Dondershine (1988) found that PTSD sufferers exhibited very high levels of the ability to be hypnotized as compared to subjects with different psychological disorders and normal subjects. Other studies also link the ability to be hypnotized to the tendency to fantasize (Wilson and Barber, 1983; Lynn and Rhue, 1988) and so it may be inferred that PTSD clients may be "expert" in fantasy and imagination, and that despite the fact that the use of imagination is expressed in a negative way

(i.e. in flashbacks), it is still possible to use the fantasy to create alternatives to their traumatic story.

Another unique component of the SEE FAR CBT protocol is the sense of empowerment achieved via the suggestion to remove cards and check the outcome on the narrative and taking this even further, the instruction to experiment with potent play by adding the "as if" or "if only" cards. These cards enable the client to recount the story with helpful elements in so far as the outcome does not change.

We suggest that the observation of the visual sequence creates a competing positive visual stimulus that directly affects the visual cortex and is encoded as an alternative "memory" to the traumatic one, or at least a more flexible succession of segments of the event. Based on our argument that in fact, PTSD clients are "experts" in fantasizing or in imagining, we suggest that it is possible may be able to capitalize on this 'expertise' and train them to use alternative fantastic solutions.

The observer position is unique to this treatment. In none of the other effective psychotrauma protocols does the client observe his/her traumatic story as a distant, observable story. It is the distancing within the artform which both contains the experience and allows it to be seen from many perspectives. In aesthetic distancing "the ‘in-between’ or ‘liminal’ state allows the individual to look at the situation through identification and distancing at the same time" (Tselikas-Portman, 1999, p.9).

Aesthetic distance, according to Landy (1996) is the midpoint that is a balance of affect and cognition; "an ideal state in which one is able to think feelingly and feel without the fear of being overwhelmed with passion" (p. 48). The positive impact of being an "audience in your own drama /trauma" has been described by Grinberger (2005) in her research on Holocaust survivors. The effect of aesthetic distance (Landy, 1996), redefined by us as observing one's own traumatic story as it unfolds through projective/associative cards make it possible for the client to master control, and reduce arousal as the story is "out there " and is less oppressive. This contributes to the sensation of empowering and thus influences the process that helps the change of helpless position of the PTSD client. From a victim to a victor.

We suggest that the protocol assists the client to slowly learn to play by using the cards and Fantastic Reality, thus diminishes the debilitating influence of the rigid, haunting and especially ,reducing the need to be on an "on guard position". The adoption of safe and secure place allows the traumatized clients to re-experience and master their pain through metaphoric milieus.

DISSOCIATION, MEMORY AND THE TENDENCY TO FANTASIZE

Based on Kaplansky's study (2009) we assume that the natural path of the brain to handle an impossible reality where no escape or fighting is possible, is to transcend into FR. Nevertheless, in some cases (leading to the development of PTSD) this natural path is blocked or interrupted due to the victim's awareness or consciousness of his finality, mortality or fragility and the remorse and pain of leaving his loved ones, and this evokes extreme fear and terror. We suggest that the flashbacks are the continuous attempts of the brain to complete a healing transcendence that is the natural path to healing. But the PTSD client stops this attempt at its slightest hint, as the association with these fragmented memories immediately evokes anxiety and fear and does not allow the process to be completed.

We therefore suggest an alternative explanation to the effectiveness of the Exposure treatment, arguing that it forces the clients to undergo full dissociation (to imagine the event *as if* it is happening now). As such, the curative effect of the re-narration is not only in the verbalization and activation of the governing of emotional regulation parts of the brain (the claim of CBT) , but also in the fact that it enables full dissociation and thus the activation of the imaginal aspect that can "see" or suggest other meanings and other possibilities to what seems to be a frozen memory.

Furthermore, we propose that in the SEE FAR CBT protocol we can trace where in the sequence the client dissociates. As the story is external and the client follows the cards, we have an indication as to the point in the sequence of traumatic events where the disruption in the processing of the information occurred. Reducing anxiety via the "safe place" external card and then returning to the exact card in the sequence where the story "stopped" is a much more accessible, play-like component that helps in the treatment of dissociative clients.

We suggest that the ability to play that the client gradually acquires during the course of treatment, by means of using the cards and experiencing Fantastic Reality, reduces the frequency of the invasive memories. The idea of Fantastic Reality as a realm of the "as if," an imaginary space where anything is possible, together with aesthetic distancing, creates a safe and protected place where the sufferer can on the one hand re-experience his pain but also control it by means of a metaphoric environment.

Finally, we propose that the SEE FAR CBT protocol is not another cognitive or body-mind approach to the treatment of psychotrauma, but an integrated approach that dedicates a place to the imagination as a source for healing in impossible situations, as has been demonstrated by the brain research and the (admittedly relatively meager) research on the imagination and non-pathological dissociation. We are currently engaged in several studies to examine the phenomena of imagination in short- and long-term exposure to distressing conditions or states as well as in developing tools to measure the effects of transcendence into FR in such conditions.

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Chapter 4

COGNITIVE THERAPY, EGO-DYSTONICITY AND EATING DISORDERS

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ABSTRACT

The present chapter reviews empirical findings on the relationship between ego-dystonicity and eating disorders [EDs; anorexia nervosa (AN) and bulimia nervosa (BN)], and on the efficacy of current cognitive therapy for EDs. The chapter introduces a new cognitive therapy model that supplements current psychological thinking about cognitive domains shared by individuals with obsessive-compulsive disorder (OCD) and EDs. EDs affect 1-3% of the population. The *National Association of Anorexia Nervosa and Associated Disorders* reports that these pervasive disorders have the highest mortality rate of any group of mental illnesses. Resistance to cognitive-behavioral therapy in individuals with EDs is very common; nearly 50% of clients abandon or refuse treatment. Treatment resistance may result from a strong ego-syntonicity in AN and BN obsessions. Ego-syntonic obsessions are consistent with individuals' self-image and goals; in contrast, ego-dystonic obsessions are characterized by behaviors, thoughts, or feelings that are personally

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unacceptable or incongruent with individual values. The presence of ego-syntonic obsessions in individuals with OCD has been associated with treatment resistance and non-adherence, treatment refusal, poor motivation and poor insight. Nevertheless, little is known about the relationship between ego-dystonicity and EDs. The relationship between these variables is particularly relevant because of the recognized overlap between OCD and EDs in phenomenology, epidemiology, comorbidity, and psychological characteristics.

Keywords: Cognitive therapy, ego-dystonicity, eating disorders, obsessive-compulsive disorder

INTRODUCTION

Recent research on obsessive-compulsive disorder (OCD) has focused on identifying the role of ego-dystonicity and ego-syntonicity in obsessions in determining response to treatment. Ego-dystonicity is a defining feature of obsessions and compulsions and is characterized by behaviors, thoughts, images or feelings unacceptable to the person's values, sense of self or personality (Purdon, Cripps, Faull, Joseph, and Rowa, 2007). In contrast, ego-syntonic wishes, dreams, impulses, and ideas are consistent with self-image; they are congruent with perceived needs and goals, and are considered an integral part of individual personality (Purdon et al., 2007). In fact, greater ego-syntonic obsessions of individuals with OCD has been associated with treatment resistance, treatment refusal, and poor insight, and is typically observed in individuals with overvalued ideas or a high degree of conviction regarding obsessional doubts (Foa, 1979; Foa, Abramowitz, Franklin, and Kozak, 1999; Neziroglu, McKay, Yaryura-Tobias, Stevens, and Todaro, 1999). If the content of an obsession is perceived as consistent with values, the investment in resisting the obsession may be lower, weakening motivation and treatment compliance (Christenson and Greist, 2001; Summerfeldt, 2006).

Little is known about the impact of ego-dystonicity on treatment outcome in EDs (i.e., Anorexia Nervosa and Bulimia Nervosa). This role of ego-dystonicity is particularly relevant given the recognized overlap between OCD and EDs in phenomenology, epidemiology, comorbidity, and psychological characteristics. As increased attention is paid to these similarities, many researchers even argue that EDs are part of the "obsessive-compulsive spectrum" (Goldsmith, Shapira, Phillips, and McElroy, 1998; Hollander, 1993; Hollander and Benzaquen, 1997).

OBSESSIVE-COMPULSIVE DISORDER, ANOREXIA NERVOSA, AND BULIMIA NERVOSA

Phenomenology

Obsessive-compulsive disorder (OCD) is characterized by the presence of obsessions (recurrent and persistent thoughts, impulses, or images) that are experienced as intrusive and inappropriate, causing marked anxiety or distress (American Psychiatric Association [APA], 2000). Most people suffering from OCD also present compulsions (repetitive behaviors or mental acts such as hand washing, checking, ordering, counting, praying, repeating words) that are designed to neutralize obsessions and reduce related anxiety (APA, 2000).

Anorexia nervosa (AN) and bulimia nervosa (BN) are the primary EDs associated with OCD. AN is defined as the refusal to maintain a normal body weight according to age and height (body mass index (BMI) equal to or below 17.5 kg/m^2 or body weight below 85% of that expected), and an intense fear of weight gain or of becoming fat, even when underweight (APA, 2000). Another important feature of AN is disturbance in the experience of body weight or shape and undue influence of body weight or shape on self-evaluation. Individuals suffering from AN often have a distorted view of their body image (e.g., thinking they are fat when they are actually emaciated) and/or deny the gravity of their low body weight (APA, 2000). Furthermore, post-menarcheal women with this disorder may become amenorrheic for at least three consecutive months (APA, 2000). AN can be of restrictive type or binge eating/purging type; the latter involves the use of compensatory behaviors such as self-induced vomiting, laxative or diuretic abuse, enemas, fasting, and/or excessive exercise (APA, 2000).

BN is characterized by recurrent episodes of binge eating; binge eating is defined as eating, in a short period of time, quantities of food that exceed what most people would ingest under similar circumstances and during which one loses control over food intake (APA, 2000). These episodes are followed by inappropriate compensatory behaviors designed to prevent weight gain. Individuals with the purging subtype of BN engage in purging behaviors such as self-induced vomiting, laxatives and/or diuretic abuse, and enemas; the nonpurging subtype is characterized by such behaviours as fasting and excessive exercise (APA, 2000). In addition, the self-esteem of individuals

suffering from BN, like those suffering from AN, is unduly influenced by body shape and weight (APA, 2000).

Epidemiology

OCD, AN and BN are relatively rare, respectively occurring in approximately 2.5%, 0.5% and 1-3% of the population across cultures (APA, 2000). Men and women are equally likely to suffer from OCD. However, EDs affect predominantly women, with a female to male ratio of 10 to 1 (APA, 2000). According to the APA (2003), age of onset for OCD and both AN and BN is adolescence and young adulthood, but boys may develop OCD between childhood and adolescence (between ages 6 and 15 years).

Comorbidity

EDs often coexist with other psychiatric disorders. Of Axis I disorders, anxiety, mood and substance abuse disorders are the most common (Blinder, Cumella, and Sanathara, 2006; Godart et al., 2006). In addition, OCD is frequently associated with tic disorder and Gilles de la Tourette syndrome (Denys, Tenney, van Megen, de Geus, and Westenberg, 2004; Ladouceur, Rhéaume, and Freeston, 1999). On Axis II, EDs are often comorbid with personality disorders (PDs). Marañon, Echeburúa and Grijalvo (2004) reported that over one half (51.5%) of individuals with EDs also suffer from a PD. Lilienfeld et al. (1998) observed an elevated rate of obsessive-compulsive personality disorder (OCPD) among relatives of individuals with AN. Among all personality disorders, OCPD has the highest comorbidity rate with EDs (Rastam, 1992; Thornton and Russell, 1997; Wonderlich and Mitchell, 2001), though borderline and avoidant PDs are also prevalent (Marañon et al., 2004). However, no significant relationship between OCD and PDs has been found (O'Connor and Robillard, 1996). In individuals suffering from OCD with a comorbid PD, dependent, avoidant and obsessive-compulsive PDs are the most common (Denys et al., 2004; Ladouceur et al., 1999). As EDs and OCD are both associated with many other psychiatric disorders, it is not surprising that joint comorbidity is considerably high in clinical populations (Anderluh, Tchanturia, Rabe-Hesketh, and Treasure, 2003; Kaye, Weltzin, Hsu, Bulik, McConaha, Sobkiewicz, 1992).

Obsessive-Compulsive Disorder Spectrum

Recognition of the similarities between EDs and OCD is not new. Many researchers have even suggested that EDs should be considered a form of OCD. Indeed, Palmer and Jones (1939) suggested that AN was a manifestation of OCD, DuBois (1949) proposed that AN was a "Compulsion Neurosis with Cachexia" and Rothenberg (1986) described EDs as a "modern obsessive-compulsive syndrome." More recently, Godart, Flament, Perdereau and Jeammet (2002) reported that 10% to 60% of individuals with AN and up to 40% of individuals with BN have a coexisting OCD diagnosis. Furthermore, elevated lifetime rates of EDs (8.3-12%) in OCD populations have been reported (Bellodi, Cavallini, Bertelli, Chiapparino, Riboldi, and Smeraldi, 2001; Halmi, Eckert, Marchi, Sampugnaro, Apple, and Chen, 1991; Hsu, Kaye, and Weltzin, 1993; Kasvikis, Tsarkis, Marks, Basoglu, and Noshirvani, 1986; Rubenstein, Pigott, L'Heureux, Hill, and Murphy, 1992). Tamburrino, Kaufman, and Hertzer (1994) reported the presence of a past or present ED in 42% of women with an OCD diagnosis. Other authors have concluded that 11% to 13% of women with OCD have a history of AN (Fahy, Osacar, and Marks, 1993; Zribi, Chambron, and Cottraux, 1989). In addition, Rubenstein et al. (1992) found that the prevalence of sub-clinical EDs is as high as 22.6 % in women and 12.9 % in men suffering from OCD. According to Angst et al. (2004), suffering from clinical or sub-clinical OCD is a risk factor for developing BN.

Many studies have investigated the presence of obsessions and compulsions other than those related to eating behaviors in people with EDs (Bastiani et al., 1996; Halmi et al., 2003; Hasler et al., 2005; Kaye et al. 1992; Matsunaga, Kiriike, Iwasaki, Miyata, Yamagami, and Kaye, 1999; Matsunaga, Miyata, Iwasaki, Matsui, Fujimoto, and Kiriike, 1999). Ordering and arranging, as well as symmetry and exactness obsessions appear with the highest frequency in individuals with EDs, whereas fear of contamination, cleaning rituals, and hoarding compulsions are less common (Bastiani et al.; 1996, Halmi et al., 2002; Matsunaga, Kiriike et al., 1999; Matsunaga, Miyata et al., 1999; Srinivasagam, Kaye, Plotnicov, Greeno, Weltzin, and Rao, 1995; von Ranson, Kaye, Weltzin, Rao, and Matsunaga, 1999). Sexual, aggressive or religious obsessions, and checking, counting, or repetition compulsions are rarely observed in people suffering from an ED. Together, these findings suggest that individuals with EDs have less a restricted variety of obsessions and compulsions in comparison to individuals with OCD.

