EVALUATING THE EFFICACY OF CHILD ANXIETY TALES WITH AN AT-RISK POPULATION OF SCHOOL-AGED CHILDREN: AN ONLINE PARENT-ADMINISTERED INTERVENTION

By

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ABSTRACT

EVALUATING THE EFFICACY OF CHILD ANXIETY TALES WITH AN AT-RISK POPULATION OF SCHOOL-AGED CHILDREN: AN ONLINE PARENT-ADMINISTERED INTERVENTION

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Child Anxiety Tales (CAT; Khanna & Kendall, 2017) is an online parent-mediated intervention for children with anxiety that specifically targets the important role of parents within the treatment process. CAT is a parent-administered online cognitive-behavioral treatment program that utilizes 10-sessions over 10 weeks to improve children's anxiety symptoms. A paucity of research to date has examined CAT treatment outcomes. Using a randomly controlled experimental design, this study investigated the fidelity, effectiveness, and acceptability of the CAT program. Data collected at pre-treatment, post-treatment, and 1-month follow-up was used to evaluate the fidelity, effectiveness, and acceptability of the CAT program. Comprehensive recruitment efforts resulted in 78 parents expressing interest in the study and 44 met study criteria. Of the 34 who consented to treatment, 17 were randomly assigned to each group. Six in each group were unable to complete the study for a range of reasons (many as result of the challenges associated with a global pandemic) and withdrew prior to completion of post-test measures. A total of 22 participants (n=11 in the intervention group; n=11 randomly placed in the waitlist control group) completed the study in full. The 11 parents who completed the CAT intervention program reported success in carrying out the CAT intervention as intended, with self-rated treatment fidelity scores averaging 97% completion of all treatment components. Additionally, results from the parents in the intervention group revealed statistically and clinically significant reductions in their own levels of anxiety, stress, overprotective behaviors,

and negative beliefs about their child's experience of anxiety. In addition, statistically and clinically significant improvements in their child's anxiety symptoms were also reported when compared to control group parent ratings. No statistically significant improvements were found on a measure of negative parent-child interactions between the two groups, despite clinically meaningful improvements reported by parents in the intervention group. Finally, parents who completed CAT reported very high levels of acceptability pertaining to the intervention approach. Study findings are limited by the small sample size and the characteristics (e.g., highly motivated) of the demographically-homogenous study participants who completed this online intervention and waitlist control conditions in the midst of the challenges associated with a global pandemic. Study findings make a strong contribution to (a) the limited literature on online parent-administered programs to treat children experiencing anxiety and (b) the broader literature highlighting the importance of including parents within the child anxiety treatment process to maximize treatment effects. In addition, this is the first CAT program study to assess parent measures as the primary outcome and only the second CAT program study to assess fidelity, effectiveness, and acceptability. Implications for further research and potential implications for future clinical practices with children presenting with anxiety symptoms and resulting dysfunction are discussed.

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CHAPTER 1

INTRODUCTION

Parental behaviors can influence the development and maintenance of a child's anxiety symptoms (Ballash et al., 2006; Fisak et al., 2012). Parents that exhibit anxious symptoms may be more likely to overestimate potential harm to their children. Additionally, parents who exhibit behaviors such as overprotection, parental stress, and modeling of anxious behaviors, have been found to negatively reinforce childhood anxiety symptoms (Mineka et al., 2006; Van Der Bruggen et al., 2008; Fisak et al., 2012). Thus, it is important to take into consideration parental anxiety and behaviors when working to reduce anxiety symptoms in children. One way to improve both parent and childhood anxiety symptoms is through the implementation of a parent-administered treatment, which has the potential to have the same level of effectiveness as current evidence-based treatments (EBT) for childhood anxiety disorders (Elgar et al., 2003). CBT is a psychosocial treatment that has the most empirical support for treatment of children or adolescents with anxiety disorders (Compton et al., 2004; Ollendick et al., 2018). Traditional CBT treatments for children are largely child-focused where the child works with a mental health professional face-to-face for a set period of time.

Although child-focused CBT has been found to be effective in reducing internalizing symptoms of children (e.g., about 60% of children have a decrease in symptoms), not all children who receive child-focused CBT treatments have these positive outcomes (James et al., 2013; Wei et al., 2014). Because of this discrepancy, researchers continue to identify ways that these treatments can be improved for children with anxiety symptoms who do not positively respond to child-focused CBT treatments. One specific factor in need of further study is a failure of interventions to measure changes in parents as well as symptom changes in their child. Parental

involvement in treatment of children with anxiety and the role of parental factors in treatment for childhood anxiety must be a focus within treatment studies (Wei et al., 2014; Barmish et al., 2005). Within most CBT treatments for children with anxiety, there is a parental component that is incorporated into sessions during treatment (Rapee et al., 2006, Beidel et al., 2000; Kendall et al., 2006). In addition, fidelity and acceptability of treatment were occasionally measured within these intervention studies. Table 1 highlights studies that measure both child and parent outcomes and treatment fidelity and acceptability of CBT anxiety treatments that incorporate parental involvement.

Table 1.

Child outcomes, parent outcomes, treatment fidelity, and treatment acceptability of CBT anxiety treatments with parental involvement

Study	Child Outcomes	Parent Outcomes	Treatment Fidelity	Treatment Acceptability
Lyneham et al. (2006)	Reduction in child anxiety symptoms (parent and child report)	Reduction in parental stress.	N/A	N/A
Wood et al. (2006)	Reduction in child anxiety symptoms (parent and child report)	No significant changes in parents' anxiety symptoms.	N/A	N/A
Thinemann et al. (2006)	Reduction in child anxiety symptoms (parent report)	Reduction in parental anxiety, improvement of parental attitude toward child.	Treatment adherence was between 92%-98%	96% of parents reported overall satisfaction with treatment program
Kendall et al. (2008)	Reduction in child anxiety symptoms (parent report).	No significant changes in parental anxiety symptoms.	Treatment fidelity was 92%	N/A

Table 1. (cont'd)

Study	Child Outcomes	Parent Outcomes	Treatment Fidelity	Treatment Acceptability
Silverman et al. (2009)	Reduction in child anxiety symptoms (parent and child report)	Reduction in parent anxiety symptoms and parent-child conflict.	Treatment fidelity was 100%	N/A
Wood et al. (2009)	Reduction in child anxiety symptoms (parent report)	Reduction in parent intrusiveness (e.g., parental control).	High treatment fidelity (no percentage/value indicated)	N/A
Waters et al. (2009)	Reduction in child anxiety symptoms (parent report)	No significant changes in parents' depression, anxiety, and stress. Significant increase in parenting satisfaction and parenting competence.	Treatment fidelity checklist used but not reported in study (no percentage/value indicated)	Parents reported high level of satisfaction with treatment program
Morgan et al. (2017)*	Reduction in child anxiety symptoms (parent report)	Family life interference from anxiety was significantly reduced in intervention group than control group; Reduction in overprotective parenting reduced from baseline.	25% of parents accessed all modules in the intervention	95% of parents reported they would recommend the intervention program to others
Yap et al. (2018)*	Reduction in child anxiety symptoms (parent and child report); Reduction in child depression symptoms (parent report)	Parenting risk factors significantly improved from baseline (e.g., parent-child relationship).	44% of parents adhered to the intervention program	Qualitative data: parents reported treatment program was engaging
Lebowitz et al. (2019)	Reduction in child anxiety symptoms (parent and child report)	Reduction in parental stress and parental accommodation.	N/A	N/A

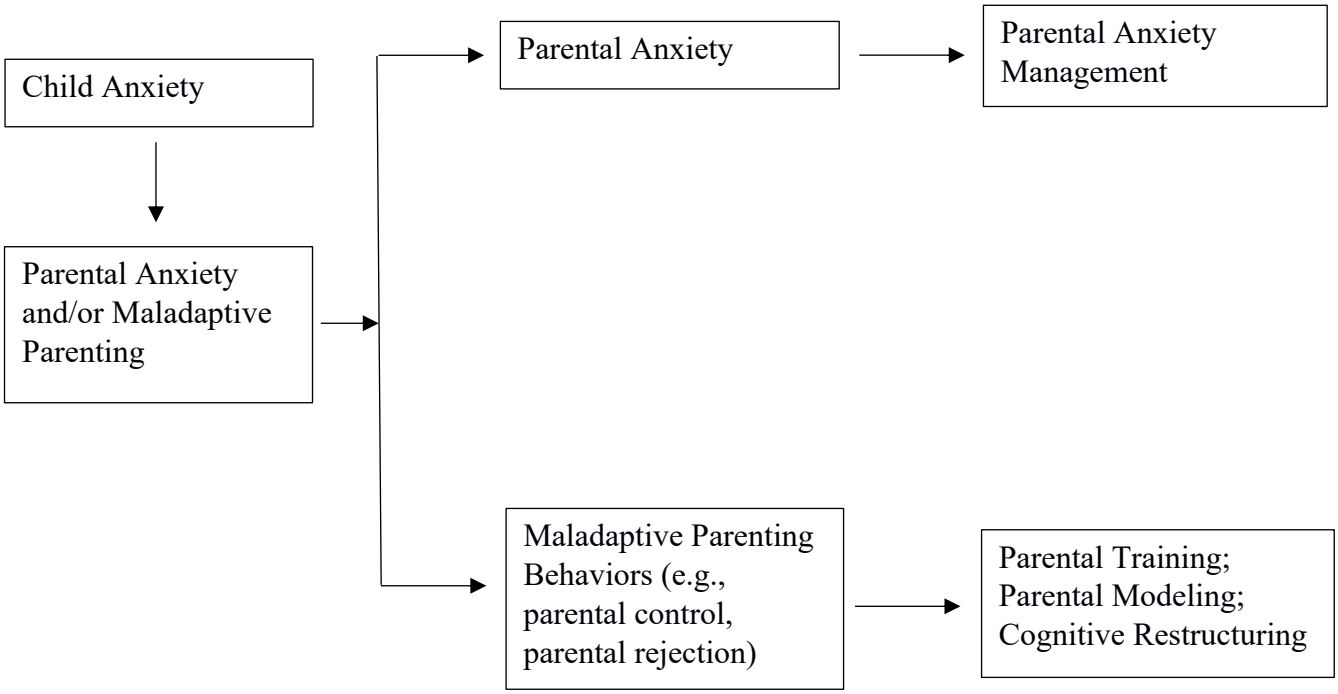
Silverman et al. (2019)	Reduction in child anxiety symptoms (parent report)	Reduction of parental psychological control	Treatment fidelity was 100%	N/A

**online-administered treatments*

Parental involvement is incorporated into CBT treatment sessions to increase positive treatment outcomes for children with anxiety (e.g., lowered symptoms of anxiety in parents and children; Manassis et al., 2014). One of the reasons that incorporating parents into their child's CBT treatment can benefit the child is through the lens of a bioecological theoretical model, where a child's development is highly influenced by the interactions within their environment (Bronfenbrenner et al., 2006). One of the most essential interactions with the bioecological model is between the parent and their child (Palamaro Munsell et al., 2012). Wei and Kendall (2014) created a model (see Figure 1) for a targeted approach to parental involvement in CBT for childhood anxiety.

Figure 1.

Diagram of targeted approach to parental involvement of CBT for childhood anxiety adapted from Wei and Kendall (2014)



Previous research has suggested that there are parental factors that relate to childhood anxiety and can get in the way of parents seeking out well-established treatments for their children (Rapee, 2002). One of these parental factors is parental psychopathology. There is a large genetic component to anxiety where parents who have anxiety disorders are more likely to have children who also exhibit symptoms of anxiety along with other internalizing behaviors (e.g., depression; Merikangas et al., 1998; Ferro et al., 2015). Further, research studies explain the impact of both genetic and environmental factors in transmission of anxiety from parents to children (Wei et al., 2014; Weems et al., 2005). Research studies suggest that parental anxiety management is most effective in lowering parental anxiety, which may relate to better childhood anxiety outcomes (Rapee, 2001, Chorpita & Barlow, 1998). In addition to parental

psychopathology, parental stress has also been related to development of anxiety symptoms in children (Van Oort et al., 2010; Platt et al., 2016). Parental stress is interconnected with parental anxiety in that when a stressful life event occurs, parental anxiety symptoms may increase, which may also increase children's symptoms of anxiety.

Environmental components including parenting styles and parenting behaviors also are related to childhood anxiety (Wood et al., 2003). Maladaptive behaviors such as parental control and parental rejection can influence treatment of childhood anxiety symptoms (Wood, 2006; Negreiros et al., 2014). Parental control is defined as "influencing children's behaviors through the use of covert strategies such as guilt induction, invalidating feelings and forming an environment where the parents' acceptance of their children is contingent upon their behavior" (Nanda et al., 2012, p. 638). When parents exhibit high parental control over their children, their children may believe that they do not have internal control when experiencing stressful life events. This may relate to the development of anxiety disorders in children (Wood et al., 2003). Similarly, parental rejection refers to "low levels of parental warmth, approval, and responsiveness" (McLeod et al., 2007, p. 156). Hence, this parental behavior can also contribute to the development of anxiety disorders in children. Evidence-based treatments that use both parental training (Wood et al., 2006; Shortt et al., 2001) and parental anxiety management (Cobham et al., 1998; Hirshfeld-Becker et al., 2010) may be the most beneficial in increasing positive outcomes for childhood anxiety.

Parents play a large role in their child's anxiety symptoms and treatments. It is important for parents to recognize and play an active role in treatment of anxiety symptoms that their children are exhibiting because there is a strong relationship between parental factors and childhood anxiety. In addition, parent change in symptoms of anxiety can lead to change in child

symptoms of anxiety (Lebowitz et al., 2016). However, meta-analyses that sought to find differences of efficacy between CBT without parental involvement and CBT with parental involvement found no significant differences between these groups (In-Albon & Schneider, 2007; Reynolds et al., 2012; Silverman et al., 2008; Spielmans et al., 2007). It is important to note that these meta-analyses did not include studies where parents exclusively administered the interventions to their children and each meta-analyses and review differed in how parental involvement was defined. Thus, making it hard to draw a comparison between each meta-analysis. Further, each meta-analysis assessed different types of parental involvement in the studies analyzed. For example, there were studies that assessed transfer of control from therapist to parent and other studies had parents learn contingency management strategies (Breinholst et al., 2012). A recent meta-analyses conducted by Manassis and colleagues (2014) found that although no differences were found between studies with CBT with and without parental involvement at post-treatment, remission analyses conducted at 1-year follow-up found that CBT with parental involvement (specifically parents learning contingency management strategies) had significantly greater effectiveness in reducing anxiety symptoms in children than CBT without parental involvement. These findings suggest that parents needed adequate time to learn the CBT strategies from the interventions to be able to implement these strategies with their children. All of this information from recent meta-analyses suggests that the effectiveness of parental involvement in the treatment of children with anxiety has been mixed and additional rigorous studies to further understand the efficacy of parent-administered treatments is warranted.

In addition to the aforementioned parent variables, there are other common barriers that exist that may prevent parents from seeking mental health treatment for their child with anxiety (Barrett et al., 2001). Owens and colleagues (2002) found that about one third of 116 parents

who reported that their child has mental health problems in their study also reported barriers to treatment. Three types of barriers that were reported hindered children receiving mental health services. These types of barriers include structural barriers (e.g., lack of transportation or insurance), perceptions of mental health problem barriers (e.g., not understanding the child's mental health), and perceptions of mental health treatment barriers (e.g., stigma related to receiving treatment for mental health). Thus, novel or alternative delivery approaches to mental health treatment are important to develop to address unmet service needs.

Nontraditional approaches to mental health treatment may include bibliotherapy (e.g., manual-based treatments), multimedia (e.g., videos, audio), and self-administered treatment programs. Self-administered treatment programs can be implemented through many different methods (e.g., books, videos, audio, internet) and may be most feasible for families to engage because they are convenient, inexpensive, and readily available for the family (Elgar & McGrath, 2003). Self-administered treatments can be delivered by psychologists, social workers, school professionals, or parents (e.g., parent-administered interventions; Offord et al., 1987). Online parent-administered programs may be more useful to families that do not have access to traditional treatments offered in-group or one-to-one format, specifically in low-income areas (Elgar & McGrath, 2003; Kierfeld et al., 2013). Table 2 highlights key differences between treatments carried out in traditional formats (e.g., in person) with online parent administered treatments. Families that may benefit most from these types of treatments include those who live in rural areas or single parent families who may not have the time necessary to attend traditional treatment programs (Grove et al., 2017). Additionally, some self-administered treatment programs have been found to be as effective as traditional group-based treatment programs to promote social competence and reduce conduct problems (Webster-Stratton, 1990). Some

examples of self-administered treatment programs include using videos that parents can watch to learn about their child's mental health problem (e.g., psychoeducation), bibliotherapy or manuals for parents who have a child with a mental health disorder, or internet-based support groups and programs (Elgar & McGrath, 2003).

Table 2.
Traditional Therapy Versus Online Parent-Administered Interventions

Therapy Component	Traditional Therapy	Online Parent-Administered Interventions
Accessibility	Needs to be close to therapist (e.g., driving distance) to maintain weekly sessions	Designed to reach more people through use of parents and internet access.
Cost	$80-$200/hour	Typically, less than $200 for the entire parent-administered program.
Scheduling	11-18 weekly sessions	No scheduling conflicts because administered by parents.
Implementation competency	Highly trained professional	Parents learn the CBT skills and use these skills to help their child.

Elgar and McGrath (2003) summarized three main objectives associated with self-administered treatment programs, which are similar to traditional approaches to treatment. These objectives include teaching ways that children and families can manage symptoms of mental health, providing psychoeducation about the mental health disorder, and providing a sense of comfort to both the family and the child where they feel that the child's mental health symptoms are manageable and not unique. Self-administered treatment programs can be used in collaboration with traditional therapy or as a self-directed treatment solely utilized by the family. An additional barrier to access is parent anxiety (Van Der Bruggen et al., 2008). Because parents of children with internalizing anxiety symptoms may not be comfortable seeking or initiating

traditional therapy treatments because of the social component, self-administered programs may be particularly helpful for these families.

Another type of self-administered treatment program is digitally-based programs, where clients utilize a computer or other digital methods (e.g., phone app) when going through treatment. Researchers have found that computerized interventions that utilize CBT principles have been found to be effective in reducing symptoms of anxiety for adult populations (Andersson et al., 2006; Craske et al., 2009; McCrone et al., 2009). One notable meta-analysis included seven research studies of internet-based intervention studies in their analyses and found that, collectively, using a computerized CBT treatment approach was comparably effective in reducing childhood anxiety symptoms as traditional forms of treatment (Rooksby et al., 2015). Treatment acceptability was assessed for each study in the meta-analysis using different measures of acceptability. All studies, but one (e.g., Stallard et al., 2011), found high levels of treatment acceptability. In addition to treatment acceptability, treatment fidelity was measured in four out of the seven studies (Khanna et al., 2010; March et al., 2009; Spence et al., 2006; Spence et al., 2008). Three of the research studies found high treatment fidelity (above 70%), while one study (e.g., March et al., 2009) had a lower treatment fidelity percentage of 60%. It is notable that each study in the meta-analyses failed to measure parent factors or changes in their studies.

