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This is the author version of an article published as:

Hudson J (2005) Efficacy of cognitive-behavioural therapy for children and adolescents with anxiety disorders. *Behaviour Change*, 22:2, pp. 55-70.

Access to the published version: <http://dx.doi.org/10.1375/bech.2005.22.2.55>

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Efficacy of Cognitive Behavioural Therapy for
Children and Adolescents with Anxiety Disorders.

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Abstract:

Support for the efficacy of cognitive behavioural therapy (CBT) for anxious youth has accumulated. Significant treatment effects are observed and maintained over the long term for the majority of children receiving individual, family or group-based treatments. Nevertheless, all children do not improve. There is evidence to suggest that in fact a significant percentage of children continue to experience anxiety following treatment and will seek additional treatment for their anxiety. This paper will review the substantial evidence for CBT, the current information available on predictors of outcome and mechanisms of change. The paper will also discuss the need for adequately powered randomized clinical trials that continue to refine and evaluate treatments for anxious children in an effort to improve outcomes for those children whose needs are not being met by our current treatments.

Efficacy of Cognitive Behavioural Therapy for Children and Adolescents with Anxiety Disorders.

Cognitive behavioural treatment (CBT) has consistently shown to be better at reducing symptoms of anxiety in children and adolescents compared to waitlist in randomized controlled trials (Barrett, Dadds & Rapee, 1996; Kendall, 1994; Kendall et al., 1997; see Ollendick & King, 1998, 2000). Numerous studies have tested individual, family, and group CBT with favourable results. Although this sounds promising, a recent review of clinical trials of CBT for childhood anxiety disorders has provided mixed news for child anxiety treatment outcome researchers. Combining the results from ten studies of CBT for anxious children, the overall remission rate following treatment was 56.5% and 63.75% at follow-up (Cartwright-Hatton, Roberts, Chitsabesan, Fothergill, & Harrington 2004). These results suggest that while we have developed good psychological treatments that produce a significant effect compared to waitlist, we could do better.

Another perspective can be taken from the Cartwright-Hatton et al. (2004) meta-analysis by examining the numbers-needed-to-treat (NNT) statistic (i.e., the number of children needing to be treated with CBT for an additional child to be treated successfully compared waitlist) and the odds-ratio (i.e., the odds of recovery with CBT compared to waitlist). An NNT of 2-3 usually indicates that the treatment is effective (see McQuay & Moore, 1997). According to Cartwright-Hatton et al. (2004), the NNT at the end of treatment was 4 and by follow-up reduced to 3, indicating that the outcome improves with time. The pooled odds-ratio of remission after treatment was significant at 3.27. Clearly, CBT for anxious youth produces a significant effect and is a cost-efficient treatment (based on the NNT) and in comparison to treatment studies for other conditions CBT is faring well (see McQuay & Moore, 1997; Pinson & Gray, 2003).

The meta-analysis also revealed heterogeneity across the treatments indicating, most likely, that the trials included in the review differ significantly from each other in some way such as the therapy type or delivery (e.g., family involvement, group vs. individual delivery), methodology or assessment tools. With such differences between studies, a combined statistic of the efficacy of CBT for anxious youth may be less helpful. Regardless, the substantial number of children not improving from CBT suggests that we should not remain content with the treatments we have but rather continue to refine and evaluate treatments in large, adequately powered randomized clinical trials in an effort to improve outcomes for those children who are not responding in our current treatments.

This paper will review the results of trials that have examined CBT in samples of children and adolescents with anxiety disorders, highlighting areas for future research and possible improvements in treatment. Child-focused, family-focused and group treatments will be reviewed along with current knowledge on the long term efficacy of CBT, predictors of treatment outcome and mechanisms of change in CBT for anxious youth. The review will focus on studies that target the more common childhood anxiety disorders including Generalised Anxiety Disorder (GAD), Separation Anxiety Disorder (SAD), and Social Phobia. A review of treatments designed specifically for Specific Phobia, Obsessive Compulsive Disorder and Post-traumatic Stress Disorder will not be covered here. These disorders, while sometimes included in large trials tend to be treated using modified protocols (see Barrett, Healy-Farrell, Piacentini, & March, 2004; Ollendick, Davis & Muris, 2004; Perrin, Smith & Yule, 2004). This paper will focus on clinical intervention trials and will not review the accumulating evidence of the efficacy of prevention programs for child and adolescent anxiety (for a comprehensive review of prevention programs see Ferdinand, Barrett & Dadds, 2004).