Similarities between Eating Disorders and Obsessive-Compulsive Disorder

Significant similarities exist between content of obsessional thoughts in EDs and in OCD. OCD is characterized by a presence of obsessive, intrusive thoughts and related compulsions designed to reduce anxiety. Similarly, individuals with EDs present obsessional thoughts about thinness, body shape, and incessant ruminations about food, followed by ritualistic compulsions like methodical calorie counting, weighing, and repetitive food cutting. Compensatory behaviors such as purging and excessive exercise intended to evacuate negative emotions and anxiogenic ED thoughts, are also observed (Mazure, Halmi, Sunday, Romano, and Einhorn, 1994).

Similar instruments can be used to evaluate the two disorders. The *Yale-Brown-Cornell Eating Disorder Scale* (YBC-EDS) measures the form that preoccupations (obsessions) and rituals (compulsions) can take in individuals suffering from EDs (Mazure et al., 1994). This instrument was adapted from the Yale-Brown Obsessive Compulsive Scale (Y-BOCS), a measure that assesses OCD symptoms and severity (Goodman et al., 1989 a,b). Preoccupations and rituals in EDs can be related to food and weight (e.g., calorie counting, compulsively checking to ensure that weight is unchanged or hoping that it has decreased, trying on a tight-fitting item of clothing while noting variations in weight or body shape, looking at oneself closely and at length in the mirror, making excessive lists to record changes in weight and number of calories consumed per day). Other common compulsions include rituals surrounding binging, physical exercise and purging (e.g., always eating the same foods during bulimic episodes, starting with certain foods such as beets whose appearance during vomiting serve as a signal that everything ingested has successfully been purged, maintaining a strict exercise routine such as running 45 minutes every day, counting exact calorie expenditure in order to determine eating behavior for the rest of the day). Moreover, individuals suffering from EDs often abide by specific rules or safety behaviors such as routinely eating the same foods every day, at a specific time, in a specific order, or cutting their food into little pieces. These rigid rules are distinguishable from compulsions because they can be driven by anxiety or by the fear of change and can provide comfort to some extent, but do not necessarily have the immediate effect of reducing anxiety as do compulsions (Fairburn, 2008).

Ego-Dystonicity and Ego-Syntonicity in Obsessions

In most OCD subtypes, obsessions such as fear of contamination, checking, and counting are considered to be ego-dystonic, that is, the thoughts are considered aversive and unacceptable to the individual's values. OCD subtypes dominated by religious, sexual, or hoarding obsessions are generally more ego-syntonic in nature, that is, consistent with self-image and values. For example, hoarders perceive the act of collecting objects and never throwing them away as good and useful, because they believe that the objects will probably be useful or necessary one day. They also often feel emotionally attached to the objects.

Although rumination in individuals suffering from AN and BN have often been described as voluntary and ego-syntonic, several researchers have argued that further investigation of preoccupations with calories and food reveal their ego-dystonic nature (Holden, 1990; Rothenberg, 1986; Garfinkel and Garner, 1982). Indeed, individuals with EDs suffer from intrusive thoughts and fears about the food that they plan to eat and/or the food that they would like to eat but do not allow themselves. Garfinkel and Garner (1982) specified that in the case of AN, incessant thoughts about food are ego-dystonic and only relentless thoughts about thinness and body shape preoccupations are ego-syntonic. BN is considered to be less ego-syntonic in nature, as compensatory behaviors such as purging are perceived to be less consistent with personal values. The ego-syntonic nature of EDs is reflected in the investment of the self in thinness to the extent that control over weight becomes a predominant personal goal. Distinguishing ego-dystonic from ego-syntonic criteria is also pertinent to distinguishing obsessions in EDs. Aardema and O'Connor (2007) have argued that elements of both ego-dystonicity and ego-syntonicity exist in every obsession, and this seems to be the case in EDs.

Similar Cognitive Characteristics

Fairburn, Cooper and Shafran (2003) suggest a "transdiagnostic" model to explain the maintenance of EDs; the model integrates dysfunctional self-evaluation schemas (e.g., perfectionism about eating, shape and weight, over-evaluation of the importance of control), low self-esteem, and intolerance of negative emotion. Many of these characteristics are also reported in OCD (e.g., perfectionism, over-evaluation of the importance of thoughts and of

control, low self-esteem, impact of mood on symptom intensity), reflecting the shared etiology between EDs and OCD.

Shafran (2002) has demonstrated that cognitive characteristics such as intolerance for uncertainty, overestimation of threat and perfectionism observed in individuals with OCD are also present in persons with EDs (Obsessive Compulsive Cognitions Working Group, 2005).

Perfectionist attitudes such as excessive needs for control and certainty can contribute to the development and the maintenance of EDs. For example, individuals suffering from an ED constantly strive for a perfect body or always want to lose more weight; they are rarely satisfied with themselves. Similarly, individuals with OCD may check that the door is perfectly locked or that their things are placed exactly as they should be. However, these obsessions rarely result in satisfaction or pleasure because absolute perfection or certainty is unrealistic.

Tolerance for uncertainty is often very low in people with EDs, and they usually have a strong need for order and routine. They often eat the same meals from day to day because they have difficulty tolerating the uncertainty associated with different or new foods or with eating something without being certain of the caloric content. The inability to tolerate uncertainty provokes ritualistic compulsions such as methodical weighing, excessive examination of shape, and/or minute counting of consumed and expended calories. The overestimation of threat surrounding the themes of food, weight or body shape is also very strong in individuals with EDs. For example, people with EDs may believe that eating a certain type of food (e.g., a cookie) causes weight gain. This overestimation of threat frequently contributes to the maintenance of an ED. In addition, Shafran, Fairburn, Robinson, and Lask (2004) found that the large majority (92%) of individuals suffering from AN or BN reported rituals such as checking weight or shape (weighing, examining one's body in the mirror, trying on a specific article of clothing to detect weight gain or loss, etc.). In this study, a positive relationship was found between number of rituals and symptom severity (Shafran et al., 2004).

Cognitive distortions play a role in the development and maintenance of EDs and OCD. In particular, thought-action fusion seems to be relevant. Identified in individuals with OCD (Amir, Freshman, Ramsey, Neary, and Bartholomew, 2001; Shafran, Thordarson, and Rachman, 1996), this concept refers to the belief that thinking about an unacceptable or negative event makes it more likely to happen, and the related belief that having an unacceptable or negative thought is morally equivalent to engaging in the corresponding negative action (Rachman, Shafran, Mitchell, Trant, and

Teachman, 1996; Shafran et al., 1996). For example, a client suffering from OCD may believe that imagining killing someone, thinking about hitting a pedestrian with his car, or fantasizing about an extramarital affair increases the probability that it will occur; he may believe that the thought is as immoral as are the actions. Thought-action fusion in OCD clients can be assessed by the *Thought Action-Fusion Scale* (Shafran et al., 1996).

Evidence supports a comparable cognitive distortion in the ED population (Shafran, Teachman, Kerry, and Rachman, 1999). Indeed, Shafran et al. (1999) have demonstrated that individuals with EDs fuse thoughts with behaviors and actions. The authors developed the concept of thought-shape fusion: thinking about eating certain types of food increases individuals' estimate of their shape and/or weight, evokes a feeling of moral wrongdoing, and/or provokes the sensation of being fat. For example, people with an ED may feel as guilty thinking of eating a forbidden food as they would if they actually ate it. Even the thought of eating a high-calorie food can elicit the feeling of weight gain. Thus, cognitive biases and obsessional thoughts in individuals suffering from EDs seem to take a similar form as those observed in individuals with OCD. Studying thought and reasoning processes in EDs is an essential step toward a better understanding of these disorders and the development of more effective and complete cognitive treaments.

Importance of Self-Cognitions

Threat has been recognized as a general vulnerability factor for anxiety disorders. Aardema and O'Connor (2007) have studied the menacing nature of obsessions that arise from within the individual. However, in individuals suffering from OCD, the fear of who they could become seems to be a key threat (Aardema and O'Connor, 2007). Rachman (1997) also emphasized that individuals with obsessional disorders believe deep down that they have unacceptable aspects to their identity.

Markus and Nurius (1986) define the feared self as a self that individuals are worried that they will become, and are constantly striving to avoid becoming. Ogilvie (1987) argues that the feared self contains awful memories, undesired emotions, frightening events, and socially unacceptable thoughts or behavior. Similarily, Ferrier and Brewin (2005) have recently reported evidence for the concept of the "fear of self" in OCD; these authors found that individuals with OCD make negative inferences about themselves on the basis of their intrusions.

Aardema and O'Connor (2007) have observed that people with OCD have a strong investment in their sense of "self-as-could-be" in contrast to their sense of "self-as-is". They argue that OCD clients' tendency to experience the self as it could be rather than experiencing it as is originates from pathological imaginative processes, learning experiences, and other developmental factors. Specifically, in individuals with OCD, over-investment in the feared self creates a tendency to sacrifice personal needs and autonomy and generates excessive concern with interpersonal relationships, resulting in self-doubt, lack of self-confidence, and excessive self-monitoring (Careau, O'Connor, Freeston, and Turgeon, 2007; Aardema and O'Connor, 2007). The perceived discrepancy between the actual and feared self, and the extent to which obsessions are ego-dystonic differ between individuals (Aardema and O'Connor, 2007). Indeed, people suffering from EDs often experience their obsessions as congruent with their identity, as do individuals with a hoarding subtype of OCD. According to Aardema and O'Connor (2007), even if the obsessions are subjectively realistic, they are always objectively incongruent with the person's actual self because they arise from a false self-evaluation. Figure 1 illustrates the distinction between a normal and obsessive relationship to a "self-as could-be".

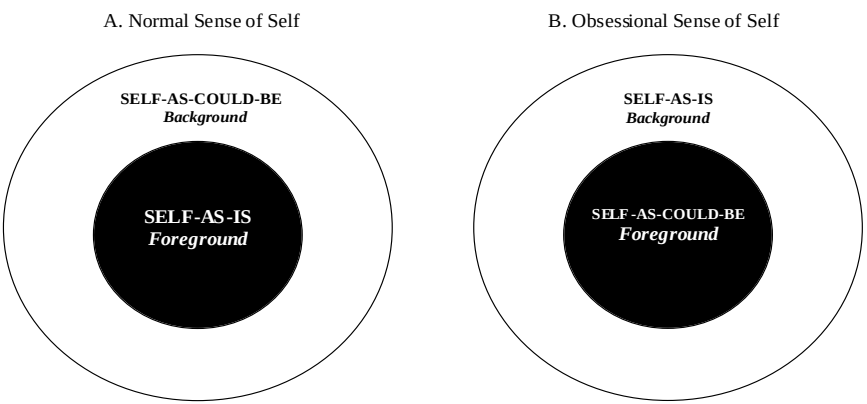

Figure 1. Schematic representation of normal and obsessional relationship between self-as-is and self-as-could-be. Source. Aardema and O'Connor, 2007.

Source.Aardema & O'Connor, 2007.

Cognitive and Behavioral Therapies

Cognitive Behavior Therapy (CBT) is the current treatment of choice for EDs. Current CBT models of EDs and OCD are very similar in terms of associations between thoughts and behavior. Indeed, in both OCD and EDs, compulsions aim to reduce anxiety generated by obsessional thoughts and stimulus-bound fears. Although CBT is often the treatment of choice for OCD and EDs, clients with difficulty tolerating anxiety and weak motivation to change are often resistant to behavioral treatments that require prolonged exposure to anxiogenic stimuli and prevention of the compulsive response (exposure and response prevention; ERP). For EDs, ERP usually requires clients to follow a hierarchy of consuming their least anxiogenic foods to their most anxiogenic foods (e.g., high-fat items), and prevents them from engaging in compulsions such as purging. ERP may generate anxiety or other overwhelming negative emotions, such as anger, frustration, sadness, or guilt. Further, clients with OCD with strong overvalued ideas (elevated degree of conviction regarding obsessional doubts) and more ego-syntonic obsessions may be ambivalent about resisting the ritual (Abramowitz, Taylor, and McKay, 2005). In fact, approximately 50% of individuals with an ED (Eivors, Button, Warner, and Turner, 2003; Vandereycken and Pierloot, 1983; Waller, 1997) and up to 40% of clients with OCD (Steketee, 1993) refuse or abandon CBT. Specialized CBT for individuals with overvalued ideas may require a more thorough investigation of the cognitive factors that maintain obsessions/compulsions, prior to behavioral exercises (O'Connor et al., 2005). In people with EDs, strong investment in overvalued ideas clearly drives behavior. Irrational thoughts such as "If I feel full, I will immediately gain weight," "If I eat forbidden foods, I will lose control", "If I eat food that I don't usually allow myself to eat, I will gain weight instantly" are representative of overvalued ideas held by individuals with EDs (Steinglass, Eisen, Attia, Mayer, and Walsh, 2007). In addition, in EDs, self-concept and self-worth are narrowly defined around weight and food issues.

Inference-based therapy (IBT) was developed by O'Connor, Aardema, and Pélissier (2005) to treat individuals with OCD with particularly strong overvalued ideas. IBT focuses on self-cognitions and reasoning about self. A small-scale randomized controlled trial compared the efficacy of IBT, ERP, and therapy addressing cognitive appraisals (O'Connor et al., 2005). Although all approaches were effective in treating OCD without overvalued ideas, IBT was more consistently effective in treating OCD with higher conviction levels. A recent open trial (n=86) confirmed IBT's efficacy in treating all subtypes of

OCD, and two other studies have demonstrated that IBT is equally effective in treating OCD clients with and without strong overvalued ideas (Taillon and O'Connor, 2009; O'Connor et al., 2009; Taillon, O'Connor, Dupuis, and Lavoie, in press).

