Cognitive Behavioral Therapy in Childhood Anxiety

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Abstract: Anxiety disorders are the most common childhood disorders. They tend to be chronic and to cause significant impairment. In this article, we review the scientific basis of cognitive behavioral therapy in treating childhood anxiety disorders. We describe the assessment process and its use throughout the treatment. An outline of the central principles of applying cognitive behavioral interventions in the treatment of children is provided and the main treatment components are reviewed. These components include psycho-education, coping skills and exposure. Finally, we discuss the role that parents play in the implementation of cognitive behavioral therapy with anxious children.

The goal of this review is to present an update on the status of cognitive behavioral treatment (CBT) of childhood anxiety disorders. We first present a brief overview of childhood anxiety disorders and their assessment. We then discuss the scientific basis of CBT for childhood anxiety. Finally, we provide an outline of the general principles as well as describe specific strategies of CBT for childhood anxiety.

Anxiety disorders are among the most common childhood disorders. Although prevalence estimates of these disorders among children and adolescents vary widely, some studies report prevalence rates of over 20% (1). Retrospective epidemiologic studies of adults with anxiety disorders suggest that anxiety disorders onset during childhood and adolescence (e.g., 2). Left untreated these disorders tend to be chronic and to cause significant impairment of social, educational and emotional development (3).

The identification and treatment of anxiety disorders in children can be more complex than in adults. Anxiety and fear are part of normal development in children as they transition from dependency to autonomy (4, 5). Therefore, pathological anxiety is typically defined as age inappropriate anxiety that impairs functioning and causes significant distress. To illustrate, while it is common for young children to show fear reactions in the dark, when separating from a caretaker or when first attending school, similar fear reactions in a teenager who refuses to sleep away from his parents is considered pathological. Another factor that makes it difficult to distinguish between normal and abnormal anxiety in children is that childhood anxiety disorders tend to co-occur (e.g., 1). To overcome these difficulties, clinicians working with children who present with anxiety should conduct a thorough assessment before the initiation of treatment as well as during and following the intervention.

Assessment of Childhood Anxiety

Evidence-based assessment is a term used to describe information gathering that leads to therapy-related decisions. Assessment is used in different phases of the therapeutic process. Initial data collection leads to case conceptualization, which in turn assists in treatment planning, monitoring of treatment progress, and treatment evaluation. Evidence-based assessment serves several functions: (1) Screening: identifying individuals who have, or are at risk for having, a particular problem, (2) Diagnosis: determining the nature and/or cause of the problem(s), (3) Case conceptualization: developing a comprehensive and clinically...
relevant understanding of the patient, generating hypotheses regarding critical aspects of clients’ psychosocial functioning and the contexts that are likely to influence their adjustment, (4) Treatment monitoring: tracking changes during therapy, (5) Treatment evaluation: assessing treatment effectiveness, cost-effectiveness and client satisfaction.

**Screening.** In children, it is recommended that information be gathered from multiple sources, typically the child and a parent. Several questionnaires, the Multidimensional Anxiety Scale for Children (MASC) (6), the Screen for Childhood-Anxiety Related Emotional Disorders (SCARED) (7), and the Spence Children’s Anxiety Scale (SCAS) (8) have been recommended for use as screening tools for anxiety symptoms in children (e.g., 9, 10). These measures are easily available, cover a wide range of anxiety symptoms and have subscales for specific types of anxiety, and have both a child and a parent form.

**Diagnosis.** Recent guidelines for diagnostic assessment of childhood anxiety disorders (11) recommend the use of structured and semi-structured clinical interviews. Diagnostic interviews allow the clinician to establish a formal diagnosis based on the DSM-IV-TR and to determine the severity of symptoms and the degree of functional impairment associated with them. The Anxiety Disorders Interview Schedule for Children for DSM-IV: Child and Parent versions (ADIS for DSM-IV: C/P) (12) or the Kiddie-SADS - Present and Lifetime Version (K-SADS-PL) (13) have good psychometric qualities, and are the most commonly used interviews. Both interviews have been translated to many languages, and both are available in Hebrew (e.g., 14).

**Case conceptualization.** Assessment is always in the service of case conceptualization, which is a within-person theory regarding factors that contribute to the development or maintenance of the child’s problems. A case conceptualization refers to: (1) the context(s) in which the problem occurs and the meanings the child attaches to the context, (2) the emotional, physiological, cognitive and behavioral aspects of the anxiety, (3) the child’s coping strategies (e.g., avoidance, escape), (4) short- and long-term consequences of the coping behavior, (5) environmental reactions (e.g., parents and peers) to the anxious behavior, and (6) developmental history as well as stressors that contributed to the anxiety (15).