Child-focused Studies

In 1994, Philip Kendall published the first randomized controlled trial of CBT for anxious youth. In this study Kendall compared individual child-focused treatment to a waitlist control in a sample of 47 9-13 year olds with overanxious disorder (now considered under a diagnosis of GAD), avoidant disorder (now considered under a diagnosis of Social Phobia) and SAD. The manual, the *Coping Cat* (see Kendall, 2000) consisted of 16 sessions that provided the child with skills to cope more effectively with anxiety provoking situations (e.g., affective recognition, relaxation, cognitive restructuring, problem solving). Using techniques such as coping modeling, tag along procedures, and role plays, the therapist instructed the child in these skills and then assisted the child with in-session gradual exposure tasks. Homework or Show That I Can (STIC) tasks, were set each week (See Hudson & Kendall, 2002). Parents were seen in two additional sessions in which the therapist would update the parents on the program and the child's progress and address any issues the parents may have raised.

Based on the Anxiety Disorders Interview Schedule-Child/Parent (ADIS: Silverman, 1987), 64% of children in the CBT condition no longer met diagnostic criteria for their primary disorder compared to 5% of children in the waitlist. Significant improvements from pre to post treatment also occurred for children in the CBT condition on parent report, child report and behavioural observation measures. This effect was maintained at the 12-month follow-up point.

In a second randomized clinical trial, Kendall and colleagues (1997) again compared the *Coping Cat* manual to a waitlist condition in a larger sample of 97 children (aged 9-13 years). In this study 53% of children in the CBT condition were diagnosis-free at the end of treatment compared to 6% of children in the waitlist condition. Children in

the CBT condition still receiving their primary diagnosis at post-treatment, demonstrated significant decreases in the clinical severity of the disorder.

Taking the results of these trials together, individual cognitive behavioural therapy, where the child is the focus of the therapy, produces significant and maintainable changes in anxiety symptoms based on clinician, parent and child report. However, a reasonable percentage of children (approximately 40-50%) remain anxiety-disordered at the end of treatment. A number of researchers have since built on the *Coping Cat* program to include more substantial parental involvement in the hope that such involvement may improve outcome.

Family-focused Studies

The role of parents in the development and maintenance of child anxiety has received increasing attention in recent years (Gar, Hudson & Rapee, in press; Ginsburg, Siqueland, Masia-Warner, & Hedtke, 2004; Wood, McLeod, Sigman, Hwang, & Chu, 2003). Parental overinvolvement/lack of autonomy granting and encouragement of avoidance have been shown to be important in the childhood anxiety disorders (Barrett, Dadds, Rapee & Ryan, 1996; Hudson & Rapee, 2001; Siqueland, Kendall & Steinberg, 1996), with parents of anxious children more likely than parents of non-anxious/non-clinical children to be overinvolved, be lacking in autonomy granting and provide subtle encouragement of avoidance behaviours. Anxiety also runs in families: anxious children tend to have anxious parents (Last, Hersen, Kazdin, Francis, & Grubb, 1987). These factors in combination have been proposed to contribute to the maintenance and development of childhood anxiety disorders (e.g., Hudson & Rapee, 2004; Manassis & Bradley, 1994). Given the potential role that parents play in the maintenance of child anxiety disorders, it makes sense to include parents as a central part of treatment. As the

following review shows, a number of studies have compared child focused treatment to family-focused treatment with positive results. Nevertheless, the findings are still inconclusive as to whether family focused treatment is more beneficial than individual treatment for all children.

The first family-based study was conducted by Barrett, Dadds and Rapee (1996) in a sample of 79 children (aged 7-14 years) diagnosed with a primary diagnosis of GAD, Social Phobia or SAD. The study compared individual CBT (based on Kendall, 1994) to a waitlist condition and to a condition consisting of individual CBT plus an additional family component. The family component, FAM, focused on teaching the parents skills to more effectively manage their child's anxiety including contingency management, communication skills and problem solving. Some of the program also focused on teaching parents to recognize and cope with their own anxiety and stress.