Given the effectiveness of IBT in treating people suffering from OCD, and the marked similarities between OCD and EDs, IBT has been adapted to treat individuals with EDs by tailoring therapy to address doubts specific to EDs, as well as issues of self-doubt and reasoning about the self (Bertrand and O'Connor, 2009). According to IBT, the obsessional sequence begins at the point of a primary obsessional doubt (e.g., "Maybe I gained weight"). This doubt is an inference that is derived through reasoning. IBT targets the primary inferences that form the basis for the subsequent chain of obsessions and distress. According to IBT, primary inferences lead to secondary inferences or anticipated consequences (e.g., "If I gain weight, I will be fat and rejected by others") that follow from the primary doubt.

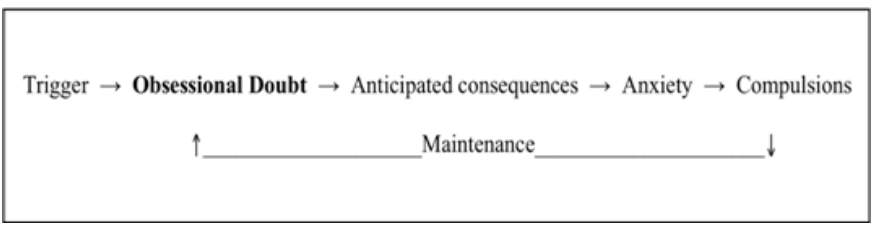

Figure 2. Schematic representation of Inference-Based Therapy model of the maintenance of obsessive-compulsive disorder and eating disorders

IBT allows clients to change the internal narrative that maintains their primary inferences, allowing them to adhere to a more realistic scenario and change their behavior. Furthermore, the IBT model considers obsessions to originate from interior narratives based on invalid and idiosyncratic inductive arguments. In IBT, clients learn to change their narrative and to rely on their senses (e.g., "I am looking at myself in the mirror and I can see my ribs, thus I am not fat"). It is important to clarify with clients that obsessional inferences are not entirely unrealistic; rather, their narrative uses a number of reasoning devices to convince them that the doubt is a real possibility in the "here and now." Narratives help maintain original obsessional doubts (primary inferences) and generate compulsions and other neutralization behaviour because the client behaves as if the doubt were highly probable. The IBT model of the maintenance of OCD and EDs is schematically presented in

Figure 2. Doubts initiate a cycle of imagined negative consequences, which provoke anxiety and hence the neutralizations and compulsions.

In the case of EDs, individuals create an internal narrative that validates their beliefs about the need to engage in compulsions in order to maintain or lose weight. Compulsive rituals or other neutralizations are driven by the desire to reduce the discomfort generated by primary and secondary inferences. However, the relief is often short-lived; obsessional preoccupations reappear sooner or later. Compulsive rituals reinforce the strength of the primary inference, and the cycle continues.

One of the important claims of IBT is that the doubts experienced by people with OCD or EDs are linked by a common self-theme. This self-theme makes individuals vulnerable to self-doubting in certain areas but not in others. For example, a client whose OCD central theme is "maybe I'm not a good mother" might doubt herself when checking, cleaning or organizing, but may be less prone to doubt herself when reading or writing, or in a social situation. In EDs, the self-theme is frequently a feared identity (e.g, "I could become fat and unlovable"). In other words, individuals are convinced that they could become the person they fear becoming if they do not take compulsive precautions. This strong investment in their "self-as could-be" or feared self, at the expense of their "self-as-is" or authentic self means that they experiencing the self according to what it could be rather than as it is (see Figure 1; Aardema and O'Connor, 2007). In IBT, clients explore all of the characteristics related to the person they fear becoming, and compare them with those of their actual, authentic self. For example, clients often fear becoming a fat, lazy, and unloved person with no self-control. The psychologist helps clients realize that their compulsions are designed to compensate for their fears (e.g., of lack of control and rigor) and are aimed at preventing them from becoming their feared self.

IBT addresses the link between clients' identity and their ED. The IBT therapist helps clients identify the vulnerable self-themes that maintain the ED and underlie the obsessional doubts (e.g., "I am not a balanced person like my thin friends. I cannot eat moderately like they do. I am such a glutton that I risk becoming fat if I allow myself to eat without restriction. I am the type of person who needs rigid rules concerning my eating habits otherwise I will lose control, I won't be able to stop eating, and I'll become fat and disliked by others").

Other recent attempts to directly address self-themes in therapy include Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, and Wilson, 2004) and Compassionate Mind Training. ACT aims to help individuals live

according to their values, and clarify their self-knowledge in order to move towards a chosen direction that is meaningful to them. Compassionate Mind Training (Gilbert and Procter, 2006) was developed to treat people with strong shame and elevated self-criticism, in order to guide them toward self-compassion, self-warmth and self-acceptance.

In addition to these approaches, the importance of self-based treatments including building up individual sense of self, and focusing on concepts such as self-ambivalence have been proposed for treating OCD (Doron, Kyrios, and Moulding, 2007; Moulding, Forgione, Nedeljkovic, and Kyrios, 2010). The previously discussed overlap between OCD and EDs suggests that cognitive treatments that address self-concept would also benefit individuals suffering from EDs.

The notion of ego-dystonicity and ego-syntonicity is crucial to future interventions with EDs. If an individual's self is heavily invested in the belief in the utility of their behavior, change will be more difficult. Motivational interviewing and efforts to prioritize meaningful life goals may help client's modify their behavior. Alternatively, helping the client realize that the eating disordered self is an illusory self that hides the authentic self can motivate change. The realization that ED values are incongruent with the genuine self and prevent authentic actions reinforces motivation to change and to let go of ED beliefs.

CONCLUSION

Too little is known about the impact of the ego-dystonic nature of obsessions on treatment outcome in eating disorders; future studies should explore this relationship. Recent developments demonstrate the importance of examining self-values, sense of self, self-compassion and self-ambivalence, and have produced promising interventions.

Finally, there is a great need for research evaluating how the ego-dystonic nature of obsessions relate to an overinvestment in the "self-as could-be", or feared identity, in contrast to the "self-as-is" in individuals with EDs as proposed by Inference Based Therapy.

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Chapter 5

ANTECEDENTS AND MODERATORS OF ANXIETY DISORDERS IN A COMMUNITY SAMPLE OF ITALIAN CHILDREN AGED EIGHT TO 10 YEARS OLD

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ABSTRACT

Anxiety disorders are one of the most common forms of psychopathology in youth, with a prevalence ranging from 5% to 25% worldwide (Brown & Barlow, 2009). Literature has usually investigated anxiety disorder according to developmental trends, issues for treatment and etiological aspects (Ollendick & March, 2004). Nevertheless, in the large amount of studies, there is a gap in identifying how the different

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subtypes of anxiety interact. In a large community sample of Italian children aged eight to ten years old, the aim of this study was to empirically validate a developmental-diagnostic model of anxiety disorders through a structural equation model (SEM) approach. Antecedents and moderators of anxiety disorders have been identified. Participants completed the Separation Anxiety Symptom Inventory for Children (SASI-C), the Separation Anxiety Assessment Scale (SAAS-C), the Fear Survey Schedule for Children Revised-Italian Version (FSSC-IT), the Spence Children Anxiety Scale (SCAS) and the Strengths and Difficulties Questionnaire (SDQ). The model of path analysis reported showed a good fit on data highlighting implication for the use of these measures as a screening battery for anxiety disorder in childhood.

Keywords: childhood, anxiety disorder, structural equation model

INTRODUCTION

Anxiety disorders are considered one of the most common forms of psychopathology in childhood and adolescence, with prevalence estimates ranging from 5% to 25% worldwide (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003). Particularly, in Italy, children show a higher prevalence of anxiety symptoms (Wood, Piacentini, Southam-Gerow, Chu, & Sigman, 2006; Delvecchio, Di Riso, Chessa, & Lis, submitted). According to a developmental and diagnostic continuum (DSM-IV, APA, 1994, 2000), anxiety disorders are classified in different categories. They include generalized anxiety, panic disorder, specific phobias, obsessive-compulsive disorder, and post-traumatic stress disorder. Separation Anxiety Disorder is defined as "*Developmentally inappropriate and excessive anxiety concerning separation from home or from those to whom the individual is attached*" (DSM-IV), with an onset during infancy or adolescence. From an empirical point of view, little attention has been given to identify symptoms but also complex dimensions linked to SAD (e.g., fear of the abandonment or calamitous events) that could help researchers and clinicians to identify psychopathological issues.

In past years, literature has shown a large amount of research on anxiety disorder highlighting prevalence and direction for treatment (Morris & March, 2004; Ollendick & March, 2004) or etiological hypothesis (Vasey & Dadds, 2001). Different studies pointed out that Separation Anxiety Disorder could be considered as a predictor of comorbidity for other anxiety disorder and for the adjustment difficulties of child (Schmidt, Kotov, Bernstein, Zvolensky, Joiner,

& Lewinsohn, 2007). Silove and colleagues proposed that the core symptoms of separation anxiety represent a risk factor because they may indeed persist throughout adulthood (Manicavasagar, Silove, & Curtis, 1997; Manicavasagar, Silove, & Hadzi-Pavlovic, 1998; Silove, Manicavasagar, Curtis, & Blaszczynski, 1996; Manicavasagar, Silove, Curtis, & Wagner, 2000).

SAD should be considered in this way a predictor of other sub-dimensions of anxiety disorder, and its effect could be mediated by other elements such as children's fears (Muris, Merckelbach, Mayer, & Prins, 2000). For this reason, it is very important to integrate the different psychopathological disorder (Muris, 2007) to underline the complexity in childhood developmental stage and the diagnostic continuum from both a theoretical and empirical level.

Although children's fears are considered as developmentally appropriate, transitory and age specific, they seemed to interfere with children's daily functioning, and with a rate of 49%, are considered as direct mediator of other anxiety disorders (Weems, Silverman, Saavedra, Pina, & Lumpkin, 1999). Muris and colleagues (Muris, Steerneman, Merckelbach, Holdrinet, & Meesters, 1998) results suggested that a considerable number of the childhood fears qualify for a clinical anxiety disorder. In a substantial minority of children, unusually high levels of fearfulness have a higher probability to meet the criteria for an anxiety disorder, including criteria for either a specific phobia, generalized anxiety disorder, or separation anxiety disorder (Muris et al., 2000; Manicavasagar et al., 2000). Relationship between fears and anxieties are useful for clinicians and investigators interested in correlates and determinants of anxiety disorders (Silverman & Moreno, 2005).

A wide range of self-report instruments have been developed to assess anxiety symptoms in youth. Reliance on youth self-report was based primarily on the assumption that children were believed to be a reliable informant of its subjective thoughts, behaviors, and emotions (Grills & Ollendick, 2003; Karver, 2006). The most commonly used measures included the Fear Survey Schedule for Children-Revised (FSSC-R; Ollendick, 1983; Italian version FSSC-IT; Di Riso, Salcuni, Chessa, & Lis, 2010), Spence Children's Anxiety Scale (SCAS, Spence, 1997), Strenghts and Difficulties Questionnaire (SDQ; Goodman, Meltzer, & Baley, 1998). Although these measures possess solid psychometric properties and treatment sensitivity and try to cover the huge spectrum of anxiety disorder, none of them were designed to specifically assess symptoms of separation anxiety (Muris, Loxton, Neumann, Du-Plessis, King, & Ollendick, 2006). Recently, there has been an exigency of interest in assessing separation anxiety in children (Van Dyke, Regan, & Albano, 2009).

For example, the Separation Anxiety Symptom Inventory (SASI-C; Silove, Manicavasagar, O'Connell, Blaszczynski, Wagner, & Henry, 1993; Chessa, Di Riso, Delvecchio, Lis & Eisen, under review) is the adaptation for children of the retrospective adult version and was developed to specifically assess symptoms of separation anxiety; the Separation Anxiety Assessment Scale, Child and Parent versions (SAAS-C/P; Eisen, Pincus, Hashim, Cheron, & Santucci, 2008; Eisen & Schaefer, 2005; Hahn, Hajilian, Eisen, Winder, & Pincus, 2003) was devised to assess symptomatic and conceptual dimension of SAD.

Aim

Starting for this background, the main aim of this study was to integrate in a theoretical and empirical model, based on a structural equation design, the different psychopathological issues of anxiety. Separation Anxiety Disorder was considered as an antecedent of a total level of anxiety and difficulties mediated by the level of fearfulness. A pro-social positive factor (SDQ) was inserted on the model as child social skill. Negative interaction between this factor and the anxiety problems was expected.

Preliminarily, internal consistency of the instruments and age and gender differences would be examined. Previous studies have reported greater prevalence estimates of anxiety disorder in girls than boys (e.g., Feigon, Waldman, Levy, & Hay, 2001; Muris et al., 2006; Spence, 1998). As such, it was expected that girls would report higher levels of separation anxiety symptoms, total level of fears (Muris, 2007) but also a higher level of Pro-social (Di Riso et al., 2010). Many studies also report a declining prevalence of anxiety symptoms from childhood to adolescence (Muris et al., 2000; Van Dyke et al., 2009.). Because of the small age range of the sample, only few differences between the three years analyzed was expected (Di Riso et al., 2010).

2. METHOD

2.1. Participants

Participants included a community sample of 1,397 children, aged between eight and ten years (M= 9.04, *SD* =.78). The sample consisted of 712

boys (51%) and 685 girls (49%), recruited in grades three to five of twelve elementary schools in urban and suburban districts in Italy. All participants were Caucasian and were in mainstream classrooms. They represented three age groups: 456 eight-year-old children (33%), 421 nine-year-old children (30%) and 520 ten-year-old children (37%). Families' socio-economical status, measured with the SES scale (Hollingshead, 1975), was medium. The mean family Hollingshead (1975) index was 35.39. Mothers and fathers had reached a mean value of 3.78 and 3.91 (some years of high school), respectively, in educational level and 4.50 and 6.01 (clerk level) in occupational level. All parents gave written informed consent for their children to participate in the study. The overall response rate was approximately 75%. Children gave verbal consent to participate. Confidentiality was assured by replacing children's personal information with a numeric code. No incentives were awarded, and voluntary participation was emphasized.

2.2. Measures

The Separation Anxiety Symptom Inventory for Children (SASI-C; Chessa et al., under review). The SASI-C included the same items as the adult retrospective version (Silove et al., 1993). SASI-C is a 15-item child self-report measure of separation anxiety. The SASI includes items similar to DSM-IV-R criteria of Separation Anxiety Disorder (SAD) in youth. The instructions are: "The following statements refer to fears you may have right now. Please check the statement that best describes how you feel now. Please answer all of the questions." Respondents were required to rate their level of anxiety on a four-point scale for each item. The four-point scale was: I never had this feeling (0), this feeling happens occasionally (1), this feeling happens fairly often (2), this feeling happens very often (3). Preliminary analyses demonstrated psychometric base for the SASI-C (Di Riso, Chessa, Delvecchio, Lis & Eisen, under review).