Two recent research studies on online parent-administered treatment studies for children with anxiety (e.g., *Cool Little Kids Online; Partners in Parenting Program*) measured both parent and child outcomes (Morgan et al., 2017; Yap et al., 2018). Parent outcomes from the *Cool Little Kids Online* intervention study found a reduction in family life interference from anxiety and overprotective parenting for parents in the intervention group (Morgan et al., 2017).

In addition, treatment acceptability was high for parents who participated in this program (e.g., 95% of parents reported they would recommend this program to others). Treatment fidelity was assessed in this research study by the percentage of parents who completed each module in this program. The researchers found that approximately 25% of parents accessed all sessions of the intervention and 92% of parents accessed at least one session of the intervention. One of the main reasons that parents did not access all of the sessions included a lack of time available to complete the sessions.

Another online parent-administered treatment study, The *Partners in Parenting Program,* found that parents demonstrated significant improvements in parent resiliency factors (Yap et al., 2018). Treatment acceptability was measured by receiving qualitative feedback from parents. Overall, parents found the intervention to be engaging. Treatment fidelity of this intervention study found that 44% of parents adhered to the intervention program.

Child Anxiety Tales (Khanna et al., 2015) is another online parent-administered intervention that utilizes the components described above (e.g., psychoeducation, parental modeling, cognitive restructuring) where parents complete each session of this online program and then teach their children the strategies learned from each session. The aim of this intervention is to have parents learn strategies of healthy coping skills for anxiety and then model and share these strategies for their child with anxiety. Thus, parents may be considered acting as a "therapist" during the intervention. To date, there has only been one study that has measured the effectiveness of Child Anxiety Tales through a three-group experimental design methodology (Khanna et al., 2017). In this study, parents of youth were put into one of three groups: (1) treatment, (2) bibliotherapy, or (3) control. This intervention study had promising preliminary findings, where a significant reduction in child anxiety symptoms were found in the CAT

treatment group compared to the bibliotherapy group and the waitlist control group. The effect size was moderate (0.66). This study evaluated the acceptability of this intervention by giving parents a feedback form (10 items) to complete after each session. Examples of items on the feedback form include "the information was presented clearly" and "the pace of the program was good." The average acceptability scores ranged between 3.91 and 4.86 for all items when rated on a Likert scale from 1 to 5, where 5 was considered the highest acceptability. Therefore, preliminary findings of parent acceptability of this intervention were high. One of the limitations of this study was that parental variables (e.g., parental anxiety, stress, behaviors) were not measured in their study, which would be important to measure because this treatment program is administered directly to parents. In addition, treatment fidelity for the CAT program was also not explored in this study. Given the paucity of information available on the impact of online parent-administered treatments for families of children with anxiety problems, additional research was conducted to evaluate fidelity, effectiveness, and acceptability of these interventions.

This present study addressed some of the barriers that research has suggested as making it difficult for parents to seek traditional treatments for their child with anxiety (e.g., access to mental health services, cost) through the implementation of a computerized parent-administered intervention (e.g., CAT). This intervention is less costly than traditional forms of treatment and is available online, thus potentially addressing the financial and access to mental health treatment, like those posed during the current global pandemic. In addition, this research study addressed parental factors (e.g., parental anxiety, parenting behaviors) related to treatment outcomes for children with anxiety.

This study contributed to the current research literature in the following ways. First, this study extended research on parent-administered interventions for children with anxiety and it builds in additional rigorous methodology by including (a) measures that assess parental factors that contribute to childhood anxiety and (b) treatment fidelity checklists created specifically for this program. These study components increased the rigor of parent-administered intervention studies described in the literature. Table 3 compares recent intervention studies that are most similar to this current study in that the interventions administered are similar to the CAT program (e.g., largely parent-directed). Some of the measures used in this current study were used in the studies mentioned in Table 3. For example, the research study by Lebowitz and colleagues (2019) use the Multidimensional Anxiety Scale for Children (MASC) to assess for child variables and the Parenting Stress Index-Short Form (PSI-SF) to assess for parent variables. Additionally, Cartwright-Hatton and colleagues used the MASC to assess for child variables.

Table 3.

Current Study Versus Parent-Administered Intervention Studies for Anxiety Disorders

Study	Acceptability	Integrity	Treatment Design
Current Study	Treatment Evaluation Questionnaire-Parent Form (TEQ-P)	Treatment fidelity checklist	Pretreatment, posttreatment, 1-month follow-up (n = 22) of child and parent variables
Cartwright-Hatton et al. (2011; *Timid to Tiger*)	N/A	Treatment fidelity checklist; video recording of sessions	Pretreatment, Posttreatment, 12-month follow-up (n = 37) of child variables

Table 3. (cont'd)

Study	Acceptability	Integrity	Treatment Design
Morgan et al. (2017; *Cool Little Kids Online*)	Feedback form after intervention was completed.	N/A	Pretreatment, posttreatment, 2-month follow-up (n = 215) of child and parent variables
Khanna et al. (2017; *Child Anxiety Tales*)	Feedback form after each online session.	N/A	Pretreatment, posttreatment, 3-month follow-up (n = 25) of child variables
Yap et al. (2018; *Partners in Parenting)*	N/A	N/A	Pretreatment, posttreatment (n = 25) of child and parent variables
Silverman et al. (2019; *Parent-Involvement CBT)*	N/A	Video recording of sessions	Pretreatment, posttreatment, 12-month follow-up (n = 100) of child and parent variables
Lebowitz et al. (2019; *Supportive Parenting for Childhood Emotions)*	Client Satisfaction Questionnaire	Treatment fidelity checklist; video recording of sessions	Pretreatment, Posttreatment (n = 124) of child and parent variables

Second, this study examined the fidelity, effectiveness, and acceptability of this parent-administered intervention implemented for 10 weeks by 22 parents who had children with anxiety disorders using a randomized control design. This current study aimed to parallel Khanna and colleagues (2017) Child Anxiety Tales intervention study by using similar methodology in implementation of the self-administered treatment program to parents of children with anxiety symptoms utilizing a pre-, post-intervention, and also included a 1-month follow-up with two groups (e.g., treatment group and waitlist control group). This present study

differed from Khanna and colleagues' study in that it explored the acceptability, fidelity, and use of more rigorous measures to assess effectiveness of Child Anxiety Tales. Furthermore, this study examined parent-related variables (e.g., parental anxiety, parental stress). This study assessed this parent-administered intervention for children with anxiety disorders. Overall, this study continued the efforts needed to assist children with anxiety disorders who either do not benefit from or do not have access to traditional forms of treatment.

CHAPTER 2

LITERATURE REVIEW

This literature review addresses the conceptualization of this present study. The following sections include: (a) role of parents in their children's anxiety disorders, (b) Evidence-Based Treatments (EBTs), (c) barriers that exist with traditional forms of Evidence Based Treatments (EBTs), (d) self-administered treatment programs, (e) computer-assisted self-administered CBT treatment programs, (f) parental involvement mechanism of change, (g) evidence-based treatments for parents of children with anxiety, (h) evaluation of parent-administered treatments, and (i) research questions and hypotheses.

Role of parents in their children's anxiety disorders.

Because childhood anxiety disorders are complex and consist of multiple factors and interactions that can lead to their development in children, these disorders should be considered through a developmental psychopathology perspective (Vasey & Dadds, 2001). Some factors to consider through this perspective are genetics and parenting behaviors.

Genetics. Parents who exhibit symptoms of anxiety and have anxiety disorders are more likely to have children who have anxiety disorders (Black & Gaffney, 2008; Dierker et al., 2001; Telman et al., 2018). A number of family studies have found that anxiety is common among family members (Last et al., 1991; Biederman et al., 1991; Telman et al., 2018). For example, Turner and colleagues (1987) compared children with parents who were diagnosed with an anxiety disorder and children with parents who were not diagnosed with an anxiety disorder. They found that children who had parents with an anxiety disorder were more likely to be diagnosed with an anxiety disorder. A recent study conducted by Telman and colleagues

(2018) found similar results, in that children who had mothers and fathers with anxiety disorders were more likely to have a diagnosis of anxiety.

In addition to family studies, twin and adoption studies have been conducted to understand the influence of genetics in anxiety disorders. Overall, twin studies have suggested that between 20 to 40 percent of risk to be diagnosed with an anxiety disorder is due to additive genetic factors (Hettema et al., 2001). Furthermore, twin studies have found that genetics influence traits of anxiety disorders such as behavioral inhibition (e.g., fear reaction when experiencing new situations; Robinson et al., 1992), fearfulness (Goldsmith et al., 2000), and shyness/emotionality (Saudino et al., 2000). Similarly, an adoption study done by Schmitz and colleagues (1996) found that genetics influenced emotionality in their child participants.

Parental Stress. Parenting stress has been found to negatively affect parent-child interactions and development of child anxiety symptoms (Crawford & Manassis, 2001; Platt et al., 2016). Parenting stress has also been related to adverse parenting behaviors (e.g., overprotective behaviors) and low child adjustment (Harvey et al., 2016; Melis Yavuz et al., 2017). Parenting stress is positively correlated to parenting anxiety in that when stress increases, symptoms of anxiety also increase. Thus, because parental stress is related to parental anxiety, then it may also affect childhood anxiety symptoms. Parents that do experience stressful life events may be coping with the stress in maladaptive ways, which could impact parent-child interactions and influence how children cope with stress (based on parental modeling described below; Kiel et al., 2017). Therefore, because of the potential relationship between parental stress and child anxiety, it would be important to measure parental stress when evaluating the effectiveness of a parent-administered intervention for children with anxiety.

Parenting behaviors. Parenting practices and behaviors are considered to be one factor that is related to the development and/or maintenance of anxiety disorders in children. Two of the main parenting behaviors include parental modeling of anxious behaviors and parental overcontrol.

Modeling of anxious behaviors. Research has suggested that parenting model of anxious behavior as related to childhood anxiety disorders. Examples of parent modeling of anxious behaviors are when parents discuss problems that their children are facing as dangerous/unsolvable, suggest that children interpret their problems in a detrimental way, and not encouraging children to problem solve (Whaley et al., 1999). Parental modeling of anxious behaviors is more likely to influence children who already have a predisposition to symptoms of anxiety (Fisak et al., 2007). Children with parents who model these anxious behaviors may think that using ineffective strategies to deal with problems is the only way to deal with problems and therefore not develop healthy coping strategies when they are experiencing their own difficulties (Whaley et al., 1999; Hudson et al., 2009).

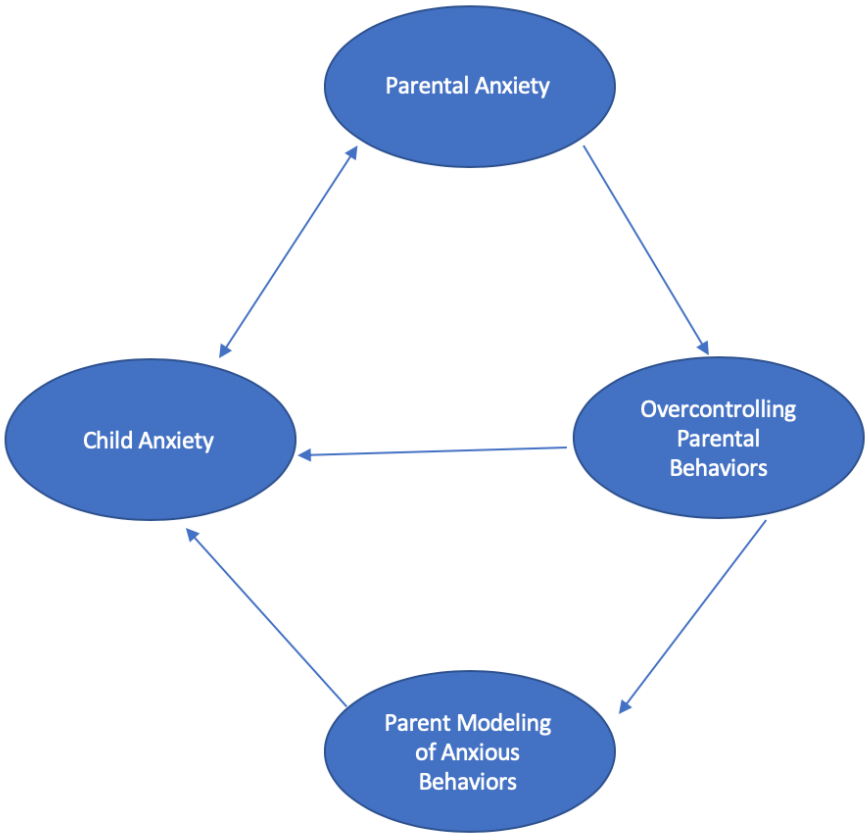
Parental Overcontrol. Another parenting practice that has been related to the development and/or maintenance of anxiety disorders in children is parental overcontrol/parental intrusiveness. Van Der Bruggen and colleagues (2008) have found that parental controlling behaviors such as overprotection and intrusiveness have been found to be a large predictor in development of childhood anxiety symptoms. Parental intrusiveness is considered to be a component of parental control, where parents may complete a task that their child was supposed to do independently and consistently think of their child as having a low level of functioning (Ispa et al., 2004; Hauser Kunz et al., 2013). In children ages 6 to 11 years of age examples of

parent intrusiveness include parents helping their child with daily routines (e.g., getting dressed in the morning), using 'baby talk,' and invading their child's privacy (Wood et al., 2007).

Parental intrusiveness differs from parental responsiveness in that responsiveness is a positive parenting behavior where a parent will support their child in completing a difficult task rather than completing the task themselves (Maccoby, 1992). This parenting practice can affect the child's self-efficacy, which can play a role in developing or maintaining symptoms of anxiety (Murris, 2002). When parents consistently take over tasks for their children, tasks that the children are able to complete themselves, the children may begin to believe that they are not able to complete those tasks independently (e.g., low self-efficacy; Chorpita, 2001). Therefore, research on parenting modeling of anxious behaviors and parental overcontrol have helped further understand the impact that parenting has on childhood anxiety. Figure 2 illustrates this conceptual model of the relationship between parent anxiety, child anxiety, and parental behaviors (Kiel, Wagers, & Luebbe, 2017).

Figure 2.

Conceptual model of the relationship between parental anxiety, child anxiety, and parental behaviors and practices adapted from Kiel, Wagers, and Luebbe (2017)



Evidence Based Treatments

Evidence-Based Practice in Psychology (EBPP). Before exploring the evidence-based parent-administered treatments and interventions for children's anxiety disorders it is essential to understand the concept of evidence-based practices. Based on the definition by the APA Presidential Task Force on evidence-based practice (2006), "Evidence Based Practice in Psychology (EBPP) is the integration of the best available research with clinical expertise in the context of patient characteristics, culture, and preferences" (p. 273). The EBPP definition is also

similar to the definition that is utilized for evidence-based practices in the field of medicine (e.g., the integration of research and knowledge in a clinical setting with values of patients served; Sackett et al., 2000). However, the definition of EBPP further emphasizes the importance of understanding a client's unique characteristics in informing the practice of a clinician. EBPP includes a clinician using different types of interventions based on the specific needs of the client.

According to the APA Presidential Task Force on evidence-based practice (2006), a difference does exist between EBPP and empirically supported treatments (ESTs; e.g., evidence-based practice). EBPP includes a more comprehensive and greater range of services that clinicians partake in, such as gaining rapport with client and administering psychological assessments. ESTs, instead, focus on specific psychological interventions and treatments that have research evidence to suggest them as being effective for improving outcomes of clients with certain psychological disorders. ESTs tend to have been suggested as effective for clients with psychological disorders through the use of randomized controlled trials (RCTs). Thus, EBPP can include choosing ESTs as part of the comprehensive services chosen by clinicians for their clients.

Research-based evidence. Clinicians should investigate the research that has been disseminated for the practice or intervention they choose to utilize in their practice. The research evidence for psychological practice that clinicians must explore should include research that are founded in different types of methodologies and research designs (APA Presidential Task Force on Evidence-Based Practice, 2006). The different research designs include clinical observation, qualitative research, systematic case studies, single-case designs, ethnographic research, randomized control trials (RCTs), and meta-analyses (Greenberg & Newman, 1996). When

evaluating the effectiveness of interventions through research, the APA suggests using two dimensions: treatment efficacy (e.g., whether the intervention works) and clinical utility (e.g., the feasibility of implementation of the intervention in certain settings; American Psychological Association, 2002). For clinicians to find research evidence for treatments that suggest greater clinical utility they should learn about the diversity of the populations in these research studies and the cost of treatment. For treatment efficacy, the APA discuss the benefits of finding research studies that use randomized control experiments, which is a more rigorous type of research methodology (2002).

To thoroughly understand the component of research-based evidence and how to bridge the gap between evidence and clinical practice, the definition of evidence should be examined. Chorpita's (2003) broad definition of evidence incorporates both elements of efficacy and effectiveness. There are three possible classifications of different levels of evidence, including "possibly efficacious," "efficacious," and "efficacious and specific" (Chambless & Hollon, 1998).

Chorpita (2003) explains research-based evidence as four different types of research each on a different level. The four types are: (1) efficacy, (2) transportability, (3) dissemination, and (4) system evaluation. Each research level, respectively, brings about greater inference on an intervention's applicability to real world practice. Type one research is efficacy, similar to the definition described previously (APA Presidential Task Force on Evidence-Based Practice, 2006). Type two is transportability, which is considered to be under the form of treatment effectiveness. Transportability refers to research about psychological practice that takes place without the use of exclusionary criteria. This differs from the exclusionary criteria that is usually used in type one research on efficacy (Chorpita, 2003). An example of this type two research is

when studies do not exclude individuals from participating in the research study. Type two research could be beneficial for clinicians because it shows the impact of a psychological practice or intervention in what is considered a true clinical setting (Schoenwald & Hoagward, 2001).