Children who received CBT plus FAM showed greater improvements than those children who received CBT only: 87% of children in the CBT and FAM condition were diagnosis free at post treatment compared to 57% of children in the CBT only and 26% in the waitlist. This difference disappeared at the 6-month follow-up but was present again at the 12-month follow-up with an incredible 95% of children who received CBT and FAM no longer meeting criteria for their primary diagnosis compared to 70% of children receiving no family component.

On further analysis of the data, younger children (7-10 years) and female children were more likely to benefit from the additional family component compared to their older, male counterparts. No significant differences between CBT and CBT plus FAM were observed in separate analyses involving older children (11-14 years) and boys. The child's diagnosis did not seem to affect the benefits of the family component. These results suggest that specific individuals (e.g., younger, female children) may be more

likely to benefit from an added family component. When these interventions were replicated in a group format no significant differences were found between CBT and CBT plus FAM regardless of age and sex of child (Barrett, 1998).

More recently a number of studies have further examined the impact of an added family component. Spence, Donovan and Brechman-Toussaint (2000) randomized 50 socially phobic adolescents to individual CBT or CBT plus parental involvement. In this case both conditions consisted of social skills training, relaxation, social problem solving, positive self-instruction, cognitive restructuring and gradual exposure. The parental involvement condition taught parents contingency management, encouragement of family social activities and modeling of less anxious behaviour. Given the results of Barrett et al. (1996) one would predict that with this age group, the family component may not add a great deal. In fact the results of the Spence et al. study showed the 87.5% of adolescents in the family condition improved at post treatment compared to 58% of adolescents in the individual condition. Although this difference was not statistically significant, the magnitude of the effect is substantial. The small sample size and low power probably account for the non-significant effect.

Mendlowitz and colleagues (1999) compared parent and child group treatment to parent only and child only group treatment in a sample of 68 children (aged 7-12 years) with DSM-IV anxiety disorders. In this study, all three treatments showed significant improvements in anxious and depressive symptomatology. On measures of emotional well-being and coping strategies however, the parent-child treatment was superior to the parent only and child only conditions. This study, in support of the Barrett, Dadds and Rapee (1996) findings, provides evidence for the enhanced benefits of including the parent and child in treatment.

Further, a number of waitlist-controlled and multiple baseline studies have shown that CBT with an added family component produces positive changes in children with anxiety disorders (Howard & Kendall, 1996; Nauta, Scholing, Emmelkamp, & Minderaa 2003; Shortt, Barrett & Fox, 2001; Toren et al., 2000). For example, Nauta et al. (2003) evaluated a CBT and parent training program against a waitlist control. The added parent training proved superior to wait-list. In summary, the superiority of family-based CBT to waitlist is apparent, however, the superiority to individual therapy is less clear.

The family-based programs listed above focus their treatment on providing parents with more effective ways to primarily deal with their child's anxiety. In one innovative study, parents were in fact provided with treatment to manage their own anxiety (Cobham, Dadds & Spence, 1998). Sixty-seven children (aged 7-14 years) were randomly assigned to one of two treatments: CBT or CBT plus Parental Anxiety Management (CBT+PAM). When comparing the rates of children diagnosis free at post-treatment for anxious children with non-anxious parents, no significant difference was observed between CBT (82%) and CBT+PAM (80%). In contrast, for anxious children with anxious parents, there was a significant difference between the two conditions. Only 39% of children in the CBT condition improved at post-treatment compared to 77% in the CBT+ PAM condition. These findings indicate that having an anxious parent dramatically reduces the efficacy of CBT for anxious children, and the concurrent treatment of the parent's anxiety reduces the negative impact of parent anxiety on treatment outcome. However, these trends showed some weakening over time and the results were not consistent across outcome measures. Although the sample size of this study was relatively small, the results provide preliminary support for the possibility that treatment for anxious children could be enhanced by treating parents who are also anxious. This study awaits replication.

Taking these findings together, there is strong evidence that including parents in treatment produces significant changes in symptoms and some support for the increased efficacy of family-based programs compared to individual treatment. Future treatment studies need to test this notion using large sample sizes so that age and gender can be examined to provide an accurate test of the original Barrett, Dadds and Rapee, (1996) findings.