The Separation Anxiety Assessment Scale – Child Version (SAAS-C; Eisen & Schaefer, 2005). The SAAS-C is a 34-item self-report instrument that measures four symptom dimensions of separation anxiety-fear of abandonment (FAb, five items), fear of being alone (FBA, five items), fear of physical illness (FPI. five items), and worry about calamitous events (WCE, five items). The SAAS-C possesses good internal consistency (alpha = .91) and test-retest reliabilities (r = .83) (Hahn et al., 2003). The symptom subscales

were drawn from the clinical child literature on SAD and related problems (Eisen & Schaefer, 2005). The scale includes also two other subscales, frequency of calamitous events scale (FCE, five items), and a safety signal index (SSI, nine items). FCE was devised to determine to what extent, if any, children's separation anxiety could be related to actual events. The Safety Signal Index (SSI) is related to persons, places, or objects that help children feel more secure in anxiety-provoking situations. Respondents were required to rate their level of anxiety on a four-point scale for each item, regarding dimensions connected with separation anxiety. The scale was scored as never (1), sometimes (2), most of the time (3), and all the time (4). Preliminary evidence supports the SAAS-C's psychometric base (Hahn et al., 2003 Di Riso et al., under review).

The Italian Fear Survey Schedule for Children (FSSC-IT; Di Riso et al., 2010) is a closely based Italian-language version of Ollendick's The Fear Survey Schedule for Children (FSSC-R; Ollendick, 1983). The FSSC-R is an 80-item fear schedule. The FSSC-R and its revised forms are the most widely used and that for which the psychometric properties are most robust (Burnham, 2006; Gullone, King, Tonge, Heyne, & Ollendick, 2000; Muris & Ollendick, 2002). Respondents are required to rate their level of fear on a three-point scale. Ollendick (1983) scored his version as "none," "some" and "much" for each item.

The Spence Children's Anxiety Scale (SCAS; Spence, 1997) consists of 44 items, of which 38 reflect specific symptoms of anxiety, while six are positive-worded filler items ignored in the scoring process. The 38 anxiety items belonged to six different subscales: panic and agoraphobia (PA), separation anxiety (SAD), fears of physical injury (PHY), social phobia (SOC), obsessive-compulsive problems (OCD) and generalized anxiety/overanxious symptoms (GAD). Each item is scored on a four-point Likert-type response scale – never (0), sometimes (1), often (2) and always (3) – aiming to assess the frequency with which children experience each symptom. All anxiety items can be also summed in order to compute a total score (i.e., the SCAS tot; maximum = 114). Many studies have provided strong support for the satisfactory psychometric properties of the SCAS (Di Riso, Delvecchio, Chessa, Bobbio, Salcuni, Lis & Ollendick, 2011; Whiteside & Brown, 2008; Ching-hong Li, Lau, & Kit-Fond Au, 2011).

The Strengths and Difficulties Questionnaire – children's version (SDQ; Goodman et al., 1998) measures 25 attributes, both positive and negative, divided into five, five-item subscales. Four scales are designed for adjustment difficulties (i.e., difficulties subscales) and one for pro-social behaviours, that

is: emotional symptoms (EMO), conduct problems (COND), hyperactivity-inattention (HYPER), peer problems (PEER), and pro-social behavior (PROS). All the difficulties subscales can be summed to achieve a Total Difficulties Score (TDS). Each item uses a three-point Likert-type response scale - non true (0), somewhat true (1), certainly true (2). Higher scores indicate more problematic attributes. The Italian translation was retrieved from www.sdqinfo.org. Psychometric characteristics of the SDQ are solid above all with children older than 11 years (Muris, Meesters, Schouten, & Hoge, 2004; Van Widenfetlt, Goedhart, Treffers, & Goodman, 2003). However, recent papers demonstrated reliability and validity also for children aged eight to ten (Di Riso et al., 2010; Koskaleinen, Sourander, & Kaljonen, 2000).

2.3. Procedure

Excepting the SDQ—which translation in Italian was already available—all other measures administered in this study were translated into Italian with the permission of the original author and according to the guidelines developed by the committee of psychologists of the International Test Commission (Van de Vijer & Hambleton, 1996), and their feasibility with Italian children was assessed in previous studies already published or under review (Di Riso et al., 2010; Di Riso, Chessa, Bobbio, & Lis, 2011; Delvecchio et al., 2011; Chessa et al., under review).

All children completed all measures during their scheduled classes, according to the standard administration procedures. The children were asked to read the instructions of the measures while a trained psychologist, in the presence of the teacher, read them aloud to the class to be sure they were able to comprehend all the items. A research assistant was present in the classroom to supervise the testing conditions, to provide assistance where necessary, and to answer the children's questions.

Statistical Analysis

The Statistical Package for Social Sciences (SPSS) was used for computing descriptive statistics, correlations, and carrying out ANOVAs. Analysis of variance (ANOVA) was performed on the total score of all measures with gender and age and gender x age of children as between subjects variables. The structural equation model was examined using LISREL 8 (Jöreskog & Sörbom, 1996).

Results

Internal consistency for the SASI-C, SAAS-C, SCAS, FSCR total scores, TDS and PROS of the SDQ were indexed by means of Cronbach's alpha. Cronbach's alpha were for: SASI total score, α =.82; SAA-C total score, α=.89; FSCR, α=.96; SCAS total score, α=.91; TDS, α=.70; PROS, α=.67 showing a good ($\alpha \geq .64$) internal consistency for all measures.

Means and Standard deviations according to gender and age are shown in Table 1. An analysis of variance (ANOVA) was performed on the different scores (SASI-C, SAAS-C, FSSC-IT, SCAS, TDS, and PROS) with children gender and age group and gender x age group as between subject variables. The results of the ANOVA are summarized in Table 2.

Table 1. Means and Standard Deviation According to Gender and Age

	Gender				Age	
	Males (N=712)		Females (N=685)		8-10 years (N=1397)	
	M	DS	M	DS	M	DS
SASI-C	17.64	8.99	21.29	8.35	19.43	8.87
SAAS-C	24.65	13.88	31.95	14.47	28.22	14.63
FSSC-IT	129.58	24.29	149.36	24.69	139.25	26.40
SCAS	27.41	15.81	38.07	16.77	32.64	17.13
TDS	14.97	5.63	14.92	5.42	14.94	5.53
PROS	6.36	2.92	6.95	2.09	6.65	2.13

Gender had a significant effect on all the scores, excluding the TDS. Girls reported higher scores for all variables according to previous literature (Feigon et al., 2001; Muris et al., 2006; Spence, 1998; Muris, 2007). According to age group, significant influence was found only for SAAS-C and FSSC-IT scores. For SAAS-C according to Bonferroni post-hoc analysis, differences were found between ten- and eight–year-old children, with younger (M=29.63, DS=16.31) showing higher scores than older (M=26.39, SD=13.19). For FSSC-IT, data showed the same trend with eight-year-old children (M=141.33, SD=28.78) scoring higher than older children (10 years M=136.62, SD=24.45).

As a first attempt to test the theoretical model of the anxiety spectrum, the Pearson product–moment correlations between SASI-C, SAAS-C, FSSC-IT, SCAS, TDS, and PROS were evaluated.

Table 2. ANOVA with gender, age group and gender per age as between subjects

	Gender			Age			Gender x Age		
	$F_{(1,1391)}$	p	η^2_p	$F_{(2,1391)}$	p	η^2_p	$F_{(2,1391)}$	P	η^2_p
SASI-C	61.88	.0001	.04	2.76	.06	.00	.18	.83	.00
SAAS-C	91.63	.0001	.06	6.90	.001	.01	1.36	.26	.00
FSSC-IT	226.64	.0001	.14	4.97	.007	.01	.81	.45	.00
SCAS	148.99	.0001	.097	0.16	.85	.000	0.12	.89	.000
TDS	.05	.83	.00	2.03	.13	.00	.95	.39	.00
PROS	28.74	.0001	.02	.57	.56	.00	1.27	.28	.00

The correlations were all significant (p<.001). Correlation effect size was classified (Table 3) according to Cohen (1988): Low effect size, if the Pearson's *r* was lower than .30; Medium effect size if *r* ranged between .31 and .50; and Large effect size if *r* was higher than .50. Correlation effect size between SASI-C and SAAS-C, SASI-C and FSSC-IT, SAAS-C and SCAS, FSSC-IT and SCAS were Large. These correlations indicate an overlapping between the subscales. The effect-size between TDS and SASI-C, SAAS-C and SCAS score was Medium. PROS was negatively correlated with all the others subscales with a Low effect size.

Table 3. Pearson's correlations (p<.001, *p<.01)**

	SASI-C	SAAS-C	FSSC-IT	SCAS	TDS	PROS
SASI-C	1.00					
SAAS-C	.66**	1.00				
FSSC-IT	.55**	.66**	1.00			
SCAS	.64**	.78**	.71**	1.00		
TDS	.32**	.35**	.26**	.41**	1.00	
PROS	-.10**	-.13**	-.10**	-.15**	-.10*	1.00

Path Analysis

Structural equation modeling (SEM) can empirically test effects between associated variables. The aim of the present study was to propose an empirical validation of anxiety spectrum in childhood identifying antecedents and moderators using the SEM. Using the maximum likelihood technique, estimates of path parameters can be identified to simultaneously analyze all variables on the hypothesized model. The structural model will include the predicted interaction and the variance errors (Meyers, Gamst, & Guarino, 2006). Significance testing and model fit indexes are then calculated to determine whether the collected data fit the hypothesized model. Correlations

will be inserted to allow co-variance and non-independence between the hypothesized parameters. Multiple criteria have to be considered to evaluate model fit on the basis of various measures simultaneously. First, chi-square ($\chi 2$) has to be examined. A solution fits the data well when $\chi 2$ is not significant ($p \geq .05$). This statistic, however, is sensitive to the sample size: it can lead to rejection of a model differing in a trivial way from data, for large samples, and conversely it can result in the acceptance of a model with salient differences from data, for small samples. For this reason, as descriptive measures of overall model fit, Root Mean Square Error of Approximation (RMSEA) and Standardized Root Mean Square Residual (SRMR) were used (Schermelleh-Engel, Moosbrugger, & Müller, 2003; Browne and Cudeck, 1993). Among descriptive measures based on model comparison, the Normed Fit Index (NFI, Bentler & Bonnett, 1980), the Non Normed Fit Index (NNFI), the Comparative Fit Index (CFI), and the Goodness of Fit Index (GFI) were calculated (Kaplan, 2000, p. 107; Schermelleh et al., 2003). Parsimony indices were also used to help choose between alternative models. Among other possible indexes, the Akaike Information Criterion (AIC) and the Expected Cross-Validation Index (ECVI) were calculated. Three alternative path models were tested. All models included as independent variables the two measures of Separation Anxiety, one concerning symptoms (SASI-C) and a second measure of separation anxiety more conceptually grounded (SAAS-C). Children's fears (FSSC-IT) were considered as a moderator. Global anxiety level (SCAS), Difficulties (TDQ) and Strengths (PROS) in the child functioning and adaptation were considered as predicted variables. In the first model (Model 1), all the parameters were fixed in their interaction. In the second model (Model 2), SCAS, TDS and PROS are left free to interact. Finally, in the third model (Model 3), all the independent variables and the predicted variables are left free to interact. The only interaction permitted is the indirect influence of antecedent variables through the FSSC-IT to the dependent variables. Model 2 and Model 3 did not show acceptable fit to data. Model 1 represented the best empirical adaptation of the theoretical model hypothesized (Table 4).

Table 4. Goodness of Fit indices categories for Model 1, Model 2 and Model 3 (N=329)

Goodness of Fit Indices Categories	Fit Index	Model 1	Model 2	Model 3	Good Fit	Acceptable Fit
Satora-Bentler scaled Chi-Square		3.73	96.14	91.36	$0 \leq \chi^2 \leq 2df$	$2df \leq \chi 2 \leq 3df$
Descriptive Measures of overall model fit	RMSEA	.04	.25	.24	0≤RMSEA≤.05	.05≤RMSEA≤.08
Descriptive Measures based on model comparison	NFI	1.00	.94	.88	.95≤NFI≤1.00	.90≤NFI≤.95
	CFI	1.00	.94	.88	.97≤CFI≤1.00	.95≤CFI≤.97
	SRMR	.01	.06	.06	0≤SRMR≤.05	.05≤SRMR≤.10
Descriptive measures of model parsimony	Model AIC	45.43	3021.24	359.11	Smaller than AIC for comparison model	
	Model CAIC	164.03	3021.24	465.22	Smaller than CAIC for comparison model	
	ECVI	.03	.16	.26	Smaller than ECVI for comparison model	

Note. RMSEA = root mean squared error of approximation; NFI= normed fit index; CFI= comparative fit index; AIC= Akaike information criterion; ECVI= expected cross-validation index.

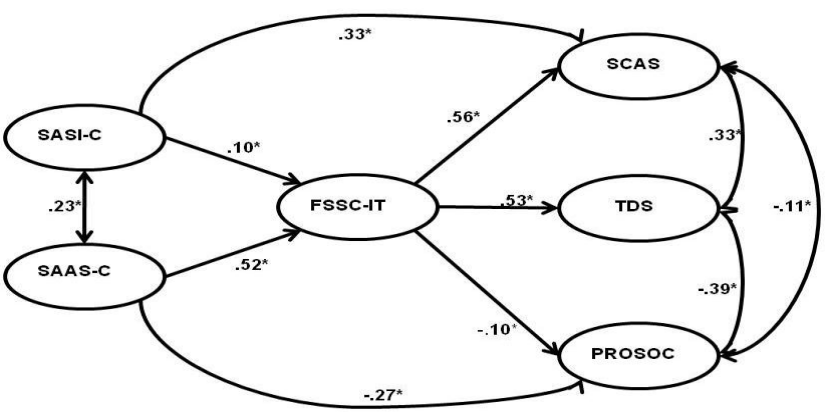

Figure 1. Path diagram. All parameters were significant (p<.001).

Model 1 had excellent goodness of fit indices. Chi-square test/degree of freedom ratio was not significant, $\chi^2_{(2)}=3.73$, ($\chi^2(2)=7.45$, $p \cong .002$). The RMSEA=.04, NFI=1.00, CFI=1.00, GFI=1.00, SRMR=.01, indicated an excellent adaptation of observed data to the model (Schermelleh et al., 2003). Moreover, Parsimony indices analysis confirmed the best solution reported in Model 1 (AIC=45.43, CAIC=164.03, ECVI= .033). This result yielded excellent goodness-of-fit indexes, indicating that the hypothesized model fit the observed data (see Table 4). All the path coefficients in Model 1 demonstrated both statistical significance ($p<.001$) and most of them showed also practical significance ($\beta>.30$). The total model accounted for 72% of variance.