The next type of research is called dissemination and it is also considered to be under the form of treatment effectiveness. This type of research uses system employees as the individual's implementing the intervention. System employees can include school psychologists, school counselors, or social workers. Through type three research, clinicians can infer the effectiveness of intervention or psychological practice in naturalistic settings (Schoenwald & Hoagward, 2001). However, type three research does still employ supervision for the system employees implementing the intervention by the current research team (Chorpita, 2003). The last type four research is system evaluation, which is also under the form of treatment effectiveness. Chorpita (2003) describes system evaluation as the final assessment for whether interventions are considered to be effective when the system is entirely independent. Although type four research is the most important type of research to understand the effectiveness of an intervention in real clinical practice, there have not been any true research studies that have been considered as type four (Chorpita, 2003). The reasoning could be because for research to be type four research there needs to be more research studies classified as types two and three. However, most research evidence available is classified as type one research. Overall, clinicians need to consider these different aspects when deciding what practice or intervention would be most beneficial in their own clinical work.

Barriers that exist with traditional forms of Evidence Based Treatments (EBT)

Although traditional forms of Evidence Based Treatments (EBT) have been found to be effective in improving symptoms of anxiety in children, there are many barriers that children and families may face with traditional forms of treatment. Overall, about one in five children who exhibit symptoms of a psychological disorder will not be receiving treatment (Offord et al., 1987). Multiple barriers for children and families to receive treatment for their mental health symptoms include stigma related to receiving treatment, cost of treatment, and lack of access to traditional forms of treatments (Elgar & McGrath, 2003). Owens and colleagues (2002) have organized these barriers into three different types, which include: (1) structural barriers (e.g., not able to pay for mental health services, transportation not available), (2) perceptions about mental health (e.g., lack of knowledge about mental health symptoms), and (3) perceptions about services for mental health (e.g., fear of stigma for getting help for mental health symptoms). Some ways to minimize these barriers that exist is through incorporating parents in treatment of childhood anxiety and the use of self-administered treatment programs.

Self-administered treatment programs. Self-administered treatment programs have been created to help decrease barriers for families and children who want to get help for their mental health symptoms. These programs are considered an alternative type of treatment for individuals with mental health symptoms. Bibliotherapy for anxiety symptoms and videos for parent-training to help decrease problem behaviors in children are some examples of self-administered programs. Self-administered programs exist on a spectrum from programs that are were created to be exclusively self-administered (e.g., Child Anxiety Tales) to programs that are exclusively administered by the clinician (Elgar & McGrath, 2003). Some programs will recommend a check-in with a clinician or therapist whenever needed during the treatment program, while other programs will have a set required time where the individual must meet with a clinician to discuss

progress and any problems that the individual may have during treatment. Self-administered treatment programs are typically inexpensive, easy to implement, and needing of less resources than traditional treatment programs. Self-administered programs have been implemented as the sole treatment program or as an addition to more traditional forms of treatment (Elgar & McGrath, 2003). Research studies on effectiveness of self-administered treatments have been evaluated for two types of programs: bibliotherapy and programs that use multimedia sources.

Bibliotherapy. The two different categorizations of bibliotherapy used to help youth with mental health symptoms are self-help books and instructional manuals (Elgar & McGrath, 2003). There are many self-help books available for children who need help for an array of issues that affect children's lives including parental divorce (Pardeck, 1996), physical or sexual abuse (Padeck, 1990), and dealing with a physical illness (Pardeck, 1993). However, many of these self-help books have been created to be used by families who need help and not for youth that have clinically significant mental health symptoms (Adams & Pitre, 2000). Therefore, there have not been many research studies that have evaluated the effectiveness of self-help books available to the public (Riordan & Wilson, 1989; Adam and Pitre, 2000).

Instructional manuals (e.g., manual-based treatments) are another type of bibliotherapy that can be administered by youth themselves or by the parent (Elgar & McGrath, 2003). This type of self-administered treatment has been found to be effective in lowering mental health symptoms (e.g., depression, hyperactivity, attention, aggression) in youth. For example, youth that have completed the instructional manual *Feeling Good* (Burns, 1999) have had lower symptoms of depression (Ackerson et al., 1998). Further, the parent-administered manual *Parent Effectiveness Training: The Tested Way to Raise Responsible Children* (Gordon, 1975) has been found to increase children's self-esteem (Cedar & Levant, 1990). Parent

administered instructional manuals for treatment of childhood externalizing behaviors (e.g., hyperactivity, oppositional behaviors, attention) have also found to be effective in reducing problem behaviors in youth. For example, Heifetz (1977) had parents implement a treatment program using an instructional manual and found that parents who did this had similar effectiveness in the reduction of childhood disruptive behavior problems as parents in a traditional treatment program (e.g., face to face sessions with a therapist). Similarly, a research study found that parents who used parent manuals to help decrease symptoms of Attention Deficit Hyperactivity Disorder (ADHD) in children who were taking ADHD medication had lower symptoms of ADHD than children who were only taking medication for their ADHD (Long et al., 1993). Overall, a few manual-based treatments that are parent and child administered have been found to be effective for improving childhood mental health symptoms, however, further research on bibliotherapy as an effective form of treatment for childhood mental health symptoms is needed.

Multimedia. Multimedia-assisted treatment programs are another form of self-administered treatments that can be either administered to the parent or the child to improve childhood mental health symptoms. Because learning self-management skills is an important component for treatments to be effective, multimedia (e.g., videos, audio) can be used as a way for parents or children to learn about how behavioral techniques and skills are modeled (Elgar & McGrath, 2003). Webster-Stratton and colleagues (1988) used parent training videos for parents to learn techniques that they can use for their child who exhibits externalizing behaviors. Results of this study found that parents who used the parent training videos were as effective in lowering externalizing behaviors of children as parents who were in traditional forms of treatment (e.g., face-to-face with a therapist). In addition to treatments including multimedia components, such

as videos and audio, to help improve childhood mental health symptoms, treatment programs implemented on the computer and the internet (e.g., CBT treatments on the internet) have been a new type of implementation for self-administered programs.

Computer-Assisted Self-Administered CBT Treatment Programs

CBT treatment programs are very structured, which means that these programs can easily be administered to individuals remotely (Anderson, Jacobs, and Rothbaum, 2004). Therefore, it would be important to consider the benefits of using computer-assisted self-administered CBT treatment programs especially in areas where mental health resources are not available (Rooksby et al., 2015). Klein and colleagues (2006) suggested that using a computerized intervention can be a more engaging form of treatment for youth and adolescents than other forms of self-administered treatment programs (e.g., bibliotherapy). The research on the effectiveness of computerized CBT treatment programs for adults is abundant. Using a computerized CBT treatment program in the treatment of adult depression (Wamerdam et al., 2010), anxiety disorders (Proudfoot et al., 2004; Andersson et al., 2006; Craske et al., 2009; McCrone et al., 2009), post-traumatic stress disorder (Klein et al., 2009), and eating disorders (Shapiro et al., 2007; Ljotsson et al., 2007) has been found to be effective in reducing clinical symptoms. However, research studies on the effectiveness of computerized CBT treatment programs for children and adolescents has been limited. Richardson and colleagues (2010) conducted a systematic review on computerized CBT programs for childhood anxiety and depression. Ten research studies were included in their analysis that evaluated the effectiveness of the following computerized interventions: *Stressbusters, Cool Teens, BRAVE online, CATCH-IT, Master your mood online,* and *MoodGym*. These computerized interventions had varied amount of contact with a clinician, where some interventions included telephones support while

other interventions included no support. Findings from this systematic review found that each intervention demonstrated clinical improvements on childhood and adolescent depression and anxiety symptoms from pretreatment to posttreatment. In addition, all research studies reported that there was high treatment acceptability for their intervention program. However, only six out of the ten research studies measured treatment fidelity. For those studies, treatment fidelity was considered high (e.g., higher than 70%).

Rooksby and colleagues (2015) did a systematic review and meta-analysis for internet-based CBT programs specifically for childhood symptoms of anxiety. They included seven research studies in their analyses, with four different internet-based interventions aimed at reducing childhood symptoms of anxiety including *BRAVE-Online, BRAVE, Camp Cope-A-Lot, and Think, Feel, Do. BRAVE-Online* was the only intervention that was 100% implemented online, while *BRAVE* and *Camp Cope-A-Lot* were completed online for 50% of the intervention implementation and *Think, Feel, Do* is an interactive internet-based program implemented at a school. Overall, the results of this study found that clinically significant outcomes for childhood symptoms of anxiety were found for each study. Four out of the seven studies in this review measured treatment fidelity. Three out of the four reported high treatment fidelity (e.g., higher than 70%), while one reported treatment fidelity of lower than 60%. In addition, treatment acceptability was measured in all of these studies, and high treatment acceptability (e.g., above 90%) was found. Furthermore, collectively, the studies found that using a computerized CBT approach was comparably effective in reducing childhood anxiety symptoms as traditional forms of treatment (e.g., face to face CBT). Last, results from the meta-analyses suggested a moderate effect size (0.62 to 0.72) for the use of computerized CBT treatments in treatment of childhood symptoms of anxiety.

Camp Cope-A-Lot (CCAL). Because of the further need for computerized self-administered CBT treatment programs for childhood symptoms of anxiety, Khanna and Kendall (2010) created a self-administered treatment program, *Camp Cope-A-Lot* (CCAL), that utilizes CBT principles and sessions similar to their evidence-based program *Coping Cat*. CCAL is considered a computer-assisted intervention rather than a fully computer-based intervention. This program is completed in 12 sessions (35 minutes per session), where the first six sessions is child-administered (e.g., self-administered component) and the last six sessions is administered by a therapist (e.g., "coach"). In the first six levels, the child alone will learn skills (e.g., FEAR model) and behavioral techniques to help with their symptoms of anxiety (similar the first part of the original *Coping Cat* program) and in the last six levels the child will work with the therapist to employ those skills in anxiety provoking situations (similar to the second part of the original *Coping Cat* program). Khanna and Kendall (2010) evaluated the effectiveness of this program by placing 45 participants into three different groups (e.g., traditional CBT group, CCAL group, and placebo). Results found that children in the CBT and CCAL group had greater treatment outcomes than children in the placebo group. Additionally, children in the CBT and CCAL groups had similar improvements of anxiety symptoms in the posttreatment and 3-month follow up time points. The researchers reported that treatment acceptability of the intervention was high (greater than 90%). However, treatment fidelity was not measured. Overall, CCAL is an effective treatment option for children with clinical symptoms of anxiety. However, because CCAL still requires a therapist to be present for half of the sessions, this may not be a feasible option for families who do not have mental health resources available to them.

Mechanism of Change.

Parental Involvement. Parents of children with anxiety play a large role in childhood treatment outcomes (Wei et al., 2014). Some traditional forms of EBT's, specifically CBT programs, have incorporated parents into childhood anxiety treatments. Incorporating parents into the treatment of childhood anxiety has yielded positive benefits (Silverman et al., 2009; Settipani et al., 2013). Wei and Kendall (2014) state that CBT treatment protocols that incorporate parental involvement in treatment for childhood anxiety typically have these similar goals: (1) teaching skills to help parents manage their anxiety, (2) teaching parents not to reinforce their child's symptoms of anxiety, and (3) teaching strategies to reduce conflicts between the parent and child. Typically, the underlying mechanism of change for long-term benefits of a treatment program for anxiety is "transfer of control" (Ginsburg et al., 1995; Silverman et al., 1995). Historically, transfer of control is used as a model where therapists have all of the knowledge and skills needed to address anxiety symptoms and they eventually will transfer these skills to their client (Ginzburg et al., 1995). For parent-administered interventions for child anxiety, parents would be considered the ones gaining the knowledge and skills needed from the intervention and then transfer this to their child (Kendall et al., 2012). Forehand, Jones, and Parent (2013) state that "change in parenting must be shown to result from the intervention and then this change must lead to change in child outcome" (p. 10). Therefore, parental behaviors, such as parents managing their own anxiety or stress symptoms, parental modeling of coping behaviors, and parental knowledge of anxiety symptoms are important to address in child anxiety treatments especially because these parental behaviors may influence childhood outcomes (Wei et al., 2014).

Evidence-Based Treatments for Parents of Children with Anxiety.

As discussed above, parental involvement in childhood anxiety treatment is beneficial for improved behavioral treatment outcomes in children (Wei et al., 2014). A summary of recent parent-based interventions for children with anxiety can be found in Table 4. These childhood anxiety treatments include some level of parental involvement. However, some of the treatments listed in the table did not measure parent factors.

Table 4.

EBT's for childhood anxiety disorder treatments that include parental involvement

Study	Age of Child	Parental Involvement	Outcome	Parenting Measures Reported?
Spence et al. (2000)	7-14	Parents reinforce child's skills; parental modeling of behaviors	Child-only treatment group and parent/child group more effective in reduction of child anxiety symptoms than WLC group	No
Shortt et al. (2001)	6-10	Parental anxiety management; contingency management; communication & problem solving skills	Treatment that included parent was more effective in reduction of child anxiety symptoms than WLC group	No
Spence et al. (2006)	7-14	Psychoeducation; contingency management; relaxation training; cognitive restructuring	Parent/Child treatment group more effective in reduction of child anxiety symptoms than WLC group	No
Thineman et al. (2006)	7-16	Psychoeducation; teaching social skills; contingency management; parental anxiety management; parental modeling of behaviors	Significant reduction in child anxiety symptoms from pretreatment to posttreatment; parental anxiety reduced at posttreatment; parental attitude toward child	Yes; parental anxiety, parental depression; parental attitude toward child

Table 4. (cont'd)

Lyneham & Rapee (2006)	6-12	Problem solving skills; contingency management strategies; parents reinforce child's skills.	Significant reduction in child anxiety symptoms and parental stress from pretreatment to posttreatment	Yes; parental stress
Wood et al. (2006)	6-13	Parents teach child coping strategies	Significant reduction in child anxiety symptoms from pretreatment to posttreatment	Yes; parental anxiety
Kendall et al. (2008)	7-14	Psychoeducation; contingency management; parental anxiety management; parental modeling of behaviors	Parent/Child treatment group more effective in reduction of child anxiety symptoms than WLC group	Yes; parental anxiety
Silverman et al. (2009)	7-16	Psychoeducation; contingency management; parental anxiety management; parental modeling of behaviors; communication & problem solving skills	Significant reduction in child anxiety symptoms, parent anxiety symptoms, and parent-child conflict from pretreatment to posttreatment	Yes; parental anxiety, parent-child relationship
Wood et al. (2009)	6-13	Parental modeling of behaviors; contingency management; parents reinforce child's skills	Significant reduction in child anxiety symptoms and parental control from pretreatment to posttreatment	Yes; parental control
Waters et al. (2009)	4-8	Psychoeducation; relaxation training; parents teach child coping strategies; problem solving skills	Significant reduction in child anxiety symptoms and significant increase in parenting satisfaction	Yes; parenting practices; parental self-efficacy; parental stress; parental anxiety

Table 4. (cont'd)

Kennedy et al. (2009)	3-4	Psychoeducation; contingency management; Parental anxiety management	Parent/Child treatment group more effective in reduction of child anxiety symptoms than WLC group	No
Hirshfeld-Becker et al. (2010)	4-7	Parental modeling of behaviors; parental anxiety management	Parent/Child treatment group more effective in reduction of child anxiety symptoms than WLC group	No
Cartwright-Hatton et al. (2011)	2-9	Psychoeducation; contingency management	Parent treatment group more effective in reduction of child anxiety symptoms than WLC group	No
Thirlwall et al. (2013)	7-12	Psychoeducation; contingency management; problem solving skills	Significant reduction in child anxiety symptoms from pretreatment to posttreatment	No
Morgan et al. (2017)	3-6	Psychoeducation; contingency management; parental anxiety management; parental modeling of behaviors	Parent/Child treatment group more effective in reduction of child anxiety symptoms and family life interference from anxiety than WLC group. Significant reduction in overprotective parenting from pretreatment to posttreatment	Yes; parenting practices; parental stress
Yap et al. (2018)	12-15	Communication & problem solving skills; teaching social skills	Significant reduction in child anxiety and depression symptoms compared to WLC group. Parental risk factors significant improved pretreatment to posttreatment	Yes; parent-child relationship

Table 4. (cont'd)

Lebowitz et al. (2019)	7-14	Psychoeducation; contingency management; communication & problem solving skills	Significant reduction in child anxiety symptoms, parental stress, and parental accommodation compared to WLC group.	Yes; family accommodation; parental stress
Silverman et al. (2019)	7-16	Communication & problem solving skills;	Significant reduction in child anxiety symptoms	Yes; parent-child relationship

A recent meta-analysis conducted by Mannasis and colleagues (2014) investigated whether studies that incorporate parental involvement in CBT for children with anxiety are effective in the reduction of child anxiety symptoms compared to CBT interventions with no parental involvement. One of the main reasons why these authors wanted to conduct this meta-analysis is because of the limited evidence suggesting that parental involvement in CBT is as effective as CBT without parental involvement, especially evidence from the results of four meta-analyses (In-Albon et al., 2007; Reynolds et al., 2012; Silverman et al., 2008; Spielmans et al., 2007). Although these meta-analyses did not find significant differences between CBT with parental involvement and CBT without parental involvement, there were notable limitations. One major limitation is the different definitions of parental involvement defined in each study (e.g., minimal involvement, significant involvement). Additionally, the type of parental involvement within the CBT interventions differed in studies, where some studies utilized parental involvement as contingency management strategies that parents taught their child and other studies had parental anxiety as part of the focus for the intervention. Therefore, making the studies analyzed within the meta-analyses difficult to compare.

Mannasis and colleagues (2014) meta-analyses included studies that had CBT interventions with parental involvement that focus specifically on contingency management and transfer of control (e.g., the parent learns and then teaches skills to the child). Although the

authors did not find a significant difference in reduction of childhood anxiety symptoms of CBT with parental involvement and CBT without parental involvement at post-treatment, there was a significant reduction in child anxiety symptoms for CBT with parental involvement at 1-year follow-up compared to CBT with no parental involvement. These results provide evidence to the long-term treatment gains for incorporating parental involvement in CBT treatment. Similar results were found with a meta-analysis conducted by Yap and colleagues (2016). The authors examined 42 RCT studies of parenting interventions where parents received more than half of the intervention. Results include significant long-term effects in reduction of anxiety and depression symptoms for children and adolescents.

Although these parent-based anxiety treatments for children have promising research findings, barriers do exist that make it difficult for parents to be involved in their child's anxiety treatment programs (e.g., cost, resources). Many of these parent-based anxiety treatments discussed above still need to incorporate mental health professionals and may not be feasible for clients who reside in areas with no mental health resources nearby. Thus, anxiety treatments that incorporate parents in treatment and are administered by parents (instead of mental health providers) help to address these barriers to treatment.

Online parent-administered treatments for children with anxiety

Independently, research studies have suggested that online CBT treatments and parent-administered treatments are effective treatments for children with anxiety (Manassis et al., 2014; Rooksby et al., 2015). Combining both parent-administered treatments and online treatments for child anxiety treatment (e.g., online parent-administered treatments) could be a way to address barriers to treatment and further improve the positive outcomes for the child

and/or adolescent. However, there has been limited number of research studies that have evaluated the implementation of online parent-administered treatments for children with anxiety.