Group Delivered Treatment

Group therapy has been trialed as a more cost-effective method of dealing with the large numbers of anxious children and adolescents needing treatment. The results are overall very positive for group delivered treatment with some studies however, showing that for particular clients individual therapy is preferred (Flannery-Schroeder & Kendall, 2000; Lumpkin, Silverman, Weems, Markham, & Kurtines, 2002; Manassis et al., 2002; Mendlowitz et al., 1999; Muris, Mayer, Bartelds, Tierney, & Bogie 2001; Rapee, 2000; Shortt, Barrett & Fox, 2001; Silverman, Kurtines, Ginsburg, Weems, Lumpkin, & Carmichael, 1999).

In one study, Flannery Schroeder and Kendall (2000) compared individual CBT (*Coping Cat*) with group CBT and waitlist in a sample of 37 children (aged 8-14 years) with GAD, Social Phobia and SAD. At post-treatment 73% of children receiving individual CBT compared to 50% of the children receiving the group delivered program no longer met criteria for their primary diagnosis. This was not a statistically significant difference in remission rates. Group treatment and individual treatment were equivalent on all other measures except for a measure of child distress in which case individual treatment was superior to group treatment.

Manassis and colleagues (2002) compared individual CBT with group CBT for 78 children, aged 8-12 years, with at least one DSM-IV anxiety disorder (APA, 1994). In the sample, the primary diagnoses of the children were as follows: GAD (60.3%), SAD (25.6%), Simple Phobia (6.4%), Social Phobia (6.4%) and Panic Disorder (1.3%). Both treatments involved a parent training component. Group and individual delivery of CBT were equivalent, however greater gains were made for children with high social anxiety in the individual compared to the group format. One would expect individuals with social anxiety to do well in a condition that requires increased repeated exposures. As child involvement in therapy (particularly later in therapy) is indicative of outcome (Chu & Kendall, 2004), perhaps the group setting inhibited socially anxious children's involvement and this reduced involvement contributed to the poorer outcome.

Other studies have also examined group delivered CBT with positive results (Muris et al., 2001; Rapee, 2000; Short et al., 2001; Silverman, Kurtines, Ginsburg, Weems, Lumpkin, & Carmichael, 1999). Shortt et al., (2001) conducted a randomized clinical trial of a 10-session group family CBT showing that 69% of children in the CBT family group compared to 6% of children in the waitlist no longer met diagnostic criteria for their primary diagnosis. In summary, these findings indicate some minor preference to individual therapy for some children (e.g., socially anxious) but on the whole indicate that group and individual therapy produce equivalent results.

Long term Follow-up

Post and short term follow-up results tend to indicate maintenance of the effects of CBT for anxious youth. What about the long-term effects? Recently, a number of papers have emerged that have examined the long-term benefits of CBT. For example, Barrett et al. (2001) interviewed children who had received CBT as part of a randomized clinical

trial 6 years prior (Barrett, Dadds & Rapee, 1996) showing maintenance of treatment effects for CBT with or without an added family component. In fact for both groups, 86% of children no longer had the primary diagnosis they presented with 6 years prior.

Kendall and Southam-Gerow (1996) conducted a 2-5 year follow-up study of the Kendall (1994) sample also showing significant maintenance of treatment effects. In a longer follow-up (average 7.4 years) of 91% of the Kendall et al. (1997) sample, maintenance of the treatment gains was also reported (Kendall, Safford, Flannery-Schroeder, & Webb, 2004). In addition, children who did not improve during the treatment (i.e., the primary diagnosis was present at the end of treatment) were more likely to report increased drinking, increased marijuana use and have a number of substance abuse related problems. These findings indicate that when the treatment is successful it can alter the problematic sequelae of anxiety disorders. Interestingly in this sample, approximately 50% of children sought additional treatment following the treatment program.