According to the relation between the estimated parameters, the predicted values for the SCAS and TDS were high. SASI-C and SAAS-C through the mediation of FSSC-IT were highly associated with the total anxiety level and the total difficulties index. β indices were large (.56 for SCAS and .53 for TDS), indicating a strong association between the variables in the model.

Looking specifically at the associations between separation anxiety measures, the SAAS-C showed a higher connection (.52) with the FSSC-IT than the SASI-C (.10). The general level of anxiety was modestly correlated with the total difficulties (.33). Moreover, the PROS factor was negatively linked to all the other measures. The higher negative correlation was found with the TDS (-.39). This indicated how a general level of difficulty could decrease a positive attitude towards pro-social behaviors.

CONCLUSION

The present paper proposes an integration of different psychopathological features of anxiety disorders in a structural equation model. In our knowledge, these results represent a first attempt to highlight the complexity of the diagnostic continuum from both the theoretical and the empirical level. Model 1 showed an excellent fit on data. Separation Anxiety Disorder (SAD) symptoms (SASI-C) and dimensions (SAAS-C) were found as antecedents of the total level of anxiety (SCAS) and the Total level of Difficulties (TDS, SDQ) according to previous studies (Muris, Merckelbach, Mayer, Vanbrakel, Thissen, Moulaert, & Gadet, 1998; Weems et al., 1999) that investigated whether childhood fears were related to clinical phobias and other anxiety disorders when the total level of fears (FSSC-IT) was inserted as a mediator variable. Moreover, the Pro-social positive factor (PROS, SDQ), as expected,

was negatively linked to all others measures indicating an impairment of this children's skill with a higher level of anxiety symptoms. Consistent with previous results, all measures analyzed demonstrated good internal consistency. This provided support for the use of these measures both for clinical and research purposes. In terms of gender differences, girls always reported higher scores than boys, except for TDS. These findings were in line with literature on children's anxiety (e.g., Spence, 1997; Essau et al., 2000; Essau, Conradt, & Petermann, 2000, Muris, Schmidt, & Merckelbach, 2000; Di Riso et al., 2010). Age affected individual scores only on SAAS-C and FSSC-IT. This result was not surprising considering the narrow age groups analyzed. Previous studies that underline age differences have included differences between adolescents and younger children (Muris, 2007). To devise a complex assessment battery, as shown in this paper, represents a crucial point for diagnostic procedures and implication for treatment to a complete screening of anxiety disorders in youth.

The present study shows some important features. First, participants represented a large community sample. Very few studies reported this huge sample size that could be identified as representative of the population. Second, according to the main goal of the study, trying to find an empirical support for the diagnostic continuum of anxiety disorder was considered as an attempt to connect theoretical and methodological backgrounds. Moreover, this study underlines the importance of using a specific but also complete self-report assessment measure in order to identify and classify anxiety disorders and their sub-dimensions. Often in previous studies, a large body of literature was used to detect etiological factor, prevalence rate and risk factors for the onset of different anxiety disorders, using separately this measure. This study included results on five of the most used self-report measures in literature. Very few studies included such a broad assessment particularly useful in identifying specificity for the role of the different sub-dimensions of anxiety, i.e., the predictor role of separation anxiety and the mediator role of fear level.

However, findings of the present paper need to be considered preliminary for several reasons. First, it would have been helpful to have a more diverse and representative sample. Children consisted of Caucasian Italian children of families with a medium socio-economic status. Future research needs to examine if this empirical model could be identified also in clinically anxious youth. Moreover, future studies need to enlarge the sample also to investigate developmental differences with children of a broad age. Longitudinal studies from childhood to early-adolescence and adolescence could overcome this limitation.

According to the empirical model presented, future studies could be focused also on assessing other possible relationships among separation anxiety disorder, fears, a general level of anxiety, psychological adjustment and pro-social skills. The present study gave a prominent space to consider separation anxiety disorder as an antecedent and the level of fears as a mediator of a general level of anxiety and total difficulties. Other studies need to confirm this position in order to contribute to understanding the role each subtype of anxiety has in order to help clinicians and researchers in detecting a baseline for planning specific treatments.

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Chapter 6

LONGER-TERM EFFECTIVENESS OF CBT IN TREATMENT OF COMORBID AUD/MDD ADOLESCENTS

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ABSTRACT

Cognitive Behavioral Therapy (CBT) is a commonly used therapy among persons with major depressive disorder (MDD) and also among those with alcohol use disorders (AUD). However, less is known regarding the efficacy of CBT for treating persons with co-occurring disorders involving both MDD and an AUD. Studies assessing the efficacy of CBT in adolescent populations with co-occurring disorders are particularly sparse, especially studies designed to assess the potential longer-term efficacy of an acute phase trial of CBT therapy in that youthful comorbid population. We recently conducted a first acute phase treatment study involving comorbid AUD/MDD adolescents, which

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involved the medication fluoxetine as well as manualized CBT therapy. The results of that acute phase study suggested efficacy for CBT therapy but not for fluoxetine for treating the depressive symptoms and the excessive alcohol use of study subjects (Cornelius et al., 2009). The current chapter provides an assessment of the long-term efficacy of CBT for treating comorbid AUD/MDD adolescents, based on results from our own long-term (four-year) follow-up study, which was conducted following the completion of our recent acute phase treatment study. The results of the study suggest long-term efficacy for acute phase CBT/MET therapy for treating both the depressive symptoms and the excessive alcohol use of comorbid AUD/MDD adolescents, but demonstrate no evidence of long-term efficacy for fluoxetine for treating either the depressive symptoms or the excessive alcohol use of that population.

1. INTRODUCTION

Cognitive Behavioral Therapy (CBT) is a commonly used therapy among persons with depressive disorders and also among those with substance use disorders. However, less is known regarding the efficacy of CBT for treating persons with co-occurring disorders involving both a depressive disorder and a substance use disorder. Studies assessing the efficacy of CBT in adolescent populations with co-occurring disorders are particularly sparse, especially studies designed to assess the longer-term efficacy of CBT in that youthful comorbid population.

To date, no controlled studies other than our own recently published study have been conducted involving CBT/MET therapy among adolescents with comorbid diagnoses of major depressive disorder (MDD) in combination with an alcohol use disorder (AUD). However, one previous controlled study of CBT therapy (in combination with a fluoxetine) trial was conducted by Riggs and colleagues (2007) among a broad sample of comorbid adolescents. That study by Riggs et al (2007) did not specifically address adolescents with comorbid major depression and an alcohol use disorder, but instead addressed the more heterogeneous population of adolescents with major depression in combination with any substance use disorder. The authors of that study concluded that fluoxetine and CBT had greater efficacy than did placebo and CBT on one but not both depression measures, and was not associated with greater decline in self-reported substance use. The authors of that article speculated that CBT therapy may have decreased the depressive symptoms of their study sample, but they could not make any conclusions about the efficacy

of the CBT therapy, because no comparison sample was available that had not received the CBT therapy.

The authors of this chapter recently conducted a first acute phase treatment trial involving comorbid AUD/MDD adolescents. The acute phase trial involved the SSRI antidepressant fluoxetine versus placebo, and also utilized manualized CBT/MET therapy for all subjects in the acute phase study, including both those receiving fluoxetine and those receiving placebo. That study also included a four-year follow-up phase that included assessments conducted two years and four years after the completion of the baseline assessment.

The study also included a naturalistic comparison group that had received neither CBT therapy nor protocol medication, in order to allow a preliminary assessment of the efficacy of the CBT/MET therapy. Assessments in the naturalistic comparison group were conducted at baseline and at 2-year and 4-year follow-up assessments. The results of the acute phase of that study demonstrated large within-group improvements in both depressive symptoms and in drinking, but no significant differences were noted between the fluoxetine group and the placebo group on any of the outcome variables (Cornelius, Bukstein, et al., 2009). Thus, no efficacy was noted for fluoxetine for treating either the depressive symptoms or the alcohol-related symptoms of that adolescent comorbid population, despite the prominent clinical improvements noted across the subjects who participated in the treatment study.

Since all persons in that study received CBT/MET therapy during the acute phase study, it appeared that the prominent clinical improvements that had been noted during the acute phase resulted from CBT/MET therapy. Thus, the results of the acute phase trial suggested efficacy for CBT/MET but not for fluoxetine for treating the depressive symptoms and the alcohol use of those youthful comorbid subjects (Cornelius et al, 2009).

The current chapter focuses on the longer-term follow-up results from that study, based on the findings from 2-year and 4-year follow-up assessments. Thus, the current chapter provides a first preliminary assessment of the long-term efficacy of CBT/MET therapy among comorbid AUD/MDD adolescents. We hypothesized that improvements in depressive symptoms and alcohol-related symptoms noted among the subjects who had received acute phase CBT/MET therapy would continue to exceed those of a naturalistic comparison group (who had not received acute phase CBT/MET therapy) in the long-term follow-up assessments.

2. METHOD

2.1. Subjects

Before entry into this treatment protocol, the study was explained, and written informed consent was obtained from all subjects (or from a parent or guardian with child assent if the participant was a minor) after all procedures had been fully explained. The study was approved by the University of Pittsburgh Institutional Review Board. This study was conducted at the Western Psychiatric Institute and Clinic (WPIC) of the University of Pittsburgh Medical Center (UPMC). Subjects were recruited for participation in the treatment study through referrals from any of the WPIC treatment programs and by responding to newspaper, radio, and bus advertisements. During recruitment, the subjects were told that they were being recruited for a treatment study involving adolescents and young adults with a combination of depression and alcohol problems.

Study participants were required to be between 15 and 20 years of age at baseline to be included in the study. At the baseline assessment, participants were evaluated for the DSM-IV diagnoses of an alcohol use disorder (AUD) (alcohol abuse or alcohol dependence) and for major depressive disorder (MDD). The comorbid presence of both a current AUD and a current MDD was required for inclusion in the treatment study. Standardized diagnostic instruments were used to assess for current diagnoses of major depressive disorder and for alcohol abuse or dependence. The DSM-IV diagnosis of MDD was confirmed using the Schedule for Affective Disorders and Schizophrenia-Present and Lifetime Version (K-SADS-PL) (Kaufman, et al., 1997; Puig-Antich, 1986). The DSM-IV diagnosis of an alcohol use disorder (alcohol abuse or dependence) was confirmed using the Substance Use Disorders Section of the Structured Clinical Interview for the DSM (SCID) (Spitzer, et al., 2003; Martin, et al., 2000). Faculty members from our alcohol research center have validated the SCID with adolescent substance abuse populations (Martin et al., 2000). In addition, minimum current levels of drinking and of depressive symptoms were also required for study inclusion, as noted on the Timeline Follow-back scale and the HAM-D-27, respectively (Cornelius, Bukstein, et al., 2009; Cornelius, Bukstein, et al., 2010). Minimum levels of drinking for study inclusion were defined as drinking at least 10 drinks over the month prior to baseline assessment, as demonstrated on the Timeline Follow-back scale. Minimum levels of depressive symptoms for study inclusion were defined as a HAM-D-27 score of greater than or equal to

15 at the baseline assessment. Persons who did not meet the criteria for inclusion in the treatment trial because of an inadequate number of diagnostic criteria for MDD (sub-threshold for MDD) were offered the option of participating in a naturalistic comparison group which did not involve protocol medication treatment or protocol therapy, but which did involve a long-term follow-up evaluation two years and four years after completion of the study baseline, in order to provide a preliminary evaluation of the effect of the protocol CBT/MET therapy. Those persons in the naturalistic comparison group were referred to care in a dual diagnosis program near their home, and subsequently received care at the person's discretion, provided by non-protocol staff.

Exclusion criteria included a DSM-IV diagnosis of bipolar disorder, schizoaffective disorder, or schizophrenia. Persons with hyper- or hypothyroidism, significant cardiac, neurological, or renal impairment, and those with significant liver disease (SGOT, SGPT, or gamma-GTP greater than 3 times normal levels) were also excluded from the study. Persons who had received antipsychotic or antidepressant medication in the month prior to baseline assessment were excluded. Persons with any substance abuse or dependence other than nicotine dependence or cannabis abuse or dependence were excluded from the study. Persons with any history of intravenous drug use were excluded from the study. Persons were recruited into the study regardless of race, ethnicity, or gender. Other exclusion criteria were pregnancy, inability or unwillingness to use contraceptive methods, and an inability to read or understand study forms.

2.2. CBT/MET Therapy

Cognitive behavioral approaches, such as the CBT used in this study, are based on social learning models (Carroll, 2005: Deas, 2008). CBT emphasized a functional analysis of drug use, including the development of an understanding of drug use with respect to its antecedents (triggers) and consequences. CBT emphasized the recognition of high-risk situations and the acquisition of skills to cope with craving cues and other high-risk situations. CBT has been shown to be effective across a wide range of substance use disorders (Carroll, 1996; Irwin et al, 1999; Carroll, 2005), including substance use disorders in the presence of co-occurring mood disorders (Carroll, 2004) and substance use disorders involving adolescents (Kaminer et al., 2002; Deas, 2008).

Motivational enhancement therapy (MET), including the MET used in this study, is a brief intervention used to enhance an individual's engagement in therapy and motivation to make changes regarding substance use and high-risk behaviors (Miller et al., 1992; Miller and Wibourne, 2002; Carroll, 2004). This form of brief intervention is theoretically appealing for adolescents with substance use disorders because adolescents with those disorders are typically non-treatment-seeking, and need to be motivated to engage in treatment (Tevyaw and Monti, 2004). Primary tenets of MET include using an empathic nonjudgmental stance, performing reflective listening, avoiding arguments, and supporting self-efficacy for change (Deas, 2008). MET has been shown to be effective across a wide range of substance use disorders, with particularly strong support among alcohol abusing and dependent populations (Wilk et al., 1997; Carroll, 2005; Carroll et al., 2006). MET has also demonstrated effectiveness for treatment of substance use disorder among persons with comorbid psychiatric disorders (Swanson, et al, 1999; Baker et al., 2002), and for treating substance use disorders among adolescents ((Tevyaw and Monti, 2004).