One online parent-administered treatment research study was conducted by Morgan and colleagues (2017). These authors evaluated the effectiveness of *Cool Little Kids Online* through a randomized control trial study with 433 parents of children ages 3 to 6 years old Cool Little Kids Online is adapted from the traditional Cool Little Kids parenting intervention group. This intervention program includes eight modules that parents complete to learn about certain behavioral strategies to help prevent their child from developing an anxiety disorder. Treatment fidelity was reported as low in this study, in that only 24% of parents completed the full intervention will all of the sessions. Treatment acceptability was reported as high (e.g., higher than 90% of parents would recommend this program to another parent). Results of this intervention study found that family life interference from anxiety was significantly reduced in intervention group than control group. In addition, overprotective parenting reduced substantially from baseline in treatment group.

Yap and colleagues (2018) evaluated the effectiveness of another online-based parent administered program called the *Partners in Parenting Program* (PiP) by conducting a randomized control trial study with 359 parents. PiP is a program where parents learn about parenting strategies that they can utilize to help their child with symptoms of anxiety or depression. Nine sessions are included in this program and take approximately 15 to 25 minutes to complete each session. Parents that were placed in the control group received educational factsheets that provided general information about parenting strategies. This intervention study collected data at pre-intervention, post-intervention, and 3-month follow-up. Overall, parents found the intervention to be engaging based on qualitative feedback. Treatment fidelity of this

intervention study found that 44% of parents adhered to the intervention program. One of the major findings of this research study is that parenting resiliency factors significantly improved from baseline and when compared to parents in the control group. Parenting resiliency factors include improved parent-child communication, less conflict in the home, helping child cope with anxiety. Both of these recent online parent-administered treatment for children with anxiety show promising findings.

Child Anxiety Tales (CAT). A new and fully computer-based parent administered intervention that uses CBT principles to change parent behavior is *Child Anxiety Tales* (CAT; Khanna & Kendall, 2014; see summary in Table 5).

Table 5.
Summary of information about Child Anxiety Tales

Ages of Children	7-17 years
Type of Treatment	Parent-administered intervention
Duration of Treatment/Number of Sessions	35 minutes per module, 10 online training modules
Required therapist/coach	No
Training Requirements	None
Parent involvement	Parents are directly involved throughout the treatment process
Format of treatment	Online

This program was created by the same developers of *Coping Cat* and *Camp Cope-A-Lot* and includes similar session goals from these programs that are solely administered by

parents to their children. This program includes 10 sessions administered to parents that are completed online. Each online session that the parent completes has specific content and is meant to change certain parental and child outcomes (see Table 6)

Table 6.

Summary of each session of Child Anxiety Tales and parental/child outcome changes

Session Number	Summary of Session	Parental/Child Outcome Changes
1	Psychoeducation about anxiety.	Parent Knowledge
2	Description of CBT components for anxiety disorders.	Parent Knowledge
3	Discussion of common myths about anxiety.	Parent Knowledge; Child Knowledge
4	Description of relaxation training techniques and how parents can teach this technique to their child.	Parent Behavior
5	Discussion of the "FEAR plan."	Parent Behavior
6	Description of coping strategies that parent can use when their child is having anxious thoughts.	Parent Behavior, Child Behavior
7	Discussion of problem-solving strategies that parents can use with their child.	Parent Behavior, Child Behavior
8	Description of how parents can use rewards and consequences.	Parent Behavior, Child Behavior
9	Description of how parents can implement exposure tasks for their child to practice the skills that they have learned.	Parent Behavior, Child Behavior
10	Review of the program and ways that the parent can continue to work with their child.	Parent Behavior, Child Behavior

Overall, there has only been one study that has evaluated the effectiveness of CAT on childhood anxiety symptoms. Khanna and colleagues (2017) evaluated this program using a three-group experimental design where parents of youth (e.g., ages 7-17 years) with anxiety disorders were put into three different groups: (1) treatment group, (2) bibliotherapy group, or (3) control group. Each group was given measures to complete at pretreatment, posttreatment, and follow-up. The researchers found that parents in the CAT group and the bibliotherapy group had a significant increase in knowledge of CBT principles from pretreatment to posttreatment. However, no statistically significant effect was found for the WLC group in their knowledge of CBT principles at posttreatment. In all groups (e.g., CAT, bibliotherapy, WLC) there was a significant effect on time from pretreatment to posttreatment for parent-rated childhood symptoms of anxiety. At follow-up, data was collected for the CAT group and the bibliotherapy group. From pre-training to follow-up, a significant main effect was found for both groups for improvement of symptoms of anxiety (Khanna et al., 2017). Additionally, a significant main effect was found for both groups for increase in knowledge of CBT principles from pre-training to follow-up. Furthermore, a feedback form, which included 10 Likert items (e.g., "I liked the interactivity", "I think I will remember the material covered in this module"), was completed by parents after each of the ten modules to assess the general acceptability and feasibility of each module completed. The researchers reported that each item received high scores.

This initial study on CAT found that parents in the CAT group did have significant improvements in their child's symptoms of anxiety after completing the program and these results were maintained at three-month follow-up. Additionally, improvements in parental knowledge of anxiety were significantly increased at posttreatment. Therefore, this initial study

found promising results for implementing this program to parents with children who have symptoms of anxiety. However, this initial study on CAT did not include measures of parent variables even though this program is administered to parents and the strong relationship that exists between parental anxiety and childhood anxiety. Parental variables such as parental anxiety, parental modeling of anxiety, parental overprotection, parental stress, and parent/child relationship need to be considered to evaluate the effectiveness of this parent-administered program. Also, including more stringent measures of childhood anxiety (e.g., measures specific to childhood anxiety) would be important to evaluate in future research of the CAT program.

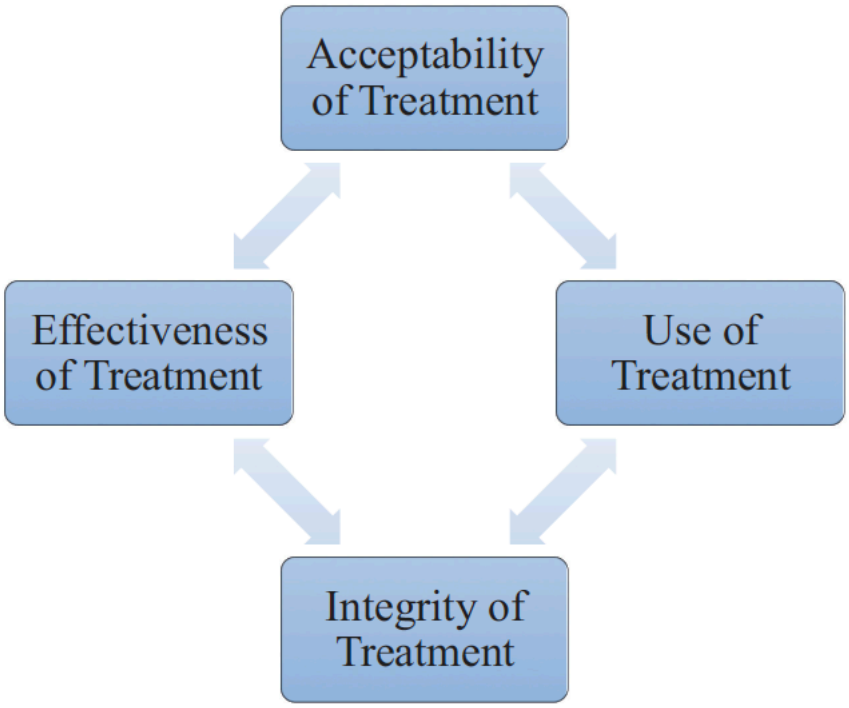
Evaluation of parent-administered treatments

Elgar and McGrath (2003) found that parent administered treatments could have the same level of effectiveness as current EBT's for childhood anxiety disorders (e.g., traditional CBT; Elgar et al., 2003). Additionally, these nontraditional treatment approaches have a higher likelihood of improving the acceptability and treatment fidelity of these programs. Treatment fidelity refers to the strategies that monitor how the intervention is being implemented as planned and treatment acceptability refers to whether an intervention is appropriate for the client and the degree to which it was considered reasonable and feasible by the client (Forman et al., 2013; Villarreal et al., 2015). One of the first models that were created to describe the reciprocal relationship between treatment fidelity, treatment effectiveness, and treatment acceptability was by Witt and Elliott (1985; see Figure 3). This model suggests that benefits of high levels of acceptability including higher treatment fidelity (e.g., treatment fidelity; parents likely to implement the intervention as intended when they perceive the treatment as acceptable). When treatment fidelity is high, the treatment effectiveness (e.g., positive child and parental behavioral outcomes) may be greater. Because of the greater treatment effectiveness, this will create higher

treatment acceptability perceptions by the parent (Eckert & Hintze, 2000). Because of the reciprocity between these variables, it is important to measure treatment fidelity and treatment acceptability when evaluating the effectiveness of parent-administered interventions.

Figure 3.

Reciprocity model of treatment acceptability, fidelity, use, and effectiveness by Witt and Elliott (1985)



Research Questions and Hypothesis

Using a pre- and post-intervention design with two randomized groups, a treatment group (e.g., CAT group) and waitlist control group (e.g., WLC), the purpose of this study was to evaluate the effectiveness, integrity, and acceptability of the CAT treatment program for parents with school-aged children who have elevated symptoms of anxiety. Measures of parental

factors, such as parental anxiety, stress, modeling, overprotection, and parental acceptability of the intervention, and weekly treatment fidelity measures were collected.

During this study, data was collected from parents at pre-intervention, during the 10-week intervention, post-intervention, and at 1-month follow-up. Participants for this study included 11 parents per group. The research questions and hypotheses of this study are described in Table 7. The first research question addressed treatment fidelity of Child Anxiety Tales because of the importance of implementation of the intervention as intended to accurately assess the effectiveness of the intervention. The next research questions addressed parent outcomes, child outcomes, and treatment acceptability.

Treatment Fidelity

Question 1: Can Child Anxiety Tales be implemented with fidelity by parents of children with anxiety during the 10-week intervention?

Previous research studies have found that treatment fidelity in child mental health interventions can affect the outcomes of treatment (Earnes et al., 2009; Saini, 2009). Therefore, it is important that intervention programs have high treatment fidelity to accurately assess the effectiveness of the intervention related to other outcomes. Intervention fidelity for the CAT program is not documented in the literature. Because of how recent this program was created (2015) and how there has only been one study documenting the effectiveness of the CAT program (see Khanna and colleagues (2017)), it was important to understand whether this web-based parent training program can be implemented with fidelity by parents. Furthermore, researchers evaluating other parent-administered CBT treatments (e.g., Cartwright-Hatton et al., 2011; Thineman et al., 2006) have measured treatment fidelity in their studies. Currently, there are no treatment fidelity checklists or documents available for parents who use the CAT program

to make sure that they are going through this program as intended. Therefore, this study created a treatment fidelity checklist that parents completed after each online session. The CAT program addresses many barriers (e.g., transportation, financial, stigma) to treatment because it is an online program and administered by parents. It was hypothesized that parents in the CAT group with the use of a treatment fidelity checklist can implement this intervention as intended at a rate, on average, of 80% or higher.

Primary Outcome Measures: Parent Variables

Question 2: Is Child Anxiety Tales effective in improving parental anxiety and parental modeling of anxious behaviors?

Research studies suggest that there is a strong connection between parental anxiety and childhood anxiety (McLeod et al., 2007; Dierker et al., 2001). Parents that do exhibit symptoms of anxiety will model anxious behaviors in home environments and may have children that exhibit similar symptoms of anxiety (Creswell et al., 2005; Fisak et al., 2007). This is due to the interrelationship between parent and child anxiety (Beidel & Turner, 1997; Biederman et al., 2006). Thus, when parents' symptoms of anxiety diminish, it is hypothesized that the symptoms of anxiety for children will also lower. Lebowitz and colleagues (2019) found that treatment outcomes of their parent-administered intervention for anxiety (SPACE) was a reduction in parental anxiety symptoms and child anxiety symptoms. Creswell and Cartwright-Hatton (2007) suggest that targeting parental anxiety and/or parental behaviors can be beneficial in decreasing child anxiety symptoms. Therefore, because of this connection between parent and child anxiety it is important to not only measure child symptoms of anxiety, but also parent symptoms of anxiety. It was hypothesized that parents who complete the CAT program, will have lower symptoms of anxiety and will exhibit less anxious behaviors. This was assessed by having the

parents complete the Beck Anxiety Inventory (BAI) at pretreatment, posttreatment, and 1-month follow-up.

Question 3: Is Child Anxiety Tales effective in decreasing parental overprotection behaviors?

As discussed above, parental overprotection is one of the parental factors in children's development or maintenance of anxiety symptoms (Moller et al., 2016). Thus, it is important to measure this important parental variable when evaluating the effectiveness of a parent-administered anxiety intervention. A recent evaluation study of an online parent-administered program (e.g., Cool Little Kids Online) found no significant different in overprotective parenting when compared to parents in the control group (Morgan et al., 2017). However, the authors noted that there was a significant reduction in overprotective parenting of parent in the treatment group from baseline to postintervention. The results of a child anxiety intervention with parent involvement found that parenting intrusiveness (e.g., parental control) reduced from baseline to posttreatment (Wood et al., 2009). Silverman and colleagues (2019) found similar results in that their CBT intervention study for children with anxiety with parental involvement where parental psychological control was significantly reduced from pretreatment to posttreatment. Because of the relationship between overprotective behaviors, parental anxiety, and child anxiety, this study hypothesized that when parents complete the CAT program their overprotective behaviors will decrease. This variable was assessed by using and adapting the thirteen overprotective items from the parent bonding instrument (PBI; Parker, 1979).

Question 4: Is Child Anxiety Tales effective in improving parental beliefs about their child's experience of anxiety?

Knowledge about a mental health disorder is one of the first steps in CBT programs and is the first step in empowering parents in being part of their child's anxiety treatment program (Khanna et al., 2017). Throughout the CAT program, especially in the first session, parents are learning more about symptoms of childhood anxiety disorders and evidence-based strategies to treat anxiety disorders in children. Khanna and colleagues (2017) found that parents who were in the CAT program had improved knowledge of anxiety symptoms and treatment compared to the WLC group. Typically, once parents learn more about their child's anxiety, they are able to have a more positive outlook about their child's experience of anxiety (Chorpita, 2002). This study measured parental beliefs of their child's experience of anxiety with the Parental Belief about Anxiety Questionnaire (PBA-Q; Francis & Chorpita, 2010).

Question 5: Is Child Anxiety Tales effective in decreasing parental stress?

Parental stress is one of the main parental behaviors that is considered to be a risk factor in children developing symptoms of psychopathology (Neece et al., 2012). Additionally, parents' psychological symptoms have been related to treatment outcomes for children with clinical symptoms of anxiety, where parents with more elevated symptoms of psychopathology are related to worsened treatment outcomes for children with anxiety (Rapee, 2001; Murray et al., 2009). Parental stress and child psychopathological symptoms have been considered to be a bidirectional relationship where high parental stress leads to elevated children's mental health symptoms and elevated children's mental health symptoms lead to greater parental stress (Neece et al., 2012). However, some researchers have also found no relationship between parenting stress and childhood anxiety (Mash & Johnston, 1990; Victor et al., 2007). Furthermore, research is mixed on the effectiveness of reducing parental stress within CBT childhood anxiety treatments that incorporate parental involvement, where interventions have found significant

reductions in parental stress when compared to baseline parental stress measures (Lyneham & Rapee, 2006; Lebowitz et al., 2019) and other studies have found no significant reduction on parental stress (Waters et al., 2009). Thus, due to the mixed findings on parental stress within parent-administered interventions and because parents directly administered the CAT program and taught the strategies learned from this program to help their child with anxiety, it was important to consider the role of parental stress in this study. This study measured parental stress in pre-, post-, and 1-month follow-up with the Parenting Stress Index, Short Form (PSI-SF; Abidin, 1990).

Question 6: Is Child Anxiety Tales (CAT) effective in improving parent-child interactions?

One of the goals of CBT treatment protocols that incorporate parental involvement is to reduce parent-child relationship conflict (Wei et al., 2014). Therefore, for parent-administered treatments for children's anxiety, it is important to assess parent-child interactions. Silverman and colleagues (2009) found that their CBT intervention for children with anxiety that incorporated parental involvement resulted in a reduction parent-child conflict. Similarly, a research study on the evaluation of an online parent-administered intervention program (e.g., PiP) found that parent-child relationships improved from pretreatment to posttreatment (e.g., less conflict in the home; Yap et al., 2018). In this study, it was hypothesized that parents who completed the CAT program had less conflict in their interactions with their child. This was assessed by the parents completing the negative interactions items from the Negative Relationship Inventory (NRI) in pretreatment, posttreatment, and 1-month follow-up.

Secondary Outcome Measures: Child Variables

Question 7: Is Child Anxiety Tales (CAT) effective in treatment of childhood anxiety symptoms from pretreatment to post-treatment?

It was hypothesized that children with elevated symptoms of anxiety in the CAT group will have statistically significantly lower scores of anxiety symptoms from pre-intervention to post-intervention timepoints compared to the WLC group. Khanna and colleagues (2017) found that parent reports of child anxiety symptoms improved in the CAT group of their group study compared to the bibliotherapy group and the waitlist control group. In a study that measured the effectiveness of Camp Cope-A-Lot, a treatment program using similar principles as CAT, Khanna and Kendall (2010) found that participants who were in the treatment group had improved symptoms of anxiety compared to the waitlist control group. Thus, research studies evaluating the CAT program and other similar program, have found a reduction in child anxiety symptoms (Hirshfeld-Becker et al., 2010; Cartwright-Hatton et al., 2011; Thirlwall et al. 2013). This research question was assessed by using the parent report of the Multidimensional Anxiety Scale for Children, Second Edition (MASC-2; March et al., 1997). A total score of child anxiety was computed to measure treatment effectiveness.

Treatment Acceptability

Question 8: Do parents of children with anxiety find Child Anxiety Tales as an acceptable and feasible treatment program?

Because parent training programs, such as the CAT program, is designed to have parents learn skills and implement those skills to their children exhibiting mental health symptoms, it is important to understand how the parent perceives the treatment program. Treatment acceptability has been found to influence treatment fidelity, which in turn can affect the overall

effectiveness of treatment (Reimers et al., 1987; Eckert & Hintze, 2000). Treatment acceptability has been measured by other anxiety disorder treatment programs (e.g., SPACE) through the use of client satisfaction questionnaires (Lebowitz et al., 2019). In addition, Khanna and colleagues (2017) measured treatment acceptability of the CAT program through use of a questionnaire after each session and found that the treatment program had high acceptability reported by parents. It is hypothesized that in this study parents will find CAT as an acceptable and feasible treatment program. This was assessed through the use of a parent form of the Treatment Evaluation Questionnaire (TEQ-P). Parents that scored the CAT program with an overall score of 110 or higher through the TEQ-P was considered to be high levels of acceptability (Kratochwill et al., 2003).