A 5-7 year follow-up study by Manassis, Avery, Butalia and Mendlowitz (2004) showed that modest anxiety symptoms (on average 1.73 symptoms) and impairment from anxiety (on average “some impairment in one to two areas” or “often impairment in one area”) were reported by adolescents. In addition, 42% of them received further treatment for their anxiety (including booster sessions), 30% seeking substantial further treatment for anxiety and 19% received further treatment for additional problems (namely depression). These findings show that some but minimal symptoms still persist following treatment, some requiring further treatment.

Taken together, these studies suggest that the improvements observed from pre to post treatment can be maintained for long periods and many children continue to improve. The results of Kendall et al., (2004) are particularly impressive as they focus on disorders

other than those the child first presented with. The somewhat changeable presentations that occur in child populations warrant the follow-up of disorders other than the disorder with which the child presented to ascertain success of the treatment program. The results suggest that for many children the skills learned in the program can be carried through adolescence and adulthood, arming the child throughout their life. We know anxiety disorders frequently pre-date disorders such as depression and substance abuse, the subsequent impact of an intervention in childhood may lead to prevention of other psychological disorders (Hayward, et al., 2000; Kendall et al., (2004). Nevertheless, the findings from long term follow-up studies suggest that a third to half of these children continue to suffer from anxiety or anxiety related problems and seek treatment elsewhere despite receiving state-of-the-art treatment in specialized treatment clinics.

Predictors of Outcome

The research reviewed so far has indicated that CBT for anxious children and adolescents works for the majority of individuals and that some approaches may work better for particular children in different modalities. There is also a body of research which has attempted to examine whether certain factors may impact on treatment outcome overall. Some of the factors that have been shown to be related to outcome are: age, gender, comorbidity, symptom severity, family functioning, parental psychopathology and therapeutic process variables. Each of these variables will be reviewed.

Age. Examining age, a simple and in no way comprehensive marker for a child's level of functioning, as a predictor of outcome in anxious youth may indicate the age at which intervention is most beneficial. Is there an age at which children are likely to receive the maximum benefits from CBT?

The research to date has provided evidence that age may be important in determining outcome. In the Barrett, Dadds and Rapee (1996) study reviewed above, younger children tended to do better in treatment in which the family was involved in the treatment. Interestingly, in a sample of 7-15 year olds, Southam-Gerow, Kendall and Weersing (2001) showed that younger children were more likely to respond favourably at post-treatment than older children, although this effect was not found at the one-year follow-up.

These findings provide preliminary evidence that younger children may improve more quickly than older children and are more likely to do better in CBT than older children particularly if the treatment is family focused. Clinical trials that recruit larger sample sizes will allow a more powerful analysis of age effects on treatment outcome. The inclusion of more refined measures of development other than age may also help to provide an improved understanding of what point in development children will benefit from treatment.

Gender. In a study conducted by Mendlowitz et al. (1999), anxious girls were more likely to do better in treatment than anxious boys. There is also some indication that gender, like age, impacts on the effect of parental involvement. As discussed above, girls were more likely to benefit from family involvement (Barrett, Dadds & Rapee, 1996) and parental anxiety management (Cobham et al., 1998). In contrast, a number of studies have also shown that gender was not a significant predictor of treatment outcome (Southam Gerow et al., 2001; Treadwell et al., 1995) and another study has shown that over the long term, girls did worse in treatment than boys (Manassis et al., 2004). These results are indeed confusing and require further research.

Comorbidity. A number of studies on comorbidity have indicated, against common belief, that comorbidity in fact does not impact on the outcome of the child's anxiety.

Kendall, Brady and Verduin (2001) showed that in a clinic sample of 173 children (aged 8-13 years), comorbid externalizing and mood disorders did not predict treatment outcome. A long term follow-up of children from this same clinic, showed that at 7 years post-treatment, children with and without comorbidity were doing equally well in terms of their primary anxiety diagnosis (Flannery-Schroeder, Suveg, Safford, Kendall & Webb 2004), in fact children with comorbidity reported greater self-efficacy coping in anxiety – provoking situations than children without comorbidity. However, parents of children with comorbid externalizing disorders still reported more externalizing symptoms at follow-up than children without comorbidity.

In another study examining comorbidity, Rapee (2003) showed that for the majority of measures comorbidity did not predict outcome. However, parent-reported symptoms using the CBCL at one year follow-up were worse for children with comorbid psychopathology at pre-treatment. Similarly, Berman, Weems, Silverman, & Kurtines (2000) showed that child depression was a predictor of poor outcome.