Manual-based MET/CBT therapy was provided to all subjects in the acute phase treatment trial, including those who had received fluoxetine and those who had received placebo. Persons in the naturalistic comparison group did not receive manual-based therapy. That manual-based therapy consisted of Cognitive Behavior Therapy (CBT) for treatment of major depressive disorder and for treatment of the alcohol use disorder, and Motivation Enhancement Therapy (MET) for treatment of the alcohol use disorder. The CBT/MET therapy was provided during each protocol visit during the acute phase treatment trial, so persons who participated in the acute phase treatment trial received psychotherapy on nine occasions: baseline, week 1, week 2, week 3, week 4, week 6, week 8, week 10, and week 12.

The cognitive behavior therapy for treatment of alcohol use disorder used in this study utilized the widely used techniques described in the CBT manual utilized in Project MATCH (Kadden, et al., 1994). The Cognitive Behavior Therapy for depression used in this study utilized the widely used techniques of cognitive therapy that have been adapted for treatment of adolescent depression, as described by Brent and colleagues (1997). This therapy was chosen because cognitive behavioral therapy has been reported to be more efficacious than alternative psychosocial interventions for the acute treatment of adolescents with major depressive disorder (Birmaher, et al., 2000). The Motivation Enhancement Therapy used in this study was adapted after the Motivation Enhancement Therapy used in Project MATCH (Miller, et al.,

1992). Therapists who conducted therapy for the acute phase of the study were all Master's level staff members with several years of experience in providing CBT/MET therapy to adolescents and young adults with comorbid MDD/AUD. They all participated in comprehensive training exercises prior to the beginning of the study to ensure standardization in therapeutic techniques. This training included extensive readings on CBT/MET therapy, viewing of CBT/MET tapes, and conducting practice therapy sessions which were viewed by all of the therapists. This process was overseen by a senior staff person with a doctorate in therapy in order to further standardize the therapy. They also participated in annual assessments of their training to ensure that no "drift" in therapy occurred.

2.3. Pharmacotherapy

Following completion of the baseline assessment, participants in the treatment trial were randomly assigned to receive fluoxetine or placebo administered in identical-looking opaque capsules. Active medication and matching placebo were prepared by the research pharmacy at the Western Psychiatric Institute and Clinic of the University of Pittsburgh Medical Center. Patient randomization was conducted by urn randomization, stratified by gender. All subjects were initially given 1 capsule (10 mg fluoxetine or placebo), which was increased after 2 weeks to 2 capsules (20 mg fluoxetine or placebo), which was the target dose of the study. The study was conducted in a double-blind fashion, though one study physician remained non-blinded in order to handle any problems which may have arisen. Ratings of alcohol use and symptom severity were conducted weekly for the first month, and biweekly for the second and third month of the 12-week acute phase study.

2.4. Assessment Procedures and Measures

Assessments for this study were completed by a Master's level staff member with several years of experience conducting assessments with comorbid adolescents. All assessors also completed a comprehensive clinical assessors training program, lasting between 2 and 3 months. All raters participating in the proposed treatment study must have demonstrated adequate levels of inter-rater reliability prior to administering ratings. Experiential training included observation of experienced assessors with

independent coding of instruments (at least 5 sessions). Agreement with the interviewing clinician must have exceeded 90% for advancement to administering assessments with an assisting supervisor present. Prior to performing solo interviews, the assessor must have completed a minimum of two assessments with a supervisor present but not assisting, and coding must have achieved 90% agreement with the observing supervisor. After the completion of formal training, monitoring continues through periodic joint interview reliability evaluations with pairs of interviewers. Pill counts were used to ensure compliance with protocol medication. The validity of participant's self-reported drinking was assessed with breath alcohol levels. To ensure a high level of participation for these evaluations, a $20.00 payment was made to patients completing each assessment (Festinger, et al., 2008).

Subjects' diagnoses were finalized after case presentations at diagnostic conferences, attended by two study faculty members and the assessors. This "best estimate" diagnostic procedure (which is utilized for the SCID and SCID II as well as for the K-SADS) is in accordance with the method described by Leckman and colleagues (1982), and was validated by Kosten and Rounsaville (1992). Observer-rated depressive symptoms were assessed with the Hamilton Rating Scale for Depression (HAM-D-27) (Hamilton, 1960). The reliability and validity of the HAM-D are well established (Hamilton, 2008). Participant-rated depressive symptoms were assessed with the Beck Depression Inventory (BDI) (Beck, et al., 1961). The reliability and validity of this widely-used instrument are well established (Beck, et al., 2008). Drinking behavior was evaluated using the timeline follow-back method (TLFB) (Sobell LC, et al., 1988). The TLFB has demonstrated good reliability, validity, and clinical utility across a wide variety of populations (Sobell and Sobell, 2008). This instrument provided a daily tabulation of drinking behavior, thus providing detailed information on the quantity and frequency of this behavior. The primary alcohol use outcome variables included number of drinks per drinking day, the number of drinking days, and the number of heavy drinking days (defined as greater than or equal to 4 drinks per day for women and 5 for men).

2.5. Statistical Analysis

Descriptive statistics were calculated for all variables. Continuous baseline measures were compared by independent, 2-tailed *t* tests for continuous variables. Categorical baseline measures were compared by chi-

square analysis, corrected for continuity. Statistical analyses were completed on an intent-to-treat basis. Outcome measures for depression and for drinking across treatment groups were compared by repeated measures analysis of variance. The outcome findings presented in this manuscript are the result of statistical comparisons between subjects who had received CBT/MET therapy during the acute phase study versus those who had received naturalistic care. Those who had received CBT/MET therapy included all subjects who had participated in the acute phase study, which included those who had received fluoxetine and those who had received placebo. All tests of significance were 2-tailed. An alpha level of less than or equal to 0.05 was used in the study. All analyses were conducted using the Statistical Package for the Social Sciences, version 15.0 (Norusis, 1992).

3. RESULTS

A total of 118 persons signed informed consent to participate in the acute phase study and completed the baseline assessment. Of those persons, 50 subjects participated in the Acute Phase Treatment Study, including 22 males and 28 females. These participants included 43 Caucasians, 4 African-Americans, and 3 with mixed race. The mean age of those 50 persons was 19.5 +/- 1.6 years.

A total of 68 persons who signed informed consent were not included in the acute phase trial, but instead were included in the naturalistic comparison group. Those 68 persons included 36 males and 32 females; and included 53 Caucasians, 10 African-Americans, and 5 persons with mixed race. The mean age of those 68 persons was 19.4 +/- 1.4 years. The only factor that distinguished those who were enrolled in the acute phase study from those who were included in the naturalistic comparison group was the number of criteria that had been met for major depressive disorder. Specifically, the number of criteria met for MDD by those who had been enrolled in the acute phase study (mean 7.2 +/- 1.2) was higher than the number of criteria met for MDD by those who had not be enrolled in that study (mean 4.8 +/- 3.1, f=3.91, p=0.05). Thus, those who were not enrolled in the naturalistic comparison group were sometimes slightly sub-threshold for MDD. No other symptom severity factor or demographic factor significantly distinguished those who were enrolled from those who were not enrolled in the acute phase study. During the acute phase study, depressive symptoms among those who had received CBT/MET therapy decreased by more than 50%, while drinking-

related symptoms decreased by almost half, though no significant difference was noted between the outcomes of those who had received fluoxetine versus those who had received placebo. Subsequently, almost two-thirds (64%, N=75) of the persons who signed informed consent for possible participation in the protocol study completed the two-year follow-up assessment, and 58 of those persons participated in the four-year follow-up assessment. Additional information regarding the study design, study subjects, and study outcomes of the acute phase study have been presented elsewhere (Cornelius, Bukstein, et al, 2009), and a preliminary description of the long-term follow-up study has been presented elsewhere (Cornelius, Douaihy, Bukstein, et al. 2011).

In repeated measure analysis of variance, a significant time by enrollment status difference was noted for both depressive symptoms and alcohol-related symptoms across the two-year time period between the baseline assessment and the two-year follow-up assessment. For example, a significantly greater improvement (decrease) in depressive symptoms was noted among those who had enrolled in the treatment trial (and thus had received CBT/MET therapy) as compared to those who had not enrolled in the treatment trial on number of DSM criteria for MDD (f=14.6, p=0.000), self-reported depressive symptoms, as measured on the Beck Depression Inventory (f=12.4, p=0.001), and on observer-rated depressive symptoms, as measured on the Hamilton Depression Rating scale (f=16.6, p=0.000). Also, a significantly greater improvement (decrease) in number of DSM criteria for an alcohol use disorder was noted among those who had received CBT/MET therapy, as compared to those who had not received CBT/MET therapy (f=14.2, p=0.000). At baseline, the percentage of subjects with alcohol dependence who participated in the acute phase trial was not significantly different from the percentage with alcohol dependence in the naturalistic comparison group (81% vs. 78%, respectively). The percentage of subjects who met diagnostic criteria for alcohol dependence decreased in both treatment groups between baseline and the two-year follow-up assessment. However, the group that had participated in the CBT/MET therapy (as part of their acute phase protocol therapy) had a lower prevalence of alcohol dependence at the two-year follow-up than the group that had participated in naturalistic therapy (41% vs. 17%, chi-square=5.3, p=0.021). In contrast, no significant difference was noted between those receiving fluoxetine and those receiving placebo at any time point. Most of the subjects who participated in the acute phase trial (72%) also participated in the 4-year follow-up assessment. Similarly, at the 4-year follow-up evaluation, ratings of depressive symptoms and of alcohol quantity (but not frequency) among those who had received CBT/MET therapy were significantly lower than those noted

in the comparison group ($p<0.01$). At the four-year follow-up assessment, the levels of depressive symptoms and alcohol-related symptoms among those who had received CBT/MET therapy were still significantly lower than baseline levels, and were not significantly different from end-of-acute phase levels (Cornelius, Douaihy, Chung, et al, 2011). Thus, the therapeutic improvements among subjects receiving CBT'MET therapy that were noted during the acute phase trial persisted across the entire four-year follow-up study.

CONCLUSION

Our study demonstrated that adolescents with comorbid major depression and an alcohol use disorder who had participated in manualized CBT/MET therapy during their acute phase treatment trial demonstrated greater improvement in depressive symptoms and in alcohol-related symptoms at two-year and four-year follow-up assessments compared to outcomes noted in the naturalistic comparison group who had not received CBT/MET. Those findings suggest long term efficacy for CBT/MET therapy for treating the depressive symptoms and the alcohol-related symptoms of comorbid AUD/MDD adolescents that could still be noted as much as four years after the completion of the baseline assessment for the acute phase study. In contrast, no efficacy was noted for the antidepressant medication fluoxetine versus placebo in either the acute phase study or in the long-term follow-up assessments.

Our current tentative conclusions regarding the efficacy of CBT/MET therapy for comorbid AUD/MDD adolescents are consistent with the findings of Riggs and colleagues (2007), who speculated that CBT therapy may have contributed to their higher-than expected treatment response in their pharmacotherapy/CBT treatment trial of a mixed sample of comorbid adolescents. However, the Riggs study did not involve a comparison group that did not receive verbal therapy, so no definitive conclusions were drawn concerning the effectiveness of CBT therapy among their youthful comorbid population by the authors of that paper. The results described in our current manuscript are also consistent with the promising results of our previous pilot study of open label fluoxetine in combination with CBT/MET therapy in comorbid MDD/AUD adolescents, which demonstrated acute phase and continuation efficacy for treatment at each of the yearly follow-up assessments of the five years follow-up period (Cornelius, Clark, et al., 2005; Cornelius,

Clark, et al., 2007). However, that pilot study did not include a placebo comparison group or a naturalistic comparison group, so it had been unclear whether the improvements in depressive symptoms and in alcohol-related symptoms noted in that pilot study resulted from the fluoxetine or from the CBT/MET therapy. The results described in our current manuscript regarding the efficacy of CBT/MET therapy in comorbid MDD/AUD adolescents are also consistent with the results of our own recent study of adolescents with a comorbid major depression in combination with a cannabis use disorder (Cornelius, Bukstein, et al., 2010). Until the time when more definitive studies can be performed, the results of the current study in combination with the results from the Riggs study and from our own recent work suggest that psychological intervention should be considered first-line treatment for comorbid MDD/AUD adolescents, with pharmacotherapy offered to those who do not respond to this intervention alone. It is also noteworthy that the efficacy of CBT/MET could potentially mask significant medication effects in treatment studies in which CBT/MET therapy is used in both the medication arm and the placebo arm of the study.

The results of this study should be interpreted in light of some limitations. First, the sample in this study was limited to outpatient comorbid MDD/AUD adolescents. Consequently, it is unclear to what extent the results of this study generalize to the treatment of comorbid MDD/AUD adults or to comorbid adolescents in more intensive treatment settings, such as inpatient settings or partial hospital settings. Second, the sample size in the present study was limited. Large trials would be needed to more definitively evaluate the efficacy of CBT/MET therapy among comorbid MDD/AUD adolescents. Further studies are also warranted to clarify the utility of promising but unproven predictors of treatment response among comorbid populations, such as clinical predictors, neuroimaging-related predictors, and genetic predictors of treatment response among comorbid populations (Cornelius, Salloum, et al., 1997; Cornelius, Bukstein, et al., 2005; Cornelius and Clark, 2007; Cornelius, Aizenstein, et al., 2010; Cornelius, Ferrell, et al., 2010).

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Chapter 7

COGNITIVE-BEHAVIORAL THERAPY WITH VIETNAMESE REFUGEE AND IMMIGRANT CLIENTS

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ABSTRACT

The application of the cognitive-behavioral model to the management of depression and anxiety symptoms in Vietnamese clients is based on the understanding that these symptoms are complex experiences that are not only influenced by biological underpinnings, but also by an individual's thoughts, emotions, and behaviors. The goals of this chapter are fourfold: (1) to provide an overview of common characteristics of traditional Vietnamese culture, (2) to describe the historical background and conceptual underpinnings of cognitive-behavioral interventions (CBT) and how they are compatible with Vietnamese culture, (3) to discuss key components of CBT for depression and anxiety, and (4) to provide a case study to illustrate how these components can be used with Vietnamese clients suffering from depression and anxiety symptoms.

BACKGROUND AND HISTORY

Over the past 150 years, the Asian population in the U.S. has grown substantially. Further, the diversity within the Asian community is illustrated by the over 29 different Asian ethnic groups that currently reside in this country (D.W. Sue & D. Sue, 1990). Among the numerous Asian groups that have resettled in the U.S. are the Vietnamese. Unlike other major Asian groups, such as the Chinese and Japanese, the Vietnamese have had a relatively short history in the U.S. The initial resettlement of the Vietnamese and other individuals from Southeast Asia (i.e. Cambodia and Laos) was the result of war. Thus, unlike other Asian groups who initially came to the U.S. for economic or professional reasons, a large percentage of the Vietnamese initially came to this country (and others) to take refuge from war and major political turmoil; therefore, many Vietnamese are considered to be refugees rather than immigrants (Southeast Asia Resource Action Center [SEARAC], 2011). According to a report from SEARAC (2011), close to 1.7 million Vietnamese individuals currently live in the US, with over three-quarters of a million refugees arriving to the US from 1975 through 2010.