The case conceptualization forms the bridge between assessment and treatment. It is an individualized theory about the historical development of the problem, triggering and maintaining factors, and a proposed intervention that is based on available research on treatment of the same or similar problems. A specific treatment plan is formulated based on the case conceptualization. Information gained from and during the treatment feeds back into the case conceptualization, changing both the conceptualization and the treatment.

**Treatment monitoring and evaluation.** The measures used in the diagnostic, screening and case conceptualization phases of treatment can be used during and following therapy to assess changes in cognitions, emotions and behaviors during and following therapy. In addition to these tools, structured behavioral observations, in which target behaviors (e.g., avoidance) are defined and monitored, can be used to assess treatment progress. Additional tools include self-monitoring charts, in which the client monitors the occurrence of emotional, physiological, cognitive and behavioral anxious responses. Changes in focal symptoms (as well as in overall functioning) are a necessary (if not sufficient) condition to conclude that therapy was successful and can be terminated.

**The Empirical Status of Cognitive Behavioral Treatments for Children**

A large number of studies have been conducted, examining the effects of CBT for childhood anxiety. The results of this research and in particular of randomized controlled trials (RCT), suggest that individual and group CBT are both efficacious treatments for children with a variety of anxiety disorders (e.g., 1, 16–20). Because it is beyond the scope of this article to review all of the studies, we limit ourselves to two examples that, in our opinion, are representative of the available research.

The first major RCT was conducted by Philip Kendall, whose treatment protocol, the Coping Cat (21, 22), is the most frequently used treatment protocol for childhood anxiety in RCTs. Kendall (23) examined the efficacy of CBT in treating a variety of
anxiety disorders in children. He demonstrated the superiority of a 16-session CBT compared to a wait-list control group in a sample of 47 children, aged 7–13. Recent RCTs typically use a larger number of participants, compare multiple treatment groups, examine multiple outcomes such as remission and attrition, and examine treatment outcome moderators. For example, in the most recent and most comprehensive RCT until now (24), 488 children were assigned to receive CBT, Sertraline, CBT and Sertraline, or a placebo drug. All three therapeutic conditions were superior to the placebo-control condition. Rates of improvement were higher in the combined treatment group (80.7%) than in either CBT alone (59.7%) or Sertraline alone (54.9%) groups, which were not significantly different from each other. Treatment effects did not vary by anxiety disorder, and attrition rates in different conditions were low: 8% (combined), 12% (CBT alone), 4% (Sertraline) and 16% (placebo).

In addition, follow-up studies have been conducted, documenting that treatment gains of CBT for anxiety disorders are maintained over 6, 12 or 18 months (e.g., 25, 26) and several treatment programs have even shown long-term effectiveness of three (27) or six years (28). Several reviews have summarized the effects of CBT for anxious children. A recent review, based on rigorous methodological criteria (29), reviewed the results of 21 RCTs. This review compared active treatment (CBT) to supportive therapy, placebo and waitlist control conditions, and examined immediate outcomes as well as outcomes in three month to six year follow-ups. The authors report that most studies find significant end-of-treatment effects that are maintained or even improved over time. In another review (30) that summarized the results of 10 RCTs, the majority of youth treated with CBT no longer met diagnostic criteria for an anxiety disorder at the end of treatment. These findings were further corroborated by Silverman and colleagues (31) who based their review on 32 RCTs. These authors found that in most cases individual or group CBT was superior to either supportive treatment or to waitlist control conditions. This review examined remission, symptom reduction and reduction in depression and other internalizing and externalizing symptoms as indices of change.

Importantly, the first generation of RCTs was conducted in academic centers under very controlled conditions (e.g., homogeneous groups, with moderate severity levels and little comorbidity, using highly trained clinicians). These studies were criticized that, although they offered support for the “efficacy” of CBT, they failed to address the issue of “effectiveness.” Effectiveness refers to treatment effects under normal conditions, as they exist in the field. Over the past few years several effectiveness studies have been conducted (e.g., 32, 33). The Cochrane Review by James and colleagues (20) reviews 13 studies covering 498 mild to moderately anxious community outpatient children and adolescents who received CBT versus 311 controls. They found that 56% of all the CBT treated children were diagnosis-free at the end of treatment versus 28.2% in the waitlist or supportive treatment conditions. This study, too, did not find significant differences between individual, group or family CBT. Despite the wealth of evidence supporting the effectiveness and efficacy of CBT for children with anxiety disorders, several warnings and limitations apply:

- A large percentage of children with anxiety disorders treated with CBT do not show improvement.
- Due to high comorbidity among the anxiety disorders, most studies examine treatment effects on a mix of diagnostic categories and treatment specificity is lacking.
- There is very limited research on CBT for children under the age of eight.
- There is almost no research examining specific components of CBT and their effectiveness in treating particular types of anxiety disorder (but see the Cochrane Review, 20).
- There is little research comparing CBT with other psychosocial treatment modalities and of the few studies that exist, some show that CBT is not superior to non-CBT treatments (e.g., 34).