Most of this research however, has been conducted with samples that have been screened for non-anxiety comorbid psychopathology. Children with equally interfering and/or severe comorbid non-anxiety disorders are frequently excluded from clinical trials. The conclusion regarding the impact of more severe comorbidity thus should be deferred.

Severity. A number of studies have shown that severity of anxious symptomatology at pre-treatment predicts poorer outcome at post-treatment. For example, Southam-Gerow et al., (2001) showed that children with higher internalizing symptoms at pre-treatment were more likely to respond poorly to treatment. Similarly, Berman et al. (2000) showed that trait anxiety symptoms at pre-treatment predicted treatment outcome. Manassis et al., (2004) also showed that initial severity of symptoms at pre-treatment predicted poor

outcomes at long-term follow-up. Thus, children with more severe anxiety symptoms are likely to do less well in the current CBT programs.

Family Functioning and Parental Psychopathology. One study to date has shown that children from families reporting family dysfunction, frustration and maternal parenting stress did worse at post-treatment than families not reporting this problematic family functioning (Crawford & Manassis, 2001). Most clinicians will not be surprised by this finding but to date this has yet to be replicated. While family functioning has been shown to change from pre to post-treatment in a number of studies (e.g., Barrett, Dadds & Rapee, 1996, Crawford & Manassis, 2001), no other studies have found evidence of this effect.

Some evidence has emerged for a predictive role of parental psychopathology in treatment outcome for anxious children. For example, Berman et al. (2000) showed that parental psychopathology (depression, hostility, and paranoia) was a predictor of poor outcome in younger compared to older children. Similarly, Southam-Gerow et al. (2001) also showed that maternal depression was more likely to indicate a poor treatment response. The results of Cobham et al. (1998) reviewed above, also suggest that children with anxious parents do worse in standard CBT programs. Taken together, these findings provide some indication that children from families with greater stress and dysfunction, and greater parental psychopathology will do worse in our current treatments.

Therapeutic Process. The role of therapeutic process variables (e.g., therapeutic alliance, child involvement) in the treatment of anxiety disorders in children is relatively unexplored. A recent meta-analysis of child psychotherapy indicated that therapeutic alliance had a small but consistent effect on outcome (Shirk & Karver, 2003). In contrast, the two studies that have examined child-reported alliance in treatment for anxious children have shown that child reported alliance was not related to treatment outcome

(Kendall, 1994, Kendall et al., 1997). However, the use of child-reported alliance may have limited the findings as almost all anxious children reported very positive relationships with their therapists. Studies that further examine the role of the therapeutic alliance in treatment outcome are necessary.

A handful of studies have examined other therapeutic process variables and outcome in the treatment of anxious youth. For example, Kendall and Chu (2000) evaluated therapist flexibility rated from audio tapes of therapy sessions showing that the degree to which the therapist was flexible with the CBT manual had no impact on treatment outcome. In another study by Chu and Kendall (2004) child involvement in early and later sessions was coded by an observer from audio tape showing that the degree to which the child was involved in later sessions predicted the child's outcome in treatment. This finding suggests that if we can more effectively engage children in the therapy, particularly later in therapy, we will have a better chance of providing the child with a good outcome.

A number of questions remain. What therapist and child behaviours contribute to less child involvement? To what extent does the therapist-child alliance and other factors help to predict child involvement? Further research examining these in-session differences in alliance, child involvement, skill attainment and therapist factors will be important for a more sophisticated understanding of factors contributing to the outcome of anxious children in CBT.

In summary, there are a number of factors that predict outcome in CBT for anxious children. The evidence suggests that older children, male children, children with depressive symptoms, children who are less involved later in therapy, and children from families with parental psychopathology and family stress on the whole tend to do worse in CBT. Although some of these results are not always consistent across studies, they

provide some direction for researchers and therapists to know where improvements in the treatment can be made. The question now is, how can we improve outcome for these children? What adjustments do we need to make to the therapy to produce better outcomes for these children? Clearly, a standard program for these children and families is required initially (see Barrett, Lowry-Webster & Turner, 2000; Kendall, 2000; Rapee, Wignall, Hudson & Schniering, 2000). If the standard program does achieve the desired results, then increased intervention may be required. More refined programs need to be developed and evaluated in large clinical samples to enhance efficacy for this more difficult group of treatment non-responders.