The migration of Vietnamese refugees to the U.S. is considered to have occurred in multiple phases, or waves. The first wave, which occurred in 1975 during the fall of Saigon and near the end of the Vietnam War, consisted of mostly ethnic Vietnamese who were primarily urban and generally well-educated. Members of this wave, generally had more English proficiency and more exposure to western philosophy than did other Vietnamese (SEARAC, 2011). The second wave of migration, which began in 1979, consisted of a more ethnically and occupationally heterogeneous group of refugees. These refugees tended to come from more rural areas in Vietnam, were generally less educated than the first wave of Vietnamese refugees, and were less proficient in the English language than the first group. D. W. Sue and D. Sue (1990) described the third wave of migration resulting from the implementation of the Orderly Departure Program in 1982. This program was implemented to further facilitate the movement of Vietnamese individuals out of Vietnam. Specifically, groups that benefited from this initiative consisted mostly of older individuals, Amerasians, and unaccompanied minors.

As previously mentioned, the Vietnamese and other Southeast Asians differ from other major Asian groups in that most arrived in the U.S. as war refugees. As refugees, the Vietnamese' departure from their homeland was often quite sudden, with little organized planning. Often, Vietnamese refugees had only a few days or even a few hours to prepare for their departure and to

bid farewell to their relatives and friends. Further, they frequently had little knowledge of their destination, the amount of time they would spend at their destination, or even the route to get to their destination (Matsuoka, 1990). Once the process of migration began, refugees faced further traumatic experiences such as illness, lack of adequate shelter and food, separation from family members, and brutal attacks from pirate ships. As refugees were resettled in their host countries (which could be months or years later), they were often confronted with a myriad of short-term and long-term difficulties including financial instability, lack of employment, language barriers, differences in cultural traditions and values, role changes, intergenerational conflicts, and lack of adequate support networks.

Given all of the difficult circumstances surrounding the migratory process (from initial departure to final resettlement), it is not surprising that a large percentage of Vietnamese refugees experience mental health issues. Since their arrival in 1975, there has been much interest in examining the adjustment and adaptation patterns of Vietnamese individuals to their host country. The Vietnamese have resettled in a number of different countries, and reports of their adaptation patterns and mental health adjustment have come from host countries such as Japan (Ebata & Miyake, 1989), Norway (Hauff & Vaglum, 1993, 1994, 1995), the U.S. and Canada (Daly & Carpenter, 1985; Masuda, Lin, & Tazuma, 1980; Tran, 1992; Vignes & Hall, 1979; Woon, 1986). Reports on their mental health adjustment have frequently indicated that Vietnamese and other Southeast Asian refugees are susceptible to experiencing a wide range of psychological distress (Hussain, 1984; Mollica, Wyshak, & Lavelle, 1987). For instance, Ebata and Miyake (1989) examined the mental health adjustment of a nonclinical cohort of Vietnamese refugees who had been living in Japan for five years or less. Using the Cornell Medical Index (CMI), a widely used instrument for assessing general physical and psychological symptoms, the investigators found that 38% of the refugees scored in the range indicative of emotional disturbance. Although the rate of emotional disturbance found in this sample was lower than what had been found in Vietnamese refugees in the U.S. (over 50%; Lin, Tazuma, & Masuda, 1979), it was still higher than the rate found in the general population in London (21 %; Brown & Fry, 1962). Further support for the susceptibility of Vietnamese refugees to experiencing high rates of psychological distress comes from a longitudinal study conducted by Lin et al. (1979), which examined the mental health adjustment of nonclinical samples of Vietnamese refugees in the U.S. In the first phase, Lin et al. evaluated 152 Vietnamese refugees in the first year of their resettlement (i.e. 1975) and found that over

50% of the sample could be characterized as having an emotional disturbance as indicated by the CMI. Further, the level of distress of the refugees (mean score of 12 [with 10 being the clinical cutoff]) significantly exceeded that of normative samples in the U.S. and the United Kingdom (mean scores of 3.5 and 4.5, respectively; Brodman, Erdmann, & Wolff, 1956; Brown & Fry, 1962). The second phase of the longitudinal study involved assessing 141 Vietnamese refugees in the second year of their resettlement (i.e. 1976). The authors found that the rate of psychological distress continued to be high among the refugees (over 50%). Research with Vietnamese refugees and immigrants has highlighted the high levels of depression and anxiety experienced among this population. For example, in a study of refugees from Vietnam, Somalia and the former Yugoslavia, Stutters and Ligon (2001) found that Vietnamese clients at a community social services organization exhibited the highest levels of anxiety and depression of any group. Because of the stigma associated with having a mental illness, Vietnamese often deny having depressive and anxiety symptoms in order to save face for self and family. Preserving outward public appearance is important because members of the Vietnamese community perceive depression and anxiety as a result of spiritual weakness, poor upbringing by one's family, or immoral character. Thus, it is not uncommon for Vietnamese individuals to report somatic complaints instead of psychological symptoms. Results from a study indicated that the most common somatic symptoms often reported by Southeast Asians were headaches (60%) and insomnia (54%), followed by palpitation (26%), aches and pain (26%), and several others. The frequency of somatic symptoms was attributed to not wanting to bring shame to one's family by reporting symptoms of mental illness, which is a common belief in Southeast Asian cultures (Nguyen, 1982). In a classic study of the Southeast Asian refugees, Flaskerud & Anh (1988) found that 57% of the Vietnamese refugees were diagnosed with depression, which was much higher than the prevalence of depression in Cambodian, Laotian, and Hmong and Mein refugees at this clinic. Interestingly, refugees that were diagnosed with depression initially presented with somatic complaints, such as headache, backache, and difficulty sleeping. In sum, sleep difficulties and physical pain are commonly reported in Vietnamese refugee and Immigrant (VRI) patients suffering from depression and anxiety.

VIETNAMESE CULTURE AND HEALTH

Despite the prevalence of psychological symptoms in this population, Asians significantly underutilize mental health services (Hu, Snowden, Jerrell, & Nguyen, 1991; Lin & Cheung, 1999; Kim & Omizo, 2003; Spencer et al., 2010). Compared to White Americans, in particular, Asian are less likely to visit mental health centers and are less inclined to disclose their mental health concerns (Matsuoka, Breaux, & Ryujin, 1997; Zhang, Snowden, & Sue, 1998). Furthermore, a study by Young, Bukoff, Waller, & Blount (1987) found that Southeast Asian immigrants rarely utilize psychiatric services. Among VRI, specifically, the utilization of mental health services is practically nonexistent (Phan, 2000). Contrary to previously held beliefs that underutilization of services reflects lack of need, it is recognized that cultural factors may play an important role (Nguyen & Anderson, 2005). In fact, recent data on Asian-Americans revealed that members of this group were considerably burdened by mental illness, with a 17.3% overall lifetime rate of any psychiatric disorder, and 9.19% 12-month rate (Takeuchi et al, 2007). The notion that cultural factors may play an important role in Asian-Americans' utilization of mental heath services prompted research studies examining the relation between acculturation and help-seeking attitudes. Acculturation has been an important construct of study within several social science fields over the past several decades. In general, acculturation is generally considered to be a process that occurs when at least two different cultures interact (Dao, Teten, & Nguyen, 2011). Acculturation has typically been discussed within the context of a minority culture interacting with a majority (or host) culture and how this interaction impacts the adaptation patterns of the minority culture. Acculturation is a particularly important construct in culturally diverse societies, such as the US. Much has been written about acculturation, and various resources are available to the interested reader, such as The Cambridge of Acculturation Psychology and Acculturation. With regards to acculturation and help-seeking, some studies have found a positive association between level of acculturation and attitudes towards seeking mental health services, with higher acculturation levels corresponding to more favorable attitudes. Findings, however, have not been entirely consistent, and the relation between these two constructs has not been definitively determined (Nguyen & Anderson, 2005).

A perusal of the literature suggests that there are several culturally-based factors that may play an important role in the mental health utilization patterns of Asian-Americans (Nguyen & Anderson, 2005). For instance, although the

stigma of mental illness clearly exists within American society, it may be much more pronounced in Asian cultures (Sue & Zane, 1987). Mental illness is highly stigmatized within the Vietnamese community (Nguyen, 2009) and may be regarded as threatening to the cohesion and harmony of the family unit (Matkin, Nickles, Demos, & Demos, 1996). Individuals may feel that admitting their mental illness would stigmatize not only themselves, but their family members, as well (Kim, Brenner, Liang, & Assay, 2003). Particularly uncomfortable topics are matters relating to negative family dynamics and personal trauma (Nguyen and Anderson, 2009). Family members may also feel concerned by the perceptions of others, especially if they feel that others might perceive mental illness within the family as a result of inadequate family "togetherness" (Fancher, Ton, Meyer, Ho, & Paterniti, 2010). Based on these pressures to preserve cohesive family functioning, as well as to maintain a positive social image to others, Vietnamese individuals may be motivated to deny the experience of mental health symptoms. By denying that something is wrong, one's family status is upheld and the potential for family disruption is in turn avoided.

Help-seeking is typically arranged in a hierarchy within traditional Vietnamese culture (Nguyen, & Anderson, 2005). The family (particularly the nuclear family) is usually the first and primary resource for addressing a problem, and seeking assistance elsewhere typically comes about only when the resolution cannot be achieved within the family. Again, this is typically due to the family's desire to preserve cohesion, as well as not to be viewed negatively by others. Thus, coping with personal and emotional problems may be perceived by many Asian clients as processes to be undertaken together with family (Fancher et al., 2010). Furthermore, due to strong familial ties, individuals of Asian culture view themselves as a representation of their families (Leong & Lau, 2001). Seeking mental health services and focusing on individual concerns may be viewed as contradictory to the families' values, even selfish.

Traditional beliefs about mental illness within Asian cultures may be quite divergent from Western perspectives, which may contribute to avoidance of mental health services. For instance, Nguyen (2009) explained that the Vietnamese definition of mental illness tends to be a great deal narrower than the Western definition "because this term is only applied to psychotic disorders such as schizophrenia. Anxiety and depression are considered to be normal parts of life that individuals are expected to endure as part of cultural virtue" (p. 28). Because Vietnamese individuals' conceptualization of mental illness tend to pertain to more severe disorders, they are less likely to see the

need to and/or the benefit of seeking professional help for symptoms that are perceived to be less serious. Vietnamese individuals often experience physical discomfort in relation to psychological distress, a factor not typically considered in modern day assessments of anxiety and depression (Stutters & Ligon, 2001). In a study using semi-structured interviews, researchers found that Vietnamese individuals tend to express psychological distress through somatic symptomatology (e.g., nerves, headaches, stomach pains and heart palpitations) (Fancher et al., 2010). Somatic symptom expression, combined with the belief among many Asians that psychological problems are organically based, may contribute to Vietnamese individuals' being more inclined to seek medical services (Sue & Sue, 1987), particularly for mental health problems that do not rise to the level of severity described above. Other traditional beliefs about the causes of mental illness within Asian cultures include retribution for personal or family transgressions (current or past), and supernatural possession (Nguyen & Anderson, 2005).

Aspects of Vietnamese culture's unique language and communication styles should also be considered when working with and assessing these clients. For example, Vietnamese verbs do not change form, and the spoken language is polytonal and rapidly delivered. Communication practices are also an important aspect of Vietnamese culture that may pose impediments to understanding these individuals' mental health. For example, the word "yes" in Vietnamese culture does not necessarily imply an affirmative response; rather, it may indicate a desire to please or avoid conflict or confrontation (Purnell, 2008). In Vietnamese culture, responding with the word "no" often incites disharmony (Purnell, 2008). Additionally, expressing emotion in Vietnamese culture may be perceived as an indication of weakness (Purnell, 2008). This view likely functions as another barrier to Vietnamese individuals' utilization of mental health services and may also be an obstacle for practitioners who wish to investigate the emotional distress of their clients.

Vietnamese refugees and immigrants (VRI) share a common worldview with many other Asian cultures that is based on centuries of Confucian, Shinto, Buddhist, and even Muslim thought (Leong, 1995). Based on the research on Asian psychology over the last few decades, the following are some well documented cultural characteristics that are distinct from Anglo American values and beliefs (Kim & Atkinson, Leong, 1986; Shin, 1999).

Affect

In many Asian cultures, including VRI there is a strong cultural value that involves the control of emotional expression. The value is often expressed in the form of not drawing attention to oneself and not reveling in problems due to shame it may cause the individual and the family. In fact, strong expression of emotion (particularly negative) may be considered by many Asians as weak, rude, or disrespectful.

An important component of many forms of Western psychotherapy involves the fostering and encouragement of emotional expression (e.g. for cathartic relief). For many Asians, however, the emphasis on expressing emotions in counseling is antithetical to traditional cultural values.

Interpersonal Relationships

Compared to Asian cultures, interpersonal relationships within the Anglo American value system tend to be more informal and equal. The decision making process for Anglo Americans tends to be more democratic and often emphasizes individualism and autonomy, with the individual needs and preferences having greater priority over group harmony. Asians, however, often prefer hierarchical interpersonal relationships. One manifestation of this cultural value is reflected in how social status is typically established in Asian societies. For instance, an individual's chronological age is often an important factor in determining his or her status within the family or the community. Increasing age, which is believed to be associated with more life experiences and greater wisdom, is typically accompanied by greater respect. Thus, elderly individuals are often afforded the highest level of reverence. For example, in Vietnamese culture, it is customary for younger individuals to use titles before the first name (e.g. "ong / ba") when speaking or referring to individuals who are older. The various titles denote individuals' chronological status relative to the younger individual. For example, it would be considered highly disrespectful for a 25 year-old man to refer to a man about the same age as his grandfather without using the proper prefix of "Ong."Respect for age within Asian cultures can also be seen in the media. The reader might notice that in various movies (e.g. martial arts), elderly individuals are often depicted as having significant wisdom and power. Within Asian families, parents are often more authoritarian and are apt to provide strong parental guidance, particularly with regards to their children's careers. Additionally, Asian may be more

inclined to consider the continuity of the family tradition when making career choices.