Table 7.

Research Questions, Hypotheses, and Measures

Research Question	Hypothesis	Measures
Question 1: Can Child Anxiety Tales be implemented with fidelity by parents of children with anxiety during the 10-week intervention?	It was hypothesized that parents can implement Child Anxiety Tales as intended on average at a rate of 80% or higher.	*Intervention Phase:* Treatment fidelity checklist
Question 2: Is Child Anxiety Tales effective in improving parental anxiety and parental modeling of anxious behaviors?	It was hypothesized that parental anxiety will decrease from pretreatment to posttreatment and follow-up and, concurrently, parents will decrease their modeling of anxious behaviors.	*Pre:* Beck Anxiety Inventory (BAI) *Post:* Beck Anxiety Inventory (BAI) *Follow-up:* Beck Anxiety Inventory (BAI)

Table 7. (cont'd)

Question 3: Is Child Anxiety Tales effective in decreasing parental overprotection behaviors?	It was hypothesized that parental overprotection behaviors will decrease from pretreatment to posttreatment and follow-up.	*Pre:* Parent Bonding Instrument (PBI) *Post:* Parent Bonding Instrument (PBI) *Follow-up:* Parent Bonding Instrument (PBI)
Question 4: Is Child Anxiety Tales effective in improving parental beliefs of their child's anxiety?	It was hypothesized that parent's beliefs about their child's anxiety will improve from pretreatment to posttreatment and follow-up for parents in the treatment group.	*Pre:* Parental Belief about Anxiety Questionnaire (PBA-Q) *Post:* Parental Belief about Anxiety Questionnaire (PBA-Q) *Follow-up:* Parental Belief about Anxiety Questionnaire (PBA-Q)
Question 5: Is Child Anxiety Tales effective in decreasing parental stress from pretreatment to 1-month follow-up?	It was hypothesized that parents in the treatment group will have a decrease in parental stress from pretreatment to posttreatment and follow-up	*Pre:* Parenting Stress Index, Third Edition Short Form (PSI-SF) *Post:* Parenting Stress Index, Third Edition Short Form (PSI-SF) *Follow-up:* Parenting Stress Index, Third Edition Short Form (PSI-SF)
Question 6. Is Child Anxiety Tales effective in improving parent-child interactions?	It was hypothesized that parents in the treatment group will have a decrease in parent-child negative interactions from pretreatment to posttreatment and follow-up.	*Pre:* Network Relationship Inventory-Negative Interactions *Post:* Network Relationship Inventory-Negative Interactions *Follow-up:* Network Relationship Inventory-Negative Interactions

Table 7. (cont'd)

Question 7: Is Child Anxiety Tales effective in treatment of parent-ratings of childhood anxiety symptoms from pretreatment to 1-month follow-up?	It was hypothesized that, through parent-rating of their child's symptoms of anxiety, children will have low to slightly elevated symptoms of anxiety (*T*-score =0-64) in posttreatment and follow-up.	*Pre:* Multidimensional Anxiety Scale for Children, Second Edition (MASC-2) *Post:* Multidimensional Anxiety Scale for Children, Second Edition (MASC-2) *Follow-up:* Multidimensional Anxiety Scale for Children, Second Edition (MASC-2)
Question 8: Do parents of children with anxiety find Child Anxiety Tales as an acceptable and feasible treatment program?	It was hypothesized that parents will find Child Anxiety Tales as an effective and acceptable treatment program after completing the intervention at posttreatment.	*Post:* Treatment Evaluation Questionnaire-Parent Form (TEQ-P)

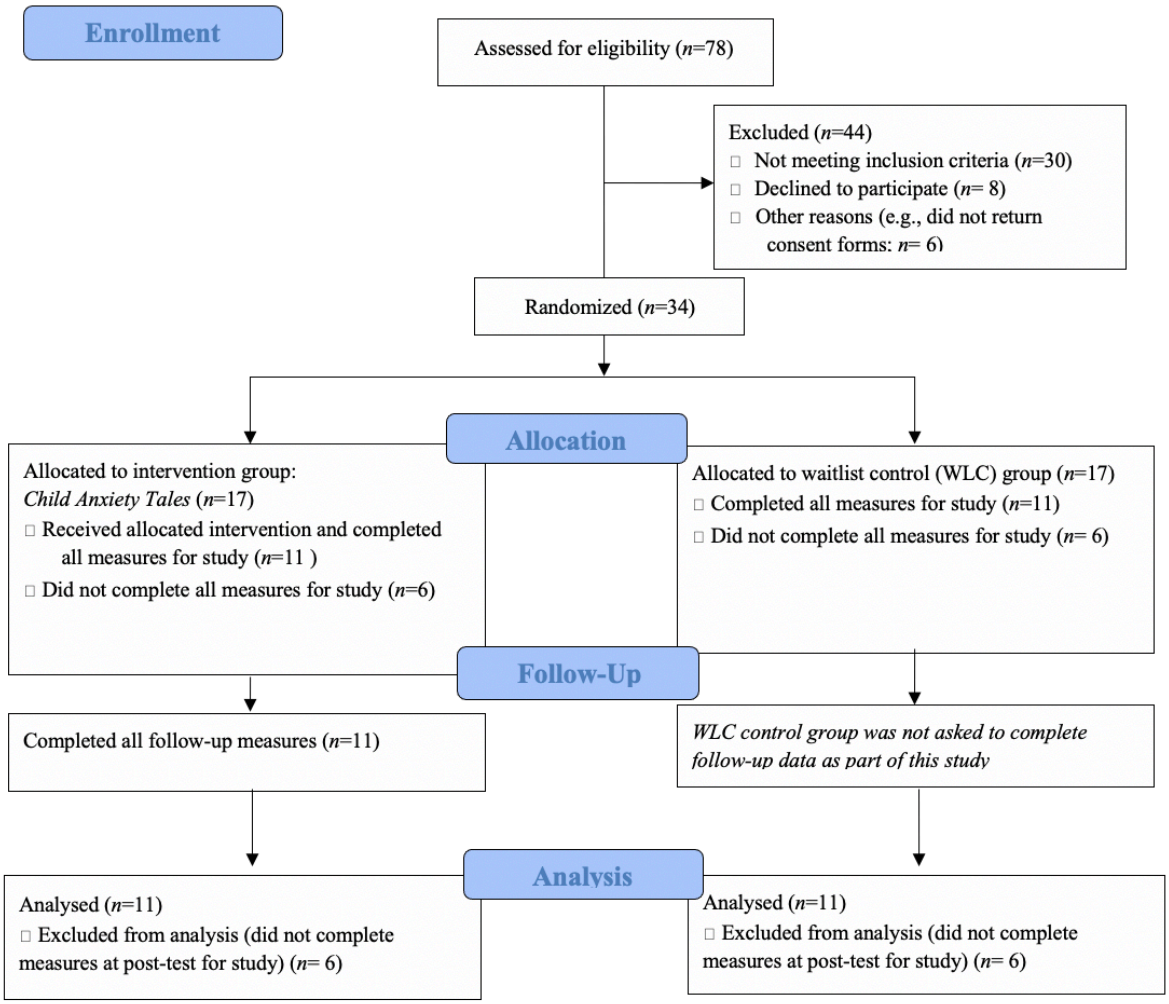
CHAPTER 3

METHODS

Participants

As seen in Figure 4, seventy-eight participants were assessed for eligibility and 44 were excluded from the study due to not meeting inclusion criteria (e.g., BAI scores were lower than 22 and/or MASC-2 scores were lower than 55, their child was not within the age range; *n*=30), declined to participate in the study (*n*=8), or not returning their consent form (*n*=6).

Figure 4. *Participant Enrollment and Allocation*



The 34 parents who agreed to participate in this study were randomly placed into either the intervention group (n=17) or the waitlist control group (WLC; n=17). Unfortunately, six participants from each group failed to complete the intervention in full and were thus did not completing the post-treatment measures. In sum, 22 parents (e.g., 11 in intervention group and 11 in WLC group) were included in the analyses . These 22 parents demonstrated their own symptoms of anxiety and each was parenting a child between the ages of 7 and 13 years old (average age = 10.22 years, SD = 1.88) who was experiencing significant anxiety symptoms too.

Inclusion and exclusion criteria. Eligible participants for this current study included parents of a child between the ages of 7 and 17 years old consistent with the age range recommended by CAT (Khanna & Kendall, 2015). Parents were included in this study if they were English speaking, were able to read/understand English, and had access to a computer with internet. In addition, inclusion criteria included parents who demonstrated moderate symptoms of anxiety (based on total score of Beck Anxiety Inventory, Score of 22 or higher) and who have a child who had at least high average symptoms of anxiety (based on total score in Multidimensional Anxiety Scale for Children, Second Edition, Parent Report; T Score $\geq$ 55). Parents currently receiving treatment for anxiety and/or their child was currently receiving treatment for anxiety were not excluded. This included medication treatments.

Participants excluded from analyses. Twelve participants (6 in CAT group and 6 in WLC group) were excluded from analyses. The participants were excluded from the analyses because they did not complete all measures as part of the study. These parents were all white and female. Additionally, the majority of these parents were from middle to high socioeconomic statuses. The measures collected from pre-intervention did not differ significantly from parents that completed the study. Additional information about those participants excluded

from analyses can be found in the table below. Demographic characteristics of the 22 participants who completed treatment and 12 participants who did not complete treatment are presented in Table 8.

Table 8.

Demographics and Characteristics for Participants who Completed and Did Not Complete the Study

Measure	Intervention Group (Completed)	Intervention Group (Did Not Complete)	Waitlist Control Group (Completed)	Waitlist Control Group (Did Not Complete)	Total (Completed)	Total (Did Not Complete)
n	11	6	11	6	22	12
Demographic Characteristics						
Parent Age: *M* (*SD*)	41.27 (3.46)	39.45 (4.63)	42.91 (4.23)	44.25 (2.67)	42.09 (3.87)	41.85 (3.57)
Female: *n* (%)	9 (81.8)	6 (100.0)	10 (90.9)	6 (100.0)	19 (86.4)	12 (100.0)
Racial Diversity: *n* (%)						
White	9 (81.8)	6 (100.0)	9 (81.8)	6 (100.0)	18 (81.8)	12 (100.0)
Mixed Race	N/A	N/A	1 (9.1)	N/A	1 (9.1)	N/A
Other	2 (18.2)	N/A	1 (9.1)	N/A	3 (13.6)	N/A
Education: *n* (%)						
High School or Less	1 (9.1)	1 (16.6)	N/A	1 (16.6)	1 (4.5)	2 (16.7)
College	8 (72.7)	5 (83.3)	7 (63.6)	4 (66.7)	15 (68.2)	9 (75.0)
Graduate School	2 (18.2)	N/A	4 (36.4)	1 (16.6)	6 (27.3)	1 (8.3)
Household Income *n* (%)						

Table 8. (cont'd)

Less than $50,000	2 (18.2)	1 (16.6)	N/A	N/A	2 (9.1)	1 (8.3)
$50,001-$100,000	7 (63.6)	5 (83.3)	6 (54.5)	4 (66.7)	13 (59.1)	9 (75.0)
Greater than $100,000	2 (18.2)	N/A	5 (45.5)	2 (33.3)	7 (31.8)	2 (16.7)
Parent Measures						
BAI: *M* (*SD*)	26.64 (2.80)	24.27 (3.05)	25.63 (2.87)	26.42 (2.46)	26.14 (2.82)	25.35 (2.79)
PBI: *M* (*SD*)	18.55 (7.84)	17.47 (5.41)	16.72 (6.81)	14.31 (4.68)	17.64 (7.23)	15.89 (5.04)
PSI-SF: *M* (*SD*)	70.91 (6.04)	68.75 (6.24)	67.46 (5.57)	65.36 (5.33)	69.18 (5.94)	67.05 (5.79)
PBA-Q: *M* (*SD*)	28.18 (8.69)	27.18 (7.23)	28.36 (6.39)	25.22 (6.02)	28.27 (7.45)	26.20 (6.63)
NRI: *M* (*SD*)	16.91 (6.56)	16.85 (5.32)	17.27 (7.88)	15.97 (4.91)	17.09 (7.08)	16.41 (5.12)
Child Measures						
MASC-2: *M* (*SD*)	65.00 (5.06)	66.23 (4.12)	63.45 (6.91)	67.59 (5.81)	64.23 (5.97)	66.91 (4.97)

Note. BAI = Beck Anxiety Inventory; PBI = Parent Bonding Instrument; PSI-SF = Parent Stress Index-Short Form; PBA: Parent Beliefs about Anxiety Questionnaire; NRI = Negative Relationship Inventory; MASC-2 = Multidimensional Anxiety Scale for Children, Second Edition

Measures

Treatment Fidelity Checklist. After each session of the intervention, parents completed a treatment fidelity checklist created by the first author (Appendix A) to measure the implementation integrity of this intervention. Because there were no formal treatment fidelity checklists available for Child Anxiety Tales, the fidelity checklist was created to measure if the intervention was completed as intended. There was a total of 4 activities that parents went through and gave a score from 0 (not attempted) to 3 (attempted and successful) after finishing each online session of Child Anxiety Tales. The total score was calculated for the fidelity checklist and a percentage of treatment fidelity was computed.

Parental Anxiety and Parental Modeling of Anxious Behaviors. The Beck Anxiety Inventory (BAI; Beck et al., 1988; see Appendix B) was completed by the parents to assess for their anxiety symptoms at pretreatment, posttreatment, and 1-month follow-up. This measure included 21 items of common symptoms of anxiety (e.g., unable to relax, nervous, hands trembling). The average score for the BAI was computed at pre-treatment, post-treatment, and one-month follow-up. According to scoring guidelines, BAI scores of 36 and higher indicated concerning levels of anxiety, scores of 22 to 35 moderate anxiety, and scores 21 and under low anxiety. Parents rated each item on a Likert scale to assess how each symptom had bothered them during the past month that ranges from 0 (not at all) to 3 (Severely-it bothered me a lot). Many of the anxiety symptoms that parents rate includes symptoms that are exhibited externally (e.g., children may observe these symptoms) such as face flushed, unsteady, hands trembling. Thus, simultaneously, this measure will assess parental modeling of anxious symptoms. The internal consistency has been found to be high (e.g., Cronbach's alpha is 0.92; Beck et al., 1988). In addition, the BAI has good convergent and discriminant validity (Fydrich et al., 1992).

Parental Overprotection. Overprotective behaviors exhibited by parents was measured through an adaptation of the Parent Bonding Instrument (PBI; Parker, Tupling, & Brown, 1979). Thirteen items measuring overprotective behaviors were completed by parents (e.g., I try to control everything my child does; I am overprotective of my child). Parents rated these items on a Likert scale ranging from very unlikely to very likely. Total scores for the PBI were computed for each parent, where higher scores on this measure indicated higher overprotective behaviors. The PBI has good re-test reliability, construct and convergent validity (Borelli & Margolin, 2013).

Parental Beliefs about Anxiety Questionnaire (PBA-Q; Francis & Chorpita, 2012). The PBA-Q is a 17-item parent-report measure that assessed parental belief, such as cognitions, about their child's anxiety. Each item was rated on a Likert scale that ranges from 0 (strongly disagree) to 3 (strongly agree). Examples of items included "If my child gets too nervous, it could be really harmful," "I get very anxious when my child is ill," and "It scares me when my child is nervous." The sum of all items was computed to get a total score. Higher scores for this measure indicated higher levels of parental negative beliefs about their child's experience of anxiety. The PBA-Q has good internal consistency and concurrent validity (Francis & Chorpita, 2010).

Parenting Stress Index-Short Form (PSI-SF; Abidin, 1995). The PSI-SF included 36-items that parents completed. A Total Stress score was computed for this measure. The items were scored using a Likert scale that included 5 different points (e.g. Strongly Agree, Agree, Not Sure, Disagree, Strongly Disagree). A T-Score of 70 or higher is considered to be in the high range. This measure has high internal consistency (.80-.91) and high test-retest reliability (.68 to .85). This measure also has good content and construct validity (Button et al., 2001; Raikes et

al., 2005; Haskett et al., 2006).

Parent-Child Conflict. To assess for parent-child conflict, parents completed a negative interactions short subscale from the Network of Relationship Inventory (Furman & Buhrmester, 1985). This measure included six items (e.g., how much do you and your child get on each other's nerves?). Parents rated each item on a Likert scale that ranges from 1 (a little or not at all) to 5 (more is not possible). The mean of the six items were computed to gather an overall index of negative interactions for each parent. The Negative Relationship Inventory has good internal consistency (Furman & Buhrmester, 1985).

Multidimensional Anxiety Scale for Children (MASC-2; March et al., 1997). The MASC-2 is a parent report measure of anxiety in children and adolescents. It was created for children ages 8 to 19 years old. This measure consists of 50 items that parents completed at pre- and post-intervention phases. A MASC-2 total *T* score was interpreted for analysis in this study. *T* scores for this measure are interpreted as followed: below 40 = low; 40-54 = average; 55-59 = high average; 60-64 = slightly elevated; 65-69 = elevated; 70 and above = very elevated. The internal consistency for the parent report (coefficients between .78 to 89) and test-retest reliability (coefficients between .80 and .94) for this measure is considered to be excellent. This measure also has good convergent validity (Baldwin et al., 2007).

Treatment Acceptability. At posttreatment, all parents in the treatment group completed the *Treatment Evaluation Questionnaire-Parent Form* (TEQ-P; Kelley et al., 1989; Appendix C). Parents completed this form to assess their level of acceptability and the overall feasibility of this intervention. In this measure, parents rated their experiences with this intervention on a Likert Scale from 0 (strongly disagree) to 5 (strongly agree). Scores range from 21 to 126, where higher scores suggested higher levels of treatment acceptability. An

average score was analyzed for parents, where an overall score of 110 or higher suggested high level of parent acceptability of intervention (Kratochwill et al., 2003). Overall, the Treatment Evaluation Inventory (TEI), which the TEQ-P was adapted from has high internal consistency (α = .97) and good construct validity (Newton et al., 2004).