Mechanisms of Change

Reviewing the evidence so far, there is a good case for the efficacy of CBT for anxious children. The majority of children show significant improvements in anxiety disorder symptoms in CBT compared to providing no treatment. There is some evidence that certain adjustments to the therapy (parental involvement, treating parent anxiety, individual) show enhanced benefits for some children. So we know that the treatment works, and we know something about for whom it works. One of the major holes in our knowledge at present is why the treatment works. There are a number of theories that have proposed the mechanisms of change at play in CBT. The primary aim of CBT is to make changes in the child's perception of threat in anxiety-provoking situations, the child's perceived ability to cope in the situation and to reduce the avoidant strategies employed in anxiety-provoking situations. Strategies such as relaxation, cognitive restructuring, problem solving and gradual exposure are included in the therapy. Which of these strategies however brings about the most change? Is it the exposure techniques?

Cognitive restructuring? Or is it non-specific effects such as therapeutic alliance or child involvement?

Some of the most troubling results regarding the effective components of therapy comes from the few published studies employing an active control group. Rather than a waitlist control, Last, Hansen, and Franco (1998) randomized school phobic children to CBT or to an educative supportive condition. Surprisingly, the rate of return to school for both groups was equivalent. In another placebo-controlled study, Silverman, Kurtines, Ginsburg, Weems, Rabian and Serafini (1999) randomised children with phobic disorders to (a) an exposure-based contingency management treatment condition, (b) an exposure-based cognitive self-control condition or (c) an education and support control condition. Similarly no significant differences in parent reported and child reported symptoms were found between the three groups. Some differences were observed on the ADIS, with 88% of children diagnosis free at post treatment in the exposure-based cognitive self-control condition compared to 55% in the contingency management condition and 56% in the placebo condition.

These results seem to indicate that CBT is no better than a credible placebo. What then does this say about the CBT theory? Surely, if the children were not provided CBT and still improved, the effective components of the treatment cannot include the CBT elements such as cognitive restructuring or gradual exposure. Does cognitive and behavioural change come about despite the lack of cognitive restructuring or gradual exposure instruction? The results may also suggest that other non-specific elements of the treatment may be at work in producing positive outcomes (e.g., therapeutic alliance, child involvement, treatment expectations). When closer attention is paid to the content of the placebo treatments, the educative components involved a significant amount of information on CBT. The treatments detailed cognitive and behavioural explanations of

anxiety and provided ideas about the ways in which CBT would be conducted. Although therapists did not take the children through cognitive restructuring or exposure in detail, it is possible that families were able to extract the appropriate information from the therapy and apply it to their lives. Until CBT is compared to a completely non-CBT condition, a true test of the CBT package has yet to take place.

Numerous dismantling studies have been conducted in the adult literature. The majority of studies have provided support that exposure based and combined exposure, cognitive restructuring treatments are superior to cognitive restructuring alone or relaxation alone (Borkovec & Costello, 1993; Craske, 1991; Menzies & Clarke, 1995). Further, in meta-analyses, the effect sizes produced for combined therapies and exposure-only therapies tend to be equivalent (e.g., Feske & Chambless, 1995). The child field is far behind with only a handful of dismantling studies utilising child samples. In the randomized clinical trial described above, Kendall et al., (1997) included an additional assessment point mid-way through therapy (after the cognitive restructuring/coping skills component and prior to the exposure component). The results of the mid-way assessment showed symptom change did not occur until the completion of the exposure sessions (i.e., the post assessment). Although this is not an experimental test of the comparative power of the coping skills versus exposure components, it does provide preliminary evidence for the value of exposure following skills training.

In a multiple baseline design, Eisen and Silverman (1993) treated four children with overanxious disorder with three different treatments, each with exposure techniques but varying coping skills: cognitive restructuring, relaxation or both. No significant differences were observed between the treatments. Another multiple baseline study examined treatment programs for children with GAD that matched the child's symptoms (e.g., cognitive restructuring for cognitive symptoms, or relaxation for children with

somatic symptoms). The study provided preliminary evidence that prescriptive treatments provide additional benefits to non-prescriptive treatments. This finding needs to be further evaluated in a clinical trial.