The hierarchical nature of relationships within Asian cultures is also reflected in the high reverence Asian individuals tend to have for people they perceive to be in authority or have high educational status. For example, doctors tend to be particularly well respected in Asian cultures, and this can manifest as reluctance on the part of some patients to ask questions or express concerns about their care because they believe that their doctor (the expert), will tell them everything they need to know. Asking questions or expressing concerns about their may be viewed as challenging the doctor's authority or expertise.

Communication

To many VRI, honor and the avoidance of "losing face" ("mat mat") are important to both the individual and the family. Because Asian value the importance of honor and the avoidance of losing face, Asians have developed forms of indirect communications. A common observation by many educators and counselors is the difficulty of obtaining direct and unstructured feedback concerning therapeutic processes. Many Western counseling modalities, on the other hand, suggest that confrontation of individual weaknesses is vital to modifying behaviors. Thus, in situations in which direct confrontation of others, challenging authorities, and verbal expressiveness are emphasized; Asian may find it uncomfortable and challenging. It is important to note that indirect communications, which is considered by many Asians to be an appropriate and effective form of communication, may be at times perceived as passive-aggressive (which is considered to be a negative form of communication in American society).

Collectivity

Western cultures tend to gravitate toward individualism, which values autonomy and individual achievement. Change often involves a process that occurs from the inside-out, as opposed to outside-in. The focus of many traditional schools of thought in psychology on helping clients achieve "insight" is an example of this value. In contrast, the values of Asian tend to be collectivistic, rather than individualistic. For many Asians, the family plays

an important role in the decision making process of the individual. This value system is based on the preference of Asians to maintain a harmonious relationship in which there exists an interdependence among family members working together to achieve larger family goals. Individual achievements serve the greater good of the family. The collectivistic philosophy also extends outside the family, including achieving and maintaining harmony with one's community and nature.

The cultural values and beliefs of Vietnamese refugees and immigrants, such as those described above, are important to consider when providing mental health services to this population. Sue and Sue (2008) described several important characteristics of culturally consistent counseling for Asian clients, including the active/directive and expert role of the therapist in guiding and providing structure for therapy sessions, the focus on concrete goals and problem-solving, and time-limited interventions that focus on the present or immediate future. They indicated that solution-focused strategies, such as cognitive behavioral therapy, can be a useful approach in working with Asian-American clients.

Consider an example involving a visit to a primary care or family doctor. Although variability of procedures obviously can exist based on patients' presenting issues and office protocol, such visits tend to have a fairly reliable structure that typically includes some initial assessments (e.g. measurements of weight, blood pressure, pulse, etc.) by a medical assistant or nurse, followed by a visit with the doctor. The meeting with the doctor typically involves the patient's reporting of specific symptoms or problems he or she is having. Further evaluation and/or a direct intervention may be performed at that time and/or scheduled for a future date. The visit usually concludes with the doctor's impressions of the problem and specific recommendations (e.g. prescription of medications, diet change, exercise, referral to a specialist, etc.). This example is likely consistent with most Vietnamese individuals' experiences with and expectations of healthcare and illustrates the above characteristics described by Sue and Sue (2008).

FUNDAMENTAL ASSUMPTIONS AND CONCEPTS OF CBT

Cognitive behavioral therapy (CBT) has gained significant popularity over the years and is arguably one of the most widely implemented psychotherapeutic approaches currently. CBT has been the subject of numerous clinical research studies, which have provided support for its

efficacy in treating a variety of psychological disorders (Chambless et al., 1998). CBT is a form of psychotherapy that emphasizes the important role of thinking in how individuals feel and behave (Beck & Weishaar, 2000). Although there are various forms of CBT (e.g. Rational Emotive Therapy, Rational Behavior Therapy, Rational Living, Cognitive Therapy, and Dialectic Behavior Therapy), a core feature involves helping clients learn to identify and change irrational or maladaptive thinking patterns that negatively impact mood and behavior. Most CBT therapies share the following assumptions. First, current CBT views all systems (e.g., cognitions, affect, motivation, behavior) acting together as modes, which are networks of cognitive, affective, motivational, and behavioral schemas that compose personality and interpret ongoing situations. Second, a sound therapeutic relationship is necessary for effective therapy, however it is not the focus. CBT stresses the importance of having a good trusting relationship, but in and of itself is not enough to create the desired change (Beck & Weishaar, 2000). According to CBT, the process of change entails that that the client change how they think. Third, CBT is a collaborative effort between the therapist and the client. CT therapists seek to learn what their clients want out of life and then help their clients achieve those goals. The therapeutic process is a collaborative process of empirical investigation, reality testing, and problem solving. CBT is a structured and directive approach with specific goals and objectives for each session that is often aligned with specific techniques and concepts being taught during each session (Beck & Weishaar, 2000). Fourth, CBT is based on the idea that the processing of information is crucial for the survival of any organism. The lack of a functional apparatus for taking in relevant information from the environment, synthesizing it, and formulating a plan of action on the basis of this synthesis would result in maladaptive behaviors (Beck and Weishaar, 2000). Fifth, each system involved in survival (e.g., cognitive, behavioral, affective, and motivational) is comprised of structures known as schemas. These schemas contain people's perceptions of themselves and others, their goals and expectations, memories, fantasies, and previous learning. These schemas greatly influence, if not control, the processing of information. Lastly, predisposing factors such as heredity susceptibility coupled with specific attitudes might predispose people under the influence of certain life situations to interpret their experiences in a biased way. These are known as cognitive vulnerabilities.

COMPONENTS OF CBT FOR DEPRESSION AND ANXIETY

A cognitive triad characterizes depression (Beck, 1967). The depressed individual has a negative view of self (beliefs that enormous demands exist and that immense barriers block access to goals), the world (the world seems devoid of pleasure and gratification), and the future (future is pessimistic, current troubles will not improve), and perceives the self as inadequate, deserted, and worthless. Motivational, behavioral, emotional, and physical symptoms of depression are also activated in the depressed mode. These symptoms influence a person's belief and assumptions and vice versa. For instance, the motivational symptoms of paralysis of will are related to the belief that one lacks the ability to cope or to control an event's outcome. Thus, there is a reluctance to commit oneself to a goal. These symptoms are related to views of self and expectations of world and future (Beck & Weishaar, 2000).

Anxiety disorders are conceptualized as excessive functioning or malfunctioning of normal survival mechanisms. The basic mechanism for coping with threat is same for normal and anxious people (physiological responses prepare body for fight or flight response). Anxious person's perception of danger is either based on false assumptions or is exaggerated, while normal individuals' responses are more accurate assessment of risk and the magnitude of danger. Normal individuals can correct their misperceptions using logic and evidence. Anxious individuals have difficulty recognizing cues of safety and other evidence that would reduce threat of danger (Beck & Weishaar, 2000).

WHY COGNITIVE-BEHAVIORAL THERAPY?

Despite major research efforts on investigating the adequacy of psychotherapeutic services and treatment practices for ethnic minorities, research and clinical literature on the delivery of mental health services to ethnic minority populations has been consistent in drawing attention to inadequacies in the provision of services. Premature termination, residual symptoms, culturally unresponsive forms of treatment, and poor treatment outcomes are commonplace. There is clearly room for improvement. As the above discussion indicates, the fundamental components of a CBT approach are generally consistent with the elements of culturally consistent counseling

for Asian discussed by Sue and Sue (2008). However, as these authors suggested, some modifications to CBT approaches may be needed for this population to ensure that cultural issues are considered. Considering the characteristics of traditional Vietnamese culture, as well as individuals' experiences with and perceptions of healthcare, CBT's emphasis on structure, directness, concrete goals, problem-solving, and so forth, makes it a particularly appealing treatment approach for Vietnamese clients.

PROXIMAL-DISTAL MODEL

It is important for mental health providers to keep in mind, that "culture-compatible" interventions cannot be blindly or stereotypically applied. Just as interventions are not equally effective or appropriate across all ethnic groups, they differ in their applicability within ethnic groups. S. Sue and Zane (1987) stated, "... in working with ethnic-minority groups, no knowledge of their culture is detrimental; however, even with this knowledge, its application and relevance cannot always be assumed because of individual differences among members of a particular ethnic group" (pg. 38-39).

According to S. Sue and Zane (1987), having knowledge of the client's culture and developing culture-specific strategies are important, but they only serve as necessary foundations for therapeutic processes that are more closely related to the goal of therapy. They proposed the *proximal-distal model*, which suggests that cultural knowledge and culture-specific techniques are significant only in that they lead to therapeutic processes such as *credibility* (and others) that contribute to therapy outcome.

Briefly, S. Sue and Zane (1987) referred to credibility as the extent to which clients trust the therapist and perceive him or her as being an effective healer. The authors further delineated credibility into *ascribed* and *achieved* credibility. Ascribed credibility refers to the therapist's position or role as defined by others in society. Some therapists will have higher ascribed credibility to a particular client than others because of the positions they occupy in the social hierarchy of that client's culture. For instance, because of the subservient role of women in traditional Vietnamese culture, Vietnamese male clients may consider female therapists as less credible than male therapists. While ascribed credibility pertains more to initial impressions of the therapist, achieved credibility pertains more to the therapist's skills as a healer. Thus, therapists can gain the trust of clients through their actions, such as implementing culturally appropriate (or "client-appropriate") interventions as

discussed earlier. Thus, within Sue's and Zane's model, treatment would be ideal if ascribed and achieved credibility were both high. It is possible; however, that low ascribed credibility can be compensated for by high achieved credibility, leading to positive therapy processes and outcomes. On the other hand, high ascribed credibility can be negated by low achieved credibility, leading to negative therapy processes and outcomes. Another therapeutic process called *Giving* has also been mentioned in the literature to be associated with improved therapeutic outcomes. According to S. Sue and Zane (1987), giving refers to the client's perception that something was received from the therapeutic encounter (p. 4). Giving can be conceptualized as different style of rapport building that can range from advocating normalization to providing immediate symptom relief. Both credibility and giving are related processes that can provide useful context for understanding not only therapeutic outcomes, but utilization patterns. For instance, lack of *ascribed credibility* may serve to prevent some individuals from entering treatment (e.g. Vietnamese client only wants to see a Vietnamese counselor). Perceived lack of *giving* can have a negative impact on *achieved credibility*, which can lead to early termination of treatment (e.g. client does not believe that she received something of therapeutic value from the provider, which then can affect her perception of the provider's skills as a healer). It has been suggested that lack of credibility and giving may explain why ethnic minority clients tend to have high rates of premature termination from treatment S. Sue and Zane (1987). Therapeutic processes such as credibility and giving are important to consider when working with diverse populations because they provide a framework from which to understand inter-group as well as intra-group variations in responses to treatment. Within the framework of credibility, it is easy to understand why knowledge of the client's culture and culture-specific techniques are not enough. For instance, in American culture, insight into problems is generally valued. However, that does not mean that all American clients would appreciate treatment involving Freudian psychoanalysis (S. Sue & Zane, 1987). As S. Sue and Zane (1987) stated, " ... given knowledge of clients' culture, what should therapists do?" (pg. 39). Thus, instead of trying to design "culture-compatible" interventions, perhaps we should focus on developing "client-appropriate" treatment, using knowledge of the client's culture as a guide.

Case Example

"Lien" was a 39-year-old Vietnamese female who was referred to an outpatient treatment facility after being discharged from an inpatient hospital. The initial assessment at the outpatient treatment facility revealed that she came to the U.S. when she was four years of age. She reluctantly talked about her situation and the events that transpired leading up to her being admitted to the psychiatric facility. She explained that she has many relatives but few close friends in the states. She came to the U.S. with her parents after the fall of Saigon in 1975. Her father worked as a security guard while her mother stayed at home with the children. She married when she was 23 years of age to a Vietnamese gentleman who was the son of one of her mother's friend. She reported that her husband was abusive and often expressed his disappointments and anger through violence. She reported that on a number of occasions her husband would beat her to the point of losing consciousness. Late at night, she confessed she often thought about killing herself.

During the past 3 years, she reported that she has frequent headaches, dizziness, and body aches. She reported that she worries about several different aspects of her life such as her children's future, her family's finances and future, her health, and her husband's temper. During one particular incident a few months ago, she had thought that her heart was not beating and she experienced some tingling sensations in her fingers. She also reported that her head felt stretched and tight as if someone was squeezing her head with a rope. She reported that she doesn't have any friends or family in the U.S. Her husband goes out occasionally and leaves her at home with the kids. She thinks that he has another girlfriend but is afraid to confront him. In addition to her worries, she reported muscle tension and becoming easily fatigued. She also reported great difficulty concentrating and staying on tasks. As well, she reported considerable amount of restlessness and pacing around the house when her kids are asleep. There are times when she has difficulty falling asleep but at other times she slept excessively.

THE THERAPEUTIC RELATIONSHIP

Cultural knowledge of VRI, credibility and giving can be easily implemented within a CBT framework. The process of psychotherapy within a CBT framework often focuses on initiating a relationship with the patient, elicit information, and produce symptom relief. Building a relationship with

the patient may begin with questions about feelings and thoughts about beginning therapy. In Mary's case, she was very reluctant to talk about her thoughts and feelings in the initial session. In fact, what we have learned over the years with working with VRI patients is that they often will terminate therapy if the first few sessions are focused on taking about their thoughts and feeling. Instead, what has been effective is to incorporate interventions that allow the patient to perceive a meaningful gain early in therapy. One way to achieve this is to incorporate relaxation techniques that appear more consistent with a medical approach to treatment. For example, in Mary's case, she reported symptoms that suggested that she suffered from depression and anxiety. A treatment called cranial electrotherapy stimulation (CES) was administered to Mary in the initial session for symptom relief. CES is an FDA approved treatment for anxiety, depression, and insomnia that can easily be used within a CBT framework to help patients feel a direct benefit from treatment. CES sends microcurrents which are thought to stimulate the areas of the brain responsible for neurotransmitter and hormone production. CES is applied by easy clips attach to the ear lobes. In Mary's case, interventions such as the CES are more in line with their cultural viewpoints that their symptoms require more of a medical intervention. After administering the CES, Mary reported feeling pleasant and relaxed. Because the CES is a passive treatment that doesn't require her to be proactive, CBT techniques can be introduced while she continues to have the CES treatment. For Mary and many other VRI, they do not understand how talking about their problem can help alleviate their symptoms. In her situation, achieving credibility was critical. Our experiences with working with VRI patients suffering from depression and anxiety have taught us that CBT principles, coupled with treatments such as the CES, improves the two basic processes (i.e., credibility and giving) that are important and relevant in working with VRI patients.

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