Design

Parents who have symptoms of anxiety and who have a child with anxiety symptoms were included in this study and received the Child Anxiety Tales (CAT) intervention. This study used a pre- and post-intervention design where two groups were randomly assigned to the treatment group (N=11; e.g., CAT) or the waitlist control group (N=11; e.g., WLC). The two-group design was used in order to provide a comparison between the active CAT treatment group implementing the intervention as intended and a comparison group (WLC). The WLC group did not receive any interventions throughout the intervention phase of the study, but received a CBT book online called *Think Good, Feel Good*: *A Cognitive Behaviour Therapy for Children and Young People* (Stallard, 2002). This book included general information about CBT. Data was collected from both groups during the course of the study. When the study ended, the control group was given the intervention, but those results are not discussed as a part of this dissertation project.

This study examined changes in parental anxiety symptoms, parental behaviors, parent knowledge of anxiety, childhood anxiety symptoms, parent acceptability of treatment, and treatment fidelity across a 12-week period from the pre-intervention data collection to the post-intervention data collection timepoints. Data was collected at 1-month follow-up for parents in the treatment group. The intervention phase for the treatment group was conducted over a 10-week period with each week the parent completing a new module. This gave the parent sufficient

time to learn the skills taught in the modules and be able to practice that skill with their child. Parents also had one week pre-intervention and one-week post-intervention to complete measures. This timeline for data collection and intervention implementation is similar to what is recommended by the program developers of this intervention and other interventions (e.g., Coping Cat, Camp Cope-A-Lot; Kendall, 1994; Khanna & Kendall, 2010; Khanna et al., 2017), where each week a new session is conducted. Table 9 provides a visual display of the data collection procedures.

Table 9.

Data Collection Timeline for Parents in the Treatment Group

Phase	**Measures**
Pre-Intervention (1 week)	Beck Anxiety Inventory (BAI)
	Parent Bonding Instrument (PBI)
	Parenting Stress Index, Third Edition Short Form (PSI-SF)
	Parental Beliefs about Anxiety Questionnaire (PBA-Q)
	Network Relationship Inventory-Negative Interactions
	Multidimensional Anxiety Scale for Children, Second Edition (MASC-2)
Data Collection at Midpoint (week 5)	Beck Anxiety Inventory (BAI)
	Parent Bonding Instrument (PBI)
	Parenting Stress Index, Third Edition Short Form (PSI-SF)
	Parental Beliefs about Anxiety Questionnaire (PBA-Q)
	Network Relationship Inventory-Negative Interactions
	Multidimensional Anxiety Scale for Children, Second Edition (MASC-2)

Table 9. (cont'd)

Implementation Phase (10 weeks)	Treatment fidelity checklist- *following each online session completed*
Post-Intervention (1 week)	Beck Anxiety Inventory (BAI)
	Parent Bonding Instrument (PBI)
	Parenting Stress Index, Third Edition Short Form (PSI-SF)
	Parental Beliefs about Anxiety Questionnaire (PBA-Q)
	Network Relationship Inventory-Negative Interactions
	Multidimensional Anxiety Scale for Children, Second Edition (MASC-2)
	Treatment Evaluation Questionnaire-Parent Form (TEQ-P)
Follow Up (1 month after Post-Intervention)	Beck Anxiety Inventory (BAI)
	Parent Bonding Instrument (PBI)
	Parenting Stress Index, Third Edition Short Form (PSI-SF)
	Parental Beliefs about Anxiety Questionnaire (PBA-Q)
	Network Relationship Inventory-Negative Interactions
	Multidimensional Anxiety Scale for Children, Second Edition (MASC-2)

Procedures

After the primary investigator received approval from MSU-IRB, parents were recruited through online methods and through recruitment efforts in clinical (e.g., behavioral clinics) and online settings (e.g., social media; Research Match). Participants in the treatment group agreed to complete data collection measures at pre- and posttreatment along with a 1-month follow-up. Participants in the control group agreed to complete data collection measures at pre- and

posttreatment. Parents signed a written consent form that included purpose of the study, potential risks and benefits from participating in this study, and confidentiality of participating in this study to be able to participate in this study. Child assent was also obtained because the parent interacted with their child each week after learning the strategies from their training module. Because this intervention is fully online, contact with parents was done through email or phone. Parents in this study were provided the intervention, Child Anxiety Tales, at no cost to them. This cost ($125 for 12-month subscription) of this intervention was paid for by the researcher. Additionally, parents in both conditions received a $50 incentive for being part of this research study and completing a series of rating scales/questionnaires at multiple time points throughout the study. The primary researcher checked in with participants via email or phone call with the parents at least every two weeks and was available to the parents if they had any questions or concerns.

Child Anxiety Tales (CAT; Kendall & Khanna, 2015). Parents who were randomly selected to be in the CAT group received an online link where they were able to access the online intervention for 10 weeks. In CAT, parents went through weekly sessions online to learn and apply the new strategies to their child at home. Each session takes approximately 35 minutes for the parent to complete. This program included 10 online training modules, where parents learned more about their child's anxiety and coping strategies that they can utilize to help their child manage their internalizing symptoms. These training modules were interactive and included examples of how parents can assist children when they were exhibiting anxious symptoms. The 10 online training modules that parents completed in Child Anxiety Tales can be classified as part of a specific parental training component in the treatment of childhood anxiety disorders (see Table 10). With one week before and after intervention to complete measures,

parents in the intervention group should have taken about 85 days (e.g., 12 weeks) to complete the CAT intervention and all measures. The average length of time for parents in the CAT group to complete this study was 94.82 days (*SD*=11.24) with a range from 85 to 121 days.

Table 10.

Child Anxiety Tales sessions classification

Session Number	Summary of Session	Type of Parental Training	Aim of Session: parent or parent and child
1	Psychoeducation about anxiety.	Psychoeducation	Parent
2	CBT components for anxiety disorders.	Psychoeducation	Parent
3	Common myths about anxiety.	Psychoeducation	Parent
4	Relaxation training techniques	Cognitive Restructuring	Parent and Child
5	Learning about "FEAR plan."	Cognitive Restructuring	Parent and Child
6	Coping strategies that parent can use when their child is having anxious thoughts.	Parental Modeling of Coping	Parent and Child
7	Discussion of problem-solving strategies that parents can use with their child.	Cognitive Restructuring; Parental Modeling of Coping	Parent and Child
8	Description of how parents can use rewards and consequences.	Contingency Management	Parent and Child
9	How parents can implement exposure tasks with their child	Parental Modeling of Coping	Parent and Child

Table 10. (cont'd)

10	Review of the program and ways that the parent can continue to work with their child.	All parts of Parent Training	Parent and Child

Waitlist Control (WLC). Parents who were randomly selected to be in the WLC group were assessed at pre- and post-intervention timepoints. Between these timepoints were 10 weeks, which was the length of the CAT intervention. During this time, parents were given a CBT book online called, *Think Good, Feel Good*: *A Cognitive Behaviour Therapy for Children and Young People* (Stallard, 2002) that had general information and activities about the process of CBT. When parents completed the measures at the post-intervention timepoint, they were given the online link to use the CAT intervention. Analyses were conducted to assess the outcomes of parents in this group. With one week before and after intervention to complete measures, parents in the WLC group should have taken about 85 days (e.g., 12 weeks) to complete all measures. The average length of time for parents to complete measures in the WLC group was 93.54 days (*SD*=7.48) with a range from 85 to 110 days.

Treatment phases.

Pre-treatment. At pretreatment (Week 1), parents from both the CAT and WLC group completed the Child History Form, BAI, PBI, PSI-SF, PBA-Q, Network Relationship Inventory, and MASC-2. When these measures were completed, the parents in the CAT group were given a username and password that they used to be able to begin the CAT program. The parents in the WLC group were given the *Think Good, Feel Good*: *A Cognitive Behaviour Therapy for Children and Young People* (Stallard, 2002).

Intervention phase. During the intervention phase (Week 2-Week 11), parents who were

in the CAT group condition went through each session of the CAT program at their own speed, however it was recommended that parents completed one session per week. After each session completed, parents sent the treatment fidelity checklist to the primary researcher. Reminders were sent to parents at weeks 8 and 9 to let them know about the upcoming deadline of week 10 where they will need to have completed all sessions. Additional reminders were sent to parents during weeks that they did not complete the treatment fidelity checklist.

Data collection at midpoint. During week 5 of the intervention phase, parents who were in the CAT group condition completed the following measures: BAI, PBI, PSI-SF, PBA-Q, Network Relationship Inventory, and MASC-2.

Post-treatment. At post-treatment (Week 12), parents who were in the CAT group and the WLC group completed the BAI, PBI, PSI-SF, PBA-Q, Network Relationship Inventory, MASC-2, and TEQ-P. Additionally, during post-treatment, parents in the WLC group began the CAT program.

One-month follow-up. One month after the parents in the CAT group completed the program, they completed the following measures: BAI, PBI, PSI-SF, PBA-Q, Network Relationship Inventory, and MASC-2.

Analysis

Treatment Fidelity. Treatment fidelity was analyzed by calculating the percentages from each treatment fidelity checklist completed after each CAT session. The average of the 10 sessions were computed for each parent in the CAT group. The goal for each parent in treatment fidelity was 80%, which Perepletchikova and Kazdin (2005) report as adequate for intervention implementation.

ANCOVA analyses. Research questions 2 through 7 (parent and child outcome

variables) were analyzed using an ANCOVA model with pretest scores being the covariate in the model. For research studies that use a randomized design, the main purpose for use of an ANCOVA for analyses is to reduce the error variance (Dimitrov & Rumrill, 2003). Additionally, use of an ANCOVA analyses for pretest-posttest designs are considered to be a more powerful type of analyses than the use of an ANOVA on gain scores when the regression slope is not equal to 1, which is typical for most research studies (Dimitrov & Rumrill, 2003). Paired sample test analyses were conducted for parents in the intervention group to assess change in different time points including follow-up data analyses with pretreatment as the covariate.

Treatment Acceptability. Treatment acceptability was collected using the TEQ-P scores that each parent in the CAT group completed during the post-treatment time point. Total scores of 110 or higher were considered to be high levels of acceptability for the CAT program (Kratochwill et al., 2013).

CHAPTER 4

RESULTS

Research Question 1: Can Child Anxiety Tales be implemented with fidelity by parents of children with anxiety during the 10-week intervention?

Yes, all parents who completed the CAT intervention (n = 11) had self-reported implementation integrity ratings of over 80%. Parents' average rating across sessions was 97% (range: 93% to 100%), with 9 out of the 11 parents rating their implementation integrity over 95%. Perepletchikova & Kazdin (2005) described that implementation integrity ratings over 80% are considered high.

Research Question 2: Was Child Anxiety Tales effective in improving parental anxiety and parental modeling of anxious behaviors?

Yes, parent anxiety decreased significantly within the CAT group. A one-way ANCOVA was conducted to compare whether Child Anxiety Tales was effective in improving parental anxiety and parental modeling of anxious behaviors (Beck Anxiety Inventory; BAI; Beck, 1988) for parents who completed the intervention while controlling for pretest scores when compared to parents in the WLC group. Levene's test and normality checks were carried out and the assumptions met. There was a significant difference in parental anxiety scores [$F(1,21)=15.718$, $p=0.001$] as measured by the BAI (Beck, 1988) between the intervention group and control group. This is considered between a small and moderate effect size (effect size = .45). When computing the estimated marginal means, the parents in the treatment group had lower parental anxiety scores (mean=20.72) on the BAI (Beck, 1988) compared to parents in the control group (mean=25.73). The mean scores of parents in the CAT group were under 21, demonstrating low

anxiety per measure criteria at the end of the study. The mean scores of parents in the WLC group demonstrated they were still experiencing moderate anxiety levels (scores 22 to 35) at the end of their WLC condition per measure criteria. These results indicate that when controlling for pretest, parents who completed CAT had significantly lower parental anxiety and parental modeling of anxious behaviors when compared to parents in the WLC group. A summary of the ANCOVA data with pretest scores as the covariate can be found in Table 11 below.

Table 11.

Analysis of Covariance for parental anxiety by group

Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
Pretest	5.51	1	5.52	.607	.03
Group	142.98	1	142.98	15.71**	.45
Error	172.84	19	9.09		

*p<.05; **p < 0.01

Additional analyses for the different time points (pretest, mid-test, posttest, and one-month follow-up) were conducted to examine changes across time for parent anxiety within those parents who were randomly assigned and who completed Child Anxiety Tales. The first analyses examined the difference between pretest and mid-test scores. The mean pretest score for parent anxiety was 26.64 (SD = 2.80), while the mean mid-test score was 23.55 (SD=3.36). These data were subjected to the t-test for paired samples, with the results showing a statistically significant decrease in parental anxiety from pretest to mid-test (t = 3.024; n = 11; p = .013). This is considered a large effect size (effect size = .91).

The second analyses examined the difference between the pretest and posttest scores. The mean pretest score for parent anxiety was 26.64 (SD = 2.80), while the mean posttest score was

20.73 (SD=3.47). These data were subjected to the t-test for paired samples, with the results showing a statistically significant decrease in parental anxiety from pretest to posttest (t = 3.928; n = 11; p = .003). This is considered a large effect size (effect size = 1.18).

The third analyses examined the difference between pretest and one month follow-up test scores. The mean pretest score for parent anxiety is 26.64 (SD = 2.80), while the mean follow-up score is 20.27 (SD=3.07). These data were subjected to the t-test for paired samples, with the results showing a statistically significant decrease in parental anxiety from pretest to follow-up (t = 4.835; n = 11; p = <.001). This is considered a large effect size (effect size = 1.45).

The fourth analyses examined the difference between posttest and one month follow-up test scores to examine the maintenance of effects following completion of treatment. The mean posttest score for parent anxiety was 20.73 (SD=3.47), while the mean follow-up scores was 20.27 (SD=3.07). These data were subjected to the t-test for paired samples, with the results not showing a statistically significant difference in parental anxiety from pretest to follow-up (t = 1.000; n = 11; p = .341).

Research Question 3: Was Child Anxiety Tales effective in decreasing parental overprotection behaviors?

Yes, parental overprotection behaviors decreased significantly within the CAT group when compared to the WLC group. However, there was no significant change between pre and posttests time points for parents in the CAT group. A one-way ANCOVA was conducted to compare whether CAT was effective in improving parental overprotection behaviors for parents who completed the intervention while controlling for pretest scores when compared to parents in the WLC group. Levene's test and normality checks were carried out and the assumptions met.

There was a significant difference in parental overprotection behaviors [$F(1,21)=4.536$, $p=0.46$] between the intervention group and control group. This is considered a small effect size (effect size =.19). When computing the estimated marginal means, the parents in the CAT group had lower parental overprotective behavior scores at posttest (mean=15.04) compared to parents in the WLC group (mean=18.45). These results indicate that when controlling for pretest, parents who completed CAT had significantly lower parental overprotective behaviors when compared to parents in the WLC group. A summary of the ANCOVA data with pretest scores as covariate can be found in Table 12 below.

Table 12.

Analysis of Covariance for parental overprotection by group

Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
Pretest	382.56	1	382.56	27.01**	.58
Group	64.24	1	64.24	4.536*	.19
Error	172.84	19	9.09		

*p<.05; **p < 0.01

Additional analyses for the different time points (pretest, mid-test, posttest, and one-month follow-up) were conducted to examine changes across time of parental overprotection within those parents who were randomly assigned and who completed Child Anxiety Tales. The first analyses examined the difference between pretest and mid-test scores. The mean pretest score for parental overprotection was 18.55 (SD=7.84), while the mean mid-test score was 17.91 (SD=6.32). These data were subjected to the t-test for paired samples, with the results not showing a statistically significant change in parental overprotection from pretest to mid-test ($t = 0.726$; $n = 11$; $p > .05$).

The second analyses examined the difference between the pretest and posttest scores. The mean pretest score for parental overprotection was 18.55 (SD=7.84), while the mean posttest score was 15.55 (SD=4.76). These data were subjected to the t-test for paired samples, with the results not showing a statistically significant difference in changes in parental overprotection ratings from pretest to posttest ($t = 1.528$; $n = 11$; $p > .05$).

The third analyses examined the difference between pretest and one month follow-up test scores. The mean pretest score for parental overprotection was 18.55 (SD=7.84), while the mean follow-up score was 14.73 (SD=4.90). These data were subjected to the t-test for paired samples, with the results showing a statistically significant decrease in parental overprotection from pretest to follow-up ($t = 2.233$; $n = 11$; $p = .05$). This is considered a medium effect size (effect size = 0.67).

The fourth analyses examined the difference between posttest and one month follow-up test scores to examine the maintenance of effects following completion of treatment. The mean posttest score for parental overprotection was 15.55 (SD=4.76), while the mean follow-up scores was 14.73 (SD=4.90). These data were subjected to the t-test for paired samples, with the results not showing a statistically significant difference in parental overprotection from posttest to follow-up ($t = 1.437$; $n = 11$; $p = .181$).

Research Question 4: Was Child Anxiety Tales effective in improving parental beliefs about their child's experience of anxiety?

Yes, parental beliefs about their child's experience of anxiety improved significantly within the CAT group. A one-way ANCOVA was conducted to compare whether Child Anxiety Tales was effective in improving parental beliefs about their child's experience of anxiety for

parents who completed the intervention while controlling for pretest scores when compared to parents in the WLC group. Levene's test and normality checks were carried out and the assumptions met. There was a significant difference in parental beliefs about their child's experience of anxiety [$F(1,21)=64.95$, $p<.001$] between the intervention group and control group. This is considered a moderate effect size (effect size =.61). When computing the estimated marginal means, the parents in the treatment group had lower levels of parental negative beliefs about their child's experience of anxiety at posttest (mean=19.07) compared to parents in the control group (mean=27.20). These results indicate that when controlling for pretest, parents who completed Child Anxiety Tales had significantly improved parental beliefs about their child's experience of anxiety when compared to parents in the WLC group. A summary of the ANCOVA data with pretest scores as covariate can be found in Table 13 below.

Table 13.

Analysis of Covariance for parental beliefs about their child's experience of anxiety by group

Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
Pretest	706.49	1	706.49	106.80**	.85
Group	363.57	1	363.57	64.95**	.61
Error	125.69	19	6.61		

*$p<.05$; **$p < 0.01$

Additional analyses for the different time points (pretest, mid-test, posttest, and one-month follow-up) were conducted to examine changes across time for parental negative beliefs about their child's experience of anxiety within those parents who were randomly assigned and who completed Child Anxiety Tales. The first analyses examined the difference between pretest and mid-test scores. The mean pretest score for parental negative beliefs was 28.18 (SD=8.69), while the mean mid-test score was 24.46 (SD=6.90). These data were subjected to the t-test for

paired samples, with the results showing a statistically significant decrease in parental negative beliefs from pretest to mid-test (t = 3.63; *n* = 11; *p*=.005). This is considered a large effect size (effect size = 1.09).