As described above, Silverman, Kurtines, Ginsburg, Weems, Rabian, and Serafini (1999) also compared two exposure based therapies in a randomized clinical trial of children with phobic disorders: contingency management and cognitive self control. The contingency management focused on the use of positive reinforcement and shaping to encourage the child to complete exposures. The cognitive self control condition taught strategies such as cognitive restructuring and self reward to assist the child in gradual exposure. As reported earlier, the results showed that children in both conditions showed significant improvements on outcome measures. However a significant difference between the groups was shown on the ADIS-IV-C/P (Silverman & Albano, 1996) with 88% of children in cognitive self control condition diagnosis free at post compared to 55% in the contingency management condition. These results suggest that both approaches produce significant change but there may be some benefits to providing coping skills prior to gradual exposure.

In summary, the effective components of CBT for anxious youth have yet to be elucidated. At this stage we are yet to determine whether CBT is better than a non-CBT therapy. Despite the lack of head to head trials there is still much more evidence to support CBT than any other therapy. In that case, which components bring about the change? The evidence so far leads to the importance of including gradual exposure in the treatment package. The usefulness of the skills component prior to exposure has also provided promising preliminary results. Very few treatment trials of childhood anxiety have measured variables believed to play a role in treatment change (see Davies & Ollendick, in press; Prins & Ollendick, 2003) such as cognition, avoidance. Rather

treatment outcomes studies focus on diagnostic change. A broader assessment of outcome that assesses changes in the mechanisms believed to be responsible for change is necessary.

Conclusion

Evidence has accumulated in support of CBT for anxious children. However, as indicated by Cartwright-Hollon et al. (2004), the average success rate (determined by remission of the primary anxiety disorder) of CBT programs for anxious children is 56.5%. Treatments need to be further developed that will increase the rate of success of CBT programs. Some interesting findings have emerged in studies comparing parental involvement and the treatment of parental anxiety suggesting that some adjustments to the standard CBT package may enhance outcomes for some children. Further research employing large clinical trials however is necessary for further advancement. Larger sample sizes will allow for more powerful and precise testing of gender and age effects that have so far been difficult with many trials being significantly under-powered. Trials employing non-CBT controls are also necessary to determine whether CBT or non-specific factors produce the bulk of the outcome.

In what ways can treatments for anxious children be improved? How can we enhance the treatments for those children who remain anxiety disordered at the end of treatment? The results from studies examining predictors of outcome have provided guidance as to where our treatments can be further refined. Although further research is needed to solidify treatment predictors, we have preliminary evidence that some children tend to do worse in CBT programs (older children, boys, depressed children, children from stressed dysfunctional families or families with parental psychopathology, and children who are less involved in the therapy). Clearly, we need to develop enhanced

programs for these children. Some suggestions stemming from our current knowledge of CBT (requiring further research) include: (a) providing additional treatment material specifically designed to target additional or more severe problems (b) identifying those families at greatest risk (e.g., family dysfunction, stress and parental psychopathology) and providing additional, improved family based treatments; (c) developing more effective ways of keeping children engaged in therapy throughout the entire treatment; (d) introducing prescriptive treatments based on the symptoms children present with (as indicated by the preliminary findings of Eisen and Silverman (1998)); (e) providing family-based treatments for younger children and less family focus for adolescents; and (f) improving treatments for older adolescents.

Before the field can further advance and large scale intervention programs implemented, our current treatments need to be further refined through large carefully controlled trials. Further research will provide more information about which treatments work for which children and will allow treatments to be tailored to children, hence increasing the overall efficacy of CBT. The most fundamental question that has yet to be satisfactorily answered is does CBT produce significantly greater changes than a non-CBT treatment? There are a number of trials across the world currently being conducted that will provide an answer to this question. The next step then, is to refine the treatments for those children whose needs are not being met by our current treatments. Clinical trials conducted to date have provided valuable hints to guide future research that will produce a more sophisticated knowledge of the age-old question: which treatment works for whom and when? (Kiesler, 1966).

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