**Treatment Components in CBT for Child Anxiety**

Although several versions of CBT for anxious children have been developed, the core components of these programs are equivalent across the programs.
Treatment programs addressing specific anxiety conditions have been developed (e.g., 35, 36). However, most treatment protocols for anxious children do not differentiate among anxiety conditions, especially among social anxiety, separation anxiety and generalized anxiety. A number of manualized treatments for anxiety are available (e.g., FRIENDS, 37, Coping Cat, 21) for working with individuals, groups or families. Treatment typically includes four major components: psycho-education, coping skills, exposure and contingency management. The coping skills taught usually involve affective education, relaxation training, cognitive restructuring and problems solving (e.g., 38). To date no evidence is available on the relative effectiveness of these treatment components. However, recent research suggests that treatment-related cognitive restructuring and changes in automatic negative thinking mediate treatment success (39, 40).

Although the various treatment components are akin to those used in the treatment of adult anxiety, three important elements are unique to child treatments. First, as will be demonstrated below, treatment elements are tailored to be developmentally appropriate and therefore therapists employ activities and games to facilitate learning. Second, parents are included in the treatment process. In some programs the treatment involves working mostly with the child while meeting the parents only sporadically (e.g., 22), other treatments entail working with parents only (e.g., 41), whereas other programs hold joint parent and child sessions (e.g., 42). Third, a major component of the treatment with children is contingency management and rewards (e.g., 38). Children require a lot of encouragement in conducting exposure practices and therefore in many treatment programs parents are taught to reward children for “brave behavior” rather than reinforcing avoidant behavior.

To provide more concrete examples of the treatment principles outlined above, we describe the Coping Cat program, a very commonly used program, which has received extensive empirical support (e.g., 24). The Coping Cat program is a manual-based 16-week treatment program that is designed for 7–13-year-old children with generalized anxiety disorder, social phobia or separation anxiety disorder. The program consists of two phases. The first eight sessions focus on skills acquisition. The first sessions revolve around rapport building and learning about the nature of anxiety (psycho-education). In the following sessions, children learn anxiety management skills. These include relaxation training, identification of anxious-talk, learning to challenge thoughts and using coping self-talk, and problem-solving strategies to cope with anxiety provoking situations. Children and parents also learn to use rewards for coping behaviors. In the second set of sessions, children gradually practice exposure to anxiety-provoking situations while using the skills they have learned during the first eight sessions of the program.

Psycho-education. In this phase of the treatment, children learn about the nature of anxiety and its treatment. They learn that anxiety is a natural and common response which is expressed in three ways: bodily reactions (e.g., rapid heart rate, stomach-ache, shaking), anxious thoughts (e.g., “people will laugh at me”), and behaviors. Therapists emphasize that some anxiety is normal and perhaps even helpful, but that severe or frequent anxiety can cause problems in daily functioning. Psycho-education also includes a discussion of treatment goals and course. Therapists explain that CBT aims to reduce excessive anxiety rather than eliminate anxiety altogether. Various developmentally-appropriate exercises are used to teach children these ideas. For example, when working on emotion identification, children are asked to name the facial expressions depicted on cards and to indicate how each feeling is experienced in the body. Similarly, in order to create a fear hierarchy that will serve the basis for skills practice, children build a fear ladder on which specific fears are ranked. Younger children, for whom ranking is challenging, are often asked to classify situations into easy, medium and difficult to encounter.

Coping skills. Three coping skills are emphasized: relaxation, self-talk and problem solving. Relaxation training in children takes one of two forms: progressive muscle relaxation and diaphragmatic breathing. In muscle relaxation, children learn to systematically relax major muscle groups, often by pairings of tensing and relaxing muscles and by using child-friendly metaphors for tensed (e.g., robot) and relaxed (e.g., ragdoll) states. In
diaphragmatic breathing children learn to take deep breaths using the diaphragm rather than rapid and shallow chest breaths. Because children may have difficulty focusing on such an activity for a long time, relaxation with children tends to be brief (up to 15 minutes) and to include fewer muscle groups than it would with adults. In addition, story-like relaxation scripts (e.g., 43) are often used to engage younger children in the relaxation.