The second analyses conducted examined the difference between the pretest and posttest scores. The mean pretest score for negative parental beliefs was 28.18 (SD=8.69), while the mean posttest score was 19.00 (SD=6.65). These data were subjected to the t-test for paired samples, with the results showing a statistically significant decrease in parental negative beliefs from pretest to posttest (t = 7.980; *n* = 11; *p*<.001). This is considered a large effect size (effect size = 2.40).

The third analyses conducted examined the difference between pretest and one month follow-up test scores. The mean pretest score for parental negative beliefs was 28.18 (SD=8.69), while the mean follow-up score was 16.78 (SD=5.83). These data were subjected to the t-test for paired samples, with the results showing a statistically significant decrease in parental negative beliefs from pretest to follow-up (t = 6.910; *n* = 11; *p* < .001). This is considered a large effect size (effect size = 2.30).

The fourth analyses examined the difference between posttest and one month follow-up test scores to examine the maintenance of effects following completion of treatment. The mean posttest score for parental negative beliefs was 19.00 (SD=6.65), while the mean follow-up scores was 16.78 (SD=5.83). These data were subjected to the t-test for paired samples, with the results not showing a statistically significant difference in parental negative beliefs from pretest to follow-up (t = 2.294; *n* = 11; *p* = .051).

Research Question 5: Was Child Anxiety Tales effective in decreasing parental stress?

Yes, parental stress decreased significantly within the CAT group. A one-way ANCOVA was conducted to compare whether Child Anxiety Tales was effective in decreasing parental stress for parents who completed the intervention while controlling for pretest scores when compared to parents in the WLC group. Levene's test and normality checks were carried out and the assumptions met. There was a significant difference in parental stress [$F(1,21)=26.93$, $p<.001$] between the CAT group and WLC group. This is considered a moderate effect size (effect size =.58). When computing the estimated marginal means, the parents in the CAT group had lower levels of parental stress at posttest (mean T-Score=63.64) compared to parents in the WLC group (mean T-Score=68.81). These results suggest that when controlling for pretest, parents who completed Child Anxiety Tales had significantly lower overall parental stress compared to parents in the WLC group. A summary of the ANCOVA data with pretest scores as covariate can be found in Table 14 below.

Table 14.

Analysis of Covariance for parental stress by group

Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
Pretest	463.40	1	463.40	38.49**	.67
Group	324.27	1	324.27	26.93**	.58
Error	228.78	19	12.04		

*$p<.05$; **$p < 0.01$

Additional analyses for the different time points (pretest, mid-test, posttest, and one-month follow-up) were conducted to examine changes across time for parental stress within those parents who randomly assigned and who completed Child Anxiety Tales. The first analyses

examined the difference between pretest and mid-test scores. The mean pretest T-score for parental stress was 70.91 (SD=6.04), while the mean mid-test T-score was 66.91 (SD=6.02). These data were subjected to the t-test for paired samples, with the results showing a statistically significant decrease in parental stress from pretest to mid-test (t = 4.472; *n* = 11; *p*=.001). This is considered a large effect size (effect size = 1.34).

The second analyses examined the difference between the pretest and posttest scores. The mean pretest T-score for negative parental beliefs was 70.91 (SD=6.04), while the mean posttest T-score was 63.64 (SD=6.55). These data were subjected to the t-test for paired samples, with the results showing a statistically significant decrease in parental stress from pretest to posttest (t = 5.236; *n* = 11; *p*<.001). This is considered a large effect size (effect size = 1.57).

The third analyses examined the difference between pretest and one month follow-up test scores. The mean pretest T-score for parental stress was 70.91 (SD=6.04), while the mean one-month follow-up T-score was 64.27 (SD=7.71). These data were subjected to the t-test for paired samples, with the results showing a statistically significant decrease in parental stress from pretest to follow-up (t = 4.564; *n* = 11; *p*=.001). This is considered a large effect size (effect size = 1.37).

The fourth analyses examined the difference between posttest and one month follow-up test scores to examine the maintenance of effects following completion of treatment. The mean posttest score for parental stress was 63.64 (SD=6.55), while the mean follow-up scores was 64.27 (SD=7.71). These data were subjected to the t-test for paired samples, with the results not showing a statistically significant change in parental stress from posttest to follow-up (t = 1.000; *n* = 11; *p* = .341).

Research Question 6: Was Child Anxiety Tales (CAT) effective in improving parent-child interactions?

No, parent-child interactions did not significantly improve within the CAT group when compared to the WLC group. A one-way ANCOVA was conducted to compare whether Child Anxiety Tales was effective in improving parent-child interactions for parents who completed the intervention while controlling for pretest scores when compared to parents in the WLC group. Levene's test and normality checks were carried out and the assumptions met. There was no significant difference in parent-child interactions [$F(1,21)=3.62$, $p=.072$] between the intervention group and control group. Although there was not a significant difference between the treatment and waitlist control group in negative parent-child interactions, when computing the estimated marginal means the parents in the treatment group had slightly lower levels of negative parent-child interactions at posttest (mean=14.45) compared to parents in the control group (mean=16.27). A summary of the ANCOVA data with pretest scores as covariate can be found in Table 15 below.

Table 15.

Analysis of Covariance for parent-child interactions by group

Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
Pretest	903.74	1	903.74	271.84	.93
Group	12.05	1	12.05	3.62	.16
Error	63.17	19	3.33		

*$p<.05$; **$p < 0.01$

Additional analyses for the different time points (pretest, mid-test, posttest, and one-month follow-up) were conducted to examine changes across time for negative parent-child

interactions within those parents who randomly assigned and who completed Child Anxiety Tales. The first analyses examined the difference between pretest and mid-test scores. The mean pretest score for negative parent child interactions was 16.91 (SD=6.56), while the mean mid-test score was 15.91 (SD=5.94). These data were subjected to the t-test for paired samples, with the results not showing a significant decrease in negative parent child interactions from pretest to mid-test ($t = 1.799$; $n = 11$; $p=.102$).

The second analyses examined the difference between the pretest and posttest scores. The mean pretest score for negative parent child interactions was 16.91 (SD=6.56), while the mean posttest score was 14.46 (SD=6.80). These data were subjected to the t-test for paired samples, with the results showing a statistically significant decrease in negative parent child interactions from pretest to posttest ($t = 4.803$; $n = 11$; $p<.001$). This is considered a large effect size (effect size = 1.44).

The third analyses examined the difference between pretest and one month follow-up test scores. The mean pretest score for negative parent child interactions was 16.91 (SD=6.56), while the mean one-month follow-up score was 15.00 (SD=5.64). These data were subjected to the t-test for paired samples, with the results showing a statistically significant decrease in negative parent child interactions from pretest to one-month follow up ($t = 3.724$; $n = 11$; $p=.004$). This is considered a large effect size (effect size = 1.12).

The fourth analyses examined the difference between posttest and one month follow-up test scores. The mean posttest score for negative parent child interactions was 14.46 (SD=6.80), while the mean follow-up scores was 15.00 (SD=5.64). These data were subjected to the t-test for paired samples, with the results not showing a statistically significant difference in negative parent child interactions from pretest to follow-up ($t = 0.875$; $n = 11$; $p = .402$).

Research Question 7: Was Child Anxiety Tales (CAT) effective in treatment of parent ratings of childhood anxiety symptoms from pretreatment to post-treatment?

Yes, childhood anxiety symptoms decreased significantly within the CAT group. A one-way ANCOVA was conducted to compare whether Child Anxiety Tales was effective in decreasing parent-reported child anxiety symptoms for parents who completed the intervention while controlling for pretest scores when compared to parents in the WLC group. Levene's test and normality checks were carried out and the assumptions met. There was a significant difference in parent ratings of child anxiety [$F(1,21)=28.10$, $p<.001$] between the CAT group and WLC group. This is considered a moderate effect size (effect size =.59). When computing the estimated marginal means, the parents in the treatment group had lower levels of child anxiety at posttest (mean T score=58.36) compared to parents in the control group (mean T score=64.18). These results indicate that when controlling for pretest, parents who completed Child Anxiety Tales program rated their child's anxiety significantly lower when compared to how parents in the WLC group rated their child's anxiety. A summary of the ANCOVA data with pretest scores as covariate can be found in Table 16 below.

Table 16.

Analysis of Covariance for parent ratings of child anxiety by group

Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
Pretest	425.44	1	425.44	45.22**	.70
Group	264.33	1	264.33	28.10**	.59
Error	178.74	19	9.41		

*$p<.05$; **$p < 0.01$

Additional analyses for the different time points (pretest, mid-test, posttest, and one-month follow-up) were conducted to examine changes in parent's ratings of their child's anxiety as Child Anxiety Tales was completed. The first analyses examined the difference between pretest and mid-test scores. The mean pretest T-score for child anxiety was 65.00 (SD=5.06), while the mean mid-test T-score was 63.27 (SD=6.08). These data were subjected to the t-test for paired samples, with the results not showing a significant decrease in child anxiety from pretest to mid-test ($t = 1.647$; $n = 11$; $p=.117$).

The second analyses examined the difference between the pretest and posttest scores. The mean pretest T-score for child anxiety was 65.00 (SD=5.06), while the mean posttest T-score was 58.36 (SD=5.22). These data were subjected to the t-test for paired samples, with the results showing a statistically significant decrease in child anxiety from pretest to posttest ($t = 5.152$; $n = 11$; $p<.001$). This is considered a large effect size (effect size = 1.55).

The third analyses examined the difference between pretest and one month follow-up test scores. The mean pretest T-score for child anxiety was 65.00 (SD=5.06), while the mean one-month follow-up T-score was 59.91 (SD=4.83). These data were subjected to the t-test for paired samples, with the results showing a statistically significant decrease in child anxiety from pretest to one-month follow up ($t = 4.183$; $n = 11$; $p=.002$). This is considered a large effect size (effect size = 1.26).

The fourth analyses examined the difference between posttest and one month follow-up test scores to examine the maintenance of effects following completion of treatment. The mean posttest T-score for child anxiety was 58.36 (SD=5.22), while the mean follow-up T-scores was 59.91 (SD=4.83). These data were subjected to the t-test for paired samples, with the results not showing a statistically significant difference in parental anxiety from pretest to follow-up (t =

1.461; $n = 11$; $p = .092$). Table 17 includes the means and standard deviations of dependent variables at each time point by study condition. Figure 5 illustrates primary and secondary outcome changes over time for participants in the intervention group.

Table 17.

Means and standard deviations of dependent variables at each time point by study condition

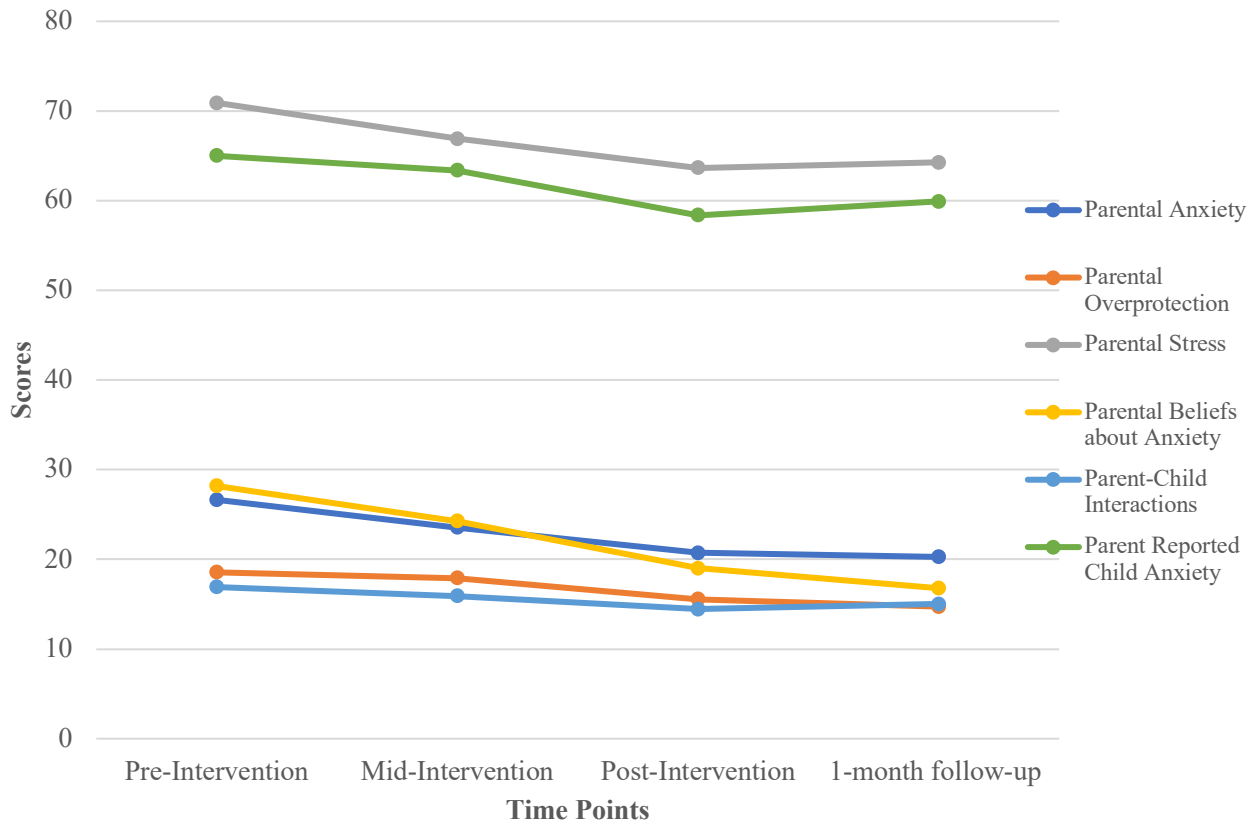
	Pre-intervention		Mid-Intervention		Post-intervention		1-month follow-up	
	CAT	WLC	CAT	WLC	CAT	WLC	CAT	WLC
BAI	26.64 (2.80)	25.63 (2.87)	23.55 (3.36)*	-	20.73 (3.47)*	25.73 (2.41)	20.27 (3.07)*	-
PBI	18.55 (7.84)	16.72 (6.81)	17.91 (6.32)	-	15.55 (4.76)	17.91 (6.52)	14.73 (4.90)*	-
PSI-SF	70.91 (6.04)	67.46 (5.57)	66.91 (6.02)*	-	63.64 (6.55)*	68.81 (5.13)	64.27 (7.71)*	-
PBA-Q	28.18 (8.69)	28.36 (6.39)	24.46 (6.90)*	-	19.00 (6.65)*	27.27 (6.25)	16.78 (5.83)*	-
NRI	16.91 (6.56)	17.27 (7.88)	15.91 (5.94)	-	14.46 (6.80)*	16.27 (7.10)	15.00 (5.64)*	-
MASC-2	65.00 (5.06)	63.45 (6.91)	63.37 (6.08)	-	58.36 (5.22)*	64.18 (5.76)	59.91 (4.83)*	-

Note. CAT = Child Anxiety Tales; WLC = Waitlist control group; BAI = Beck Anxiety Inventory; PBI = Parent Bonding Instrument; PSI-SF = Parent Stress Index-Short Form; PBA: Parent Beliefs about Anxiety Questionnaire; NRI = Negative Relationship Inventory; MASC-2 = Multidimensional Anxiety Scale for Children, Second Edition

* = clinically significant difference between time point and pre-intervention time point scores

Figure 5.

Primary and Secondary Outcome Changes across time for Participants in CAT Group



Research Question 8: Did parents find Child Anxiety Tales as an acceptable and feasible treatment program?

Yes, the average score of acceptability from the TEQ-P (M = 114.09, SD = 6.81) did reach the threshold score (110) for acceptability with the CAT group. The majority of parents (n = 9, 81%) reached or exceeded the threshold score for acceptability (score ranges between 110 to 126). Two parents' acceptability ratings were slightly under the threshold score (scores were 105 and 107). Overall, the majority of parents of children with anxiety did find Child Anxiety Tales to be an acceptable and feasible treatment program.

CHAPTER 5

DISCUSSION

The current study contributes to current literature by investigating the fidelity, effectiveness, and acceptability of an online administered intervention carried out by 11 parents of children with anxiety within a randomized waitlist control design. It is essential to note that the generalization of study findings are limited by both a small sample size and the high level of motivation for change that was likely demonstrated by those who enrolled and completed the intervention and waitlist-control conditions within the study, despite the many challenges that arose for participants during a global pandemic. This study extends on prior research about parent-administered interventions and online administered interventions. Furthermore, this study's results provide additional evidence regarding the important role that parental anxiety has on child anxiety. In addition, this study's results suggest the overall importance of parental participation in treatment, specifically parents with symptoms of anxiety, as being beneficial in reduction of child's anxiety symptoms. Research is well-established to suggest that parent-administered interventions have the potential to have the same level of effectiveness as current EBT's for childhood anxiety disorders and that parental behaviors may influence the maintenance of a child's anxiety symptoms (Ballash et al., 2006; Elgar et al., 2003; Fisak et al., 2012). However, research studies were limited in evaluating the effectiveness of parent-administered interventions for children with anxiety by assessing parental behaviors that may be contributing to their child's anxiety and evaluating parent-administered interventions that are novel and can be easily accessed by parents (e.g., online interventions). This study utilized additional methodological rigor, when compared to previous studies about parent-administered interventions, by thoroughly investigating the acceptability and treatment fidelity of this parent-

administered intervention and measuring the maintenance of treatment gains by assessing parent and child variables at one-month follow-up.

Treatment Fidelity

Treatment fidelity is one of the most important factors to consider when evaluating effectiveness of an intervention. This is due to the strong relationship that has been found between treatment fidelity, treatment effectiveness, and treatment acceptability, where high treatment fidelity is a prerequisite for achieving treatment effectiveness (Witt & Elliott, 1985; Eckert & Hintze, 2000). To ensure that a treatment works, first one must demonstrate that it was implemented as intended. Intervention fidelity for CAT had not previously been examined in the prior study on the CAT program (Kendall et al., 2017). Therefore, a treatment fidelity checklist was created for the purpose of this study by the primary researcher and an average fidelity score was computed for each module of the intervention (10 modules total). In this study, parents reported implementing this online administered intervention with excellent fidelity (ratings of 93% or higher). All parents exceeded what Perepletchikova and Kazdin (2005) noted as adequate adherence (e.g., 80%) to ensure that the treatment was carried out as intended. High treatment fidelity scores in this present study suggests that this web-based parent training can be implemented with fidelity by parents. The high treatment fidelity scores also suggest the ease of use of this online program for parents. Parents reported easily able to go through this intervention with minimal difficulty. These high-fidelity results were similar to high fidelity scores found in other traditional parent-administered research studies (e.g., Thinemann et al., 2006: 92-98% treatment fidelity; Silverman et al., 2019: 100% treatment fidelity). Furthermore, these fidelity scores are considerably higher than other research studies that have assessed fidelity in online-

based parent administered programs (Morgan et al., 2017: 24% treatment fidelity; Yap et al., 2018; 44% treatment fidelity).

Primary Outcome: Parent Variables

This study was the first to measure multiple parental factors when assessing the CAT program. The findings related to the parent variables of this study are very promising, When compared to the waitlist control group (and despite quite low sample sizes in both groups), there were significant differences found for parental anxiety (effect size = .45), parental overprotection (effect size =.19), parent knowledge about their child's anxiety (effect size =.61), and parental stress (effect size =.58). Similar significant reductions in parental overprotection factors have been found in child anxiety interventions with parent involvement (Silverman et al., 2019; Wood et al., 2009). This study also provides additional support for the need to investigate levels of parental stress within parent-administered interventions. The significant reduction of parental stress in this study for parents in the intervention group when compared to the control group suggests that parental stress played an important role in the CAT intervention study. In addition, lowering other parental behaviors such as parental anxiety may have also subsequentially lowered parental stress as well (Wei & Kendall, 2014). Most importantly, the results of this present study found a significant reduction in parental anxiety symptoms when compared to the control group and when compared to pre-intervention parent anxiety symptoms which has also been found in previous child anxiety intervention studies that incorporate parent involvement (Thinemann et al., 2006; Silverman et al., 2009). It is also important to consider that the CAT intervention study had also found significant improvements in parent knowledge of their child's anxiety symptoms (effect size =0.22; Khanna et al., 2017).

There was no significant difference found for negative parent child interactions when compared to the waitlist control group. However, when compared to pretest intervention scores, parents in the CAT group had significantly lower negative parent child interactions at posttest. Therefore, improvements from pre-post test scores were found, but future research is needed to determine if these improvements were due to the parents completing the CAT intervention or if it might take more time for improvements to generalize to broader parent-child interactions. Researchers have found mixed findings on the relationship between family conflict and child anxiety (Silverman et al., 2009; Ginzburg et al., 2018). Many researchers have measured parent-child conflict more objectively by using observational measurements rather than a parent-reported assessment (Ginzburg & Schlossberg, 2002). Therefore, using observational measures across a longer period both during and post-treatment in future research may be beneficial in further understanding the impact of parent-administered interventions on parent-child conflict.

When assessing the effectiveness of a parent-administered intervention, it is important to consider if these parent anxiety and parent behavior variables will continue to have lasting effects after the parents have completed the intervention (Barrett et al., 1998; Baker et al., 2017). As discussed previously, this present study uses rigorous methodology including collecting data from participants who completed the CAT program after a one-month follow-up. The results suggest that there were significant differences in one-month follow up data for all parent variables when compared to pre-intervention scores. These findings indicated that the benefits of the CAT program on parent anxiety and parent anxiety behaviors have lasting short-term effects after parents have completed the program. Khanna and colleagues (2017) found similar gains in their study of the CAT program regarding parental knowledge of anxiety measured at 3-month follow-up.

Secondary Outcome: Child Anxiety

This study found a significant reduction in parent ratings of their child anxiety symptoms for parents in the intervention group when compared to the control group (effect size = 0.59). In addition, these treatment gains were maintained at one-month follow-up for parents in the intervention group. These results were similar to positive results from other parent-administered interventions for child anxiety (Hirshfelt-Becker et al., 2010; Cartwright-Hatton et al., 2011; Thirlwall et al. 2013). The previous CAT intervention study also found a significant reduction in parent-reported child anxiety symptoms (effect size = 0.66; Khanna et al., 2017). These findings are important in truly understanding the effect of this intervention program on child anxiety.

Overall, these parent and child variable outcomes fit well within the previous framework described (Figure 1) that suggest that parent change of anxiety symptoms and parent behaviors ultimately lead to child change of anxiety symptoms (Wei & Kendall, 2014). Researchers have also found that targeting parental behavior variables is beneficial in lowering child anxiety symptoms (Creswell and Cartwright-Hatton, 2007; Lebowitz et al., 2019). Because parental anxiety and behaviors were also significantly reduced after completing this intervention program, these findings further suggest the positive impact of parent-administered interventions on child anxiety and the strong relationship between parent and child anxiety. In addition, parental behaviors such as parental anxiety or stress symptoms and parental knowledge of anxiety symptom were important to address in assessing the effectiveness of child anxiety treatments, such as CAT, especially because these parental behaviors may influence childhood outcomes.

These primary and secondary outcome results provide additional evidence towards the strong relationship between parent anxiety, parent anxiety behaviors, and child anxiety. According to the framework suggested by Wei & Kendall (2014), interventions that target

parental variables (such as the variables assessed in this study) yields positive outcomes in treatment of childhood anxiety. Forehand and colleagues (2013) suggest changes in parental behaviors need to be present to lead to changes in child behaviors. These results indicate that there were positive changes in parental anxiety and behaviors for parents in the treatment group, where parents are the main participants and deliverers of the intervention. Because of these parent behavior changes, parents may be more likely to gain the skills needed from the intervention and then act as a coach and help their child learn skills and knowledge either through direct instruction of the skills or through their own modeling of positive behaviors (Ginsburg et al., 1995; Kendall et al., 2012).

Treatment Acceptability

The results from this present study found that treatment acceptability for the CAT program was high using the 21-item Treatment Evaluation Questionnaire (TEQ) completed by parents at post-intervention (M = 114.09, SD = 6.81). The previous study on the CAT program used an eight-item measure to assess treatment acceptability and also found high treatment acceptability as well (Client Satisfaction Questionnaire; Larson et al., 1979; Khanna et al., 2017). When evaluating intervention programs, it is important to consider the reciprocal relationship between treatment fidelity, effectiveness, and acceptability (Witt & Elliott, 1985; Eckert & Hintze, 2000). Treatment acceptability has been found to influence treatment fidelity, which in turn can affect the overall effectiveness of treatment (Reimers et al., 1987; Eckert & Hintze, 2000). Because the CAT program is designed to have parents learn skills and implement those skills to their children exhibiting mental health symptoms, it was important to understand how the parent perceives the treatment program and whether the CAT program was feasible for the parent to complete. Because this present study also found both high treatment fidelity and high

treatment effectiveness for the CAT intervention program, all three components of evaluating parent-administered interventions were found to be positive. Overall, results suggest that parents in this study found the CAT program to be feasible and appropriate for their needs and additional research on the CAT program is clearly warranted with more diverse samples.

Limitations

This present study is limited by a number of factors including: (a) parent demographics and sample size, (b) attrition rate, (c) parent-report of variables, and (d) barriers to mental health treatment adherence due to challenges associated with the COVID-19 pandemic.

Demographics of participants and sample size. One of the limitations of this study was that the participants represented a homogenous group of parents where the majority of parents in the study were white, had college education or higher, and had a middle to high household income. The parents that completed this intervention were also highly motivated to complete even with all of the challenges they faced during a global pandemic. It is possible that because this is an online intervention program, that parents from middle to high socioeconomic status (SES) were more likely to participate in this intervention because they are likely to have access to a computer and reliable internet access. Although many different recruiting methods were used to recruit participants for this study, it would be important in the future for researchers to further target recruitment methods to participants in diverse areas. This would help truly assess whether online parent administered interventions could be beneficial for diverse populations. Small sample size (N =22) may be another limitation of this study. For studies with smaller sample sizes, the external validity may be limited. Therefore, it is important to consider the degree to which these results can be generalized to the population.

Attrition rate. Another limitation of this study is the attrition rate. A total of twelve (six in CAT group and six in WLC group) participants did not complete the necessary components of this research study and were dropped. Almost one-third of participants (six parents) in the CAT group did not complete the intervention. It may be that many of these participants did not complete this research study because of the stressors related to the global pandemic. However, due to the high attrition rate (33%) and small sample size of this study, additional research studies should be completed to further understand the acceptability and feasibility of this intervention program.

Parent-report of variables. Only parents reporting scores for each parent and child outcome measure in this study may be a limitation of this study. Because parents were administering the intervention program, it is important to consider the parents perspective for each variable assessed. However, it may have been beneficial to gather the child perspective on variables such as child anxiety and parent-child interactions. Parent-reported measures are vulnerable to biases and their reporting may not be accurate (Bennetts et al., 2016). For example, parent-ratings of child anxiety may be limited because parents may only report overt symptoms of anxiety (e.g., crying, shyness) that their child has exhibited. Additionally, in future research studies on parent administered interventions, observational data could be collected for the parent-child conflict variable to further understand this parent variable. It would also be important to assess whether scores gathered were consistent across multiple raters. Overall, future research studies should, ideally, gather information on these parent and child variables from multiple raters and include observational data collection measures.

COVID-19. It is important to note that participants in this study were recruited, began, and completed this intervention study during the coronavirus pandemic (e.g., June 2020

to February 2021). It is possible that this could be a potential limitation for this study because parents were completing the intervention during a novel time of additional outside stressors related to COVID-19. For example, some participants were unable to complete the program due to factors related to COVID-19 including financial stress and health related concerns. Other participants needed extra time to complete sessions and measures because of factors related to COVID-19. Furthermore, parent and child anxiety symptoms may have been increased during this time when compared to parent and child anxiety symptoms not during a global pandemic. Additionally, because parents completed this study during the global pandemic were considered to be highly motivated, it may be difficult to generalize these results to parents of children with anxiety not during a health crisis such as COVID-19. Therefore, it is likely that COVID-19 had an impact on the results and generalizability of this study. Future studies should evaluate the CAT program to assess fidelity, effectiveness, and acceptability during a time outside of a global pandemic.

Implications for Research

This present study had a number of significant findings related to fidelity, effectiveness, and acceptability of the CAT program when implemented for a group of at-risk school-aged children with symptoms of anxiety. Results from this study builds upon the previous research study on the effectiveness of the CAT program and other studies on online based parent administered child anxiety treatment programs to further understand the effectiveness and feasibility of this treatment. This study is only the second study to evaluate the CAT program and is the first research study to evaluate this program assessing multiple parent variable measures and treatment fidelity. This study is also the first research study evaluating CAT by an independent researcher. It is important for researchers to continue to evaluate the CAT program

especially with diverse populations, greater number of participants, and using multiple raters to assess effectiveness of this parent-administered program. Additional research is essential to understand the effectiveness of online parent-administered interventions for children with anxiety. Continued research efforts in assessing effectiveness of these treatment programs using both parent and child variables and using strong methodology is warranted.

Additional research is needed to better understand treatment fidelity for online parent administered treatment programs for children with anxiety. Because treatment programs are online, gathering treatment fidelity data via the technology employed (e.g., time spent in modules, frequency of logins) should be emphasized in future studies. This study gathered treatment fidelity data through the creation of a checklist by the primary researcher due to no prior treatment fidelity checklists provided by the creators of the CAT program. Parents in this study were asked to complete this short checklist after each session that they completed, and results indicated high treatment fidelity scores. Future research studies on online parent administered treatment programs for children with anxiety should continue to evaluate the best way to assess treatment fidelity.

Implications for Practice.

Study results suggest the following implications for those mental health professionals who are working with parents and children with symptoms of anxiety. Clinicians may recommend parents to complete this intervention program or other similar online parent administered intervention programs as a first-tiered approach to treatment of their child's anxiety symptoms. Children with moderate levels of anxiety may benefit from less intensive interventions or treatment for their anxiety. Clinicians can assess if additional and more intensive treatment is needed for their clients after completing a less formal and less intrusive intervention

such as CAT. Clinicians recommending lower tiered interventions for children with moderate levels of anxiety may help clinicians have more time and reduce service waitlists to provide care to children with more severe levels of anxiety that may need more intensive treatments.

The promising results found within this study suggest that using a web-based intervention program may be beneficial especially during times when traditional therapy is not feasible. Traditional therapy may not be feasible for families due to multiple barriers including financial constraints, lack of mental health services in the area, or due to stigma associated with seeking traditional therapy or counseling services (Elgar & McGrath, 2003). Families that live in rural areas or low-income areas may especially benefit from web-based intervention program (Groves et al., 2017). In addition, a web-based intervention program may be the only feasible option during times of health crises when traditional therapy may not be an option, such as during a global pandemic. Therefore, the promising results from this treatment program along with the cost effectiveness (e.g., less than $200) of web-based intervention programs could be a beneficial alternative for parents seeking treatment options for their child with anxiety.

In conclusion, this study used a randomized controlled trial to assess the fidelity, effectiveness, and acceptability of the CAT program, an online parent administered intervention program for children with anxiety. The findings of this study indicated that the CAT program had high fidelity, had promising and/or significant findings for all parent (e.g., anxiety, stress, knowledge of child anxiety, overprotection, negative parent-child interactions) and child variables (e.g., anxiety) assessed, and had high acceptability. These findings add to the prior CAT intervention study findings by assessing the effectiveness of the CAT program on parent variables and having similar findings for parent-reported child anxiety and parent knowledge of child anxiety (Khanna et al., 2017). This study adds to the online parent administered

interventions for children with anxiety literature by providing further evidence of the effectiveness of online parent-administered interventions for children with anxiety. These findings suggest that online programs may be beneficial for children with anxiety who do not benefit from child-only approaches to treatment of anxiety given the role that parents can play in reinforcing or reducing their child's anxiety. Online programs may also be beneficial for children with anxiety who do not have access to traditional forms of treatment especially during a global pandemic. These results may also aid in additional understanding on the importance of some form of parental involvement in interventions for children with symptoms of anxiety.

APPENDICES

Appendix A

Treatment Fidelity Checklist for Child Anxiety Tales

Activity	**Please circle one option that reflects your implementation of the corresponding activity**
1) I turned on computer and logged into Child Anxiety Tales to begin the session	0 (Not attempted) 1 (Attempted but not successful) 2 (Attempted & partially successful) 3(Attempted and successful)
2) I watched *all* videos during the session	0 (Not attempted) 1 (Attempted but not successful) 2 (Attempted & partially successful) 3(Attempted and successful)
3) I read *all* material provided in videos during the session.	0 (Not attempted) 1 (Attempted but not successful) 2 (Attempted & partially successful) 3(Attempted and successful)
4) I understand and used (*if applicable*) the skills taught from the videos with my child.	0 (Not attempted) 1 (Attempted but not successful) 2 (Attempted & partially successful) 3(Attempted and successful)

Appendix B

Beck Anxiety Inventory

(Beck et al., 1988)

Below is a list of common symptoms of anxiety. Please carefully read each item in the list. Indicate how much you have been bothered by that symptom during the past month, including today, by circling the number in the corresponding space in the column next to each symptom.

	Not at all	**Mildly, but it didn't bother me much**	**Moderately – it wasn't pleasant at times**	**Severely – it bothered me a lot**
Numbness or tingling	**0**	**1**	**2**	**3**
Feeling Hot	**0**	**1**	**2**	**3**
Wobbliness in legs	**0**	**1**	**2**	**3**
Unable to relax	**0**	**1**	**2**	**3**
Fear of worst happening	**0**	**1**	**2**	**3**
Dizzy or lightheaded	**0**	**1**	**2**	**3**
Heart pounding/racing	**0**	**1**	**2**	**3**
Unsteady	**0**	**1**	**2**	**3**
Terrified or afraid	**0**	**1**	**2**	**3**
Nervous	**0**	**1**	**2**	**3**
Feeling of choking	**0**	**1**	**2**	**3**
Hands trembling	**0**	**1**	**2**	**3**
Shaky/unsteady	**0**	**1**	**2**	**3**
Fear of losing control	**0**	**1**	**2**	**3**
Difficulty in breathing	**0**	**1**	**2**	**3**
Fear of dying	**0**	**1**	**2**	**3**

Scared	**0**	**1**	**2**	**3**
Indigestion	**0**	**1**	**2**	**3**
Faint/lightheaded	**0**	**1**	**2**	**3**
Face flushed	**0**	**1**	**2**	**3**
Hot/cold sweats	**0**	**1**	**2**	**3**

Appendix C

Treatment Evaluation Questionnaire (TEQ) – *Parent Form*

Please evaluate the intervention by circling the number which best describes your agreement or disagreement with each statement. Please answer each question.

	Strongly Disagree	*Disagree*	*Slightly Disagree*	*Slightly Agree*	*Agree*	*Strongly Agree*
1. This was an acceptable intervention for my child's problem behavior.	**1**	**2**	**3**	**4**	**5**	**6**
2. Most parents would find this intervention appropriate for behavior problems.	**1**	**2**	**3**	**4**	**5**	**6**
3. The intervention was effective in changing my child's problem behavior.	**1**	**2**	**3**	**4**	**5**	**6**
4. I would suggest the use of this intervention to other parents.	**1**	**2**	**3**	**4**	**5**	**6**
5. My child's behavior problem was severe enough to warrant use of this intervention.	**1**	**2**	**3**	**4**	**5**	**6**
6. Most parents would find this intervention suitable for the behavior problem described.	**1**	**2**	**3**	**4**	**5**	**6**
7. The intervention did not result in negative side effects for my child.	**1**	**2**	**3**	**4**	**5**	**6**
8. The intervention would be appropriate for a variety of children.	**1**	**2**	**3**	**4**	**5**	**6**
9. The intervention was a fair way to handle my child's problem behavior.	**1**	**2**	**3**	**4**	**5**	**6**
10. I liked the procedure used in the intervention.	**1**	**2**	**3**	**4**	**5**	**6**
11. The intervention was a good way to handle my child's behavior problem.	**1**	**2**	**3**	**4**	**5**	**6**
12. Overall, the intervention was beneficial for my child.	**1**	**2**	**3**	**4**	**5**	**6**
13. The intervention quickly improved my child's behavior.	**1**	**2**	**3**	**4**	**5**	**6**
14. The intervention produced a lasting improvement in my child's behavior.	**1**	**2**	**3**	**4**	**5**	**6**
15. The intervention improved my child's behavior to the point that it would not noticeably deviate from other children's behavior.	**1**	**2**	**3**	**4**	**5**	**6**

16. Soon after starting the intervention, I noticed a positive change in my child's problem behavior.	**1**	**2**	**3**	**4**	**5**	**6**
17. My child's behavior remained at an improved level even after the intervention was discontinued.	**1**	**2**	**3**	**4**	**5**	**6**
18. Using the intervention not only improved my child's behavior in the home, but also in other settings.	**1**	**2**	**3**	**4**	**5**	**6**
19. When comparing my child with a peer before and after use of the intervention, my child's and peer's behavior was more alike after using the intervention.	**1**	**2**	**3**	**4**	**5**	**6**
20. The intervention produced enough improvement in my child's behavior so the behavior no longer was a problem.	**1**	**2**	**3**	**4**	**5**	**6**
21. Other behaviors related to the problem behavior also were improved by the intervention.	**1**	**2**	**3**	**4**	**5**	**6**

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