Positive self-talk first entails identifying distorted and negative thoughts (e.g., “I’m going to fail”) and replacing them with adaptive and realistic thoughts (e.g., “I did OK last time; I’ll be OK now”). Children learn that in anxiety-provoking situations, they tend to expect bad things to happen, and they learn to look for disconfirming evidence for their negative predictions. A variety of tools are used to increase positive self-talk. For example, simple scenarios (e.g., a class trip to a roller-rink) depicting cartoon figures with empty “thought bubbles” are used to demonstrate anxious self-talk as well as coping self-talk that are possible in the situation. As a tool for searching for counter-evidence, children are asked to act as detectors, looking for “thinking traps” such as “walking with blinders” (only seeing the negative and not the positive), or the “repetitor” (expecting that if something bad happened, it will always happen again).

Finally, anxious children often use avoidance as a mode of problem solving. Although avoidance can be effective in reducing anxiety in the short term, it impairs functioning in the long term. Children learn a problem-solving process that includes identification of the problem, brainstorming possible solutions and evaluating their utility, selecting a solution and implementing it, and evaluating the outcome (44). The presentation of the problem-solving model is tailored to the child’s age: with younger children therapist modeling and role-playing are advised, whereas older children may take a more active role in the process.

Exposure. Exposure involves confronting stimuli that elicit fear or avoidance, and is a key element of CBT for child anxiety (45). Exposure is thought to act by breaking the association between the feared stimulus, beliefs about dangerousness and fear responses (e.g., 46), and by increasing perceived ability to cope (47). Typically, the therapist and the child develop a fear hierarchy. Children are encouraged to face feared stimuli on the hierarchy gradually as they use the coping skills they learned and test predictions they make about their coping ability. The goal is for children to stay in the feared situation long enough to challenge their negative predictions about the fear stimulus.

Before they start practicing exposure, children are taught the principles of self-reward for effort. Therapists use role modeling as well as role-play of coping behavior and self-reward in an anxiety-provoking situation. The therapist explains the principles of exposure practice to the parents. Parents are invited to take part in the exposure phase of the treatment by encouraging and rewarding the child’s effort in therapeutic activities such as homework and exposure practice. Rewards are individually tailored to fit the child’s desires. Initial rewards can be material, but it is recommended that later on rewards are intrinsic, self-rewards.

The planning of the exposure practice is collaborative and exposure is first done to stimuli low on the fear hierarchy, building a sense of accomplishment (44). In the Coping Cat program, exposure is first imaginal exposure in a low anxiety-provoking situation, and after mastery has been established, in vivo exposure with the actual feared stimulus is used.

The Role of the Parents in the Treatment of Child Anxiety

Research indicates that anxious children are more likely to have anxious parents, and vice versa (e.g., 48). Parents can contribute to their child’s anxiety and anxious behavior in a variety of ways. For example, the transmission of anxiety from parents to children is thought to be mediated by parental behaviors such as intrusiveness and over-controlling behavior (e.g., 49). Similarly, mothers of anxious children have low expectations for their children’s coping (e.g., 50) and they tend to report threat-related interpretation biases (e.g., 51). These low maternal expectations have been found to predict the child’s coping expectations and behavior.

Because children’s behavior, emotions and cognitions are under partial environmental control and because parents are significant “environmental
agents,” parents should play a role in treatment. Thus, as indicated earlier, treatment programs have incorporated work with parents. Family CBT (e.g., 52, 53) combines strategies used in individual CBT, such as exposure and rewards, with parent training. Parents learn to reinforce coping behavior and to ignore anxious behavior. In addition, parent training focuses on changing parenting practices such as intrusiveness and on promoting adaptive behaviors such as autonomy granting. For example, parents are encouraged to allow their kids to learn from trial and error rather than taking over for them, to accept their child’s emotions instead of trying to change them, and to coach children through decision making instead of making decisions for them. Parent training has been particularly implemented in treating anxiety in preschool and young school-aged children, for whom individual CBT appears less effective (e.g., 54).

Recently, studies have compared the efficacy of family CBT (FCBT) and child only CBT (55). Most studies find that family CBT is effective (e.g., 56). However, whereas some studies show an advantage for FCBT (e.g., 51), others do not find significant differences between the treatments (e.g., 33). Importantly, parental anxiety seems to moderate therapy outcome. FCBT appears to be superior to individual CBT when parents suffer from anxiety symptoms (57) or an anxiety disorder (19).

Conclusion

Effective CBT with anxious children requires that the therapist conduct a thorough assessment, leading to a comprehensive case conceptualization, which then determines the course of treatment. Therapists need to take into consideration the child’s age and adapt therapeutic tools accordingly, as well as consider the role of parents in the intervention.

References

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