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### Authors

Escovar, Emily L  
Drahotka, Amy  
Hitchcock, Carla  
[et al.](#)

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## Vicarious Improvement Among Parents Participating in Child-Focused Cognitive-Behavioral Therapy for Anxiety

Emily L. Escovar, MA<sup>a</sup>, Amy Drahota, PhD<sup>b</sup>, Carla Hitchcock, PhD<sup>c,d</sup>, Bruce F. Chorpita, PhD<sup>e</sup>, Denise A. Chavira, PhD<sup>e</sup>

<sup>a</sup>Clinical Psychology Doctoral Program, Department of Psychology, University of California, Los Angeles, Los Angeles, CA, USA;

<sup>b</sup>Department of Psychology, Michigan State University, East Lansing, MI, USA;

<sup>c</sup>Child and Adolescent Services Research Center, San Diego, CA, USA;

<sup>d</sup>Alexandria Veterans Affairs Health Care System, Pineville, LA, USA;

<sup>e</sup>Department of Psychology, University of California, Los Angeles, Los Angeles, CA, USA

### Abstract

Parental variables likely have important and bidirectional influences on the etiology of child anxiety. Although some child-focused cognitive-behavioral therapy (CCBT) anxiety trials have found vicarious improvements among parents who participated in their children's treatment, this is an understudied area. We hypothesized that parental variables (psychopathology, stress, and burden) will significantly decrease from pre- to post-CCBT and will be associated with child treatment response. We explored whether intervention delivery method—in-person CCBT versus parent-mediated bibliotherapy—influenced vicarious parental improvements. Parental variables decreased from pre- to post-CCBT and were associated with child treatment response. Effects did not interact with delivery method. Parent participation in anxiety CCBT may result in vicarious improvements for parents.

### Keywords

Bibliotherapy; cognitive behavioral therapy; child anxiety; mental health; parental factors

A large body of literature has supported the reciprocal effects between parental variables and child anxiety (Cobham, Dadds, & Spence, 1998; Ginsburg, Silverman, & Kurtines, 1995; Rapee, 2000; Southam-Gerow, Kendall, & Weersing, 2001). It is well established that children of anxious parents are significantly more likely to have an anxiety disorder than children of non-anxious parents (Micco et al., 2009). Also, parental psychopathology, especially parental anxiety, is associated with high levels of child anxiety, which may contribute to the maintenance of anxiety and poor treatment outcomes (Cobham et al., 1998;

**CONTACT** Emily Escovar, MA, emiliescovar@ucla.edu, Department of Psychology, University of California, Los Angeles, 1285 Franz Hall, Los Angeles, CA 90095-1563, USA.

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Ginsburg et al., 1995; Rapee, 2000; Southam-Gerow et al., 2001). Parents of anxious youth may encourage maladaptive patterns of responding to anxiety-provoking situations by modeling anxious behavior (Whaley, Pinto, & Sigman, 1999) or exhibiting certain parenting behaviors such as over-control (Hudson, Doyle, & Gar, 2009; McLeod, Wood, & Weisz, 2007; Rork & Morris, 2009). Although these parenting behaviors are more common in children with anxiety, it is possible that children also influence parenting behaviors (Dumas & LaFreniere, 1993). For instance, mothers of anxious children interact more negatively with their own children than with other anxious children, suggesting that the ability to engage positively is influenced by previous experiences (Dumas & LaFreniere, 1993). In sum, parental variables likely have an important and bidirectional influence on the etiology of child anxiety.

Given the association between parental psychopathology and child anxiety, it follows that studies would implicate parental variables as having an influence on treatment outcomes and the maintenance of treatment gains (Cobham et al., 1998; Ginsburg et al., 1995; Rapee, 2000; Southam-Gerow et al., 2001); however, the studies that have addressed parental variables as a predictor of child treatment response have found mixed results. For instance, there is evidence that parental internalizing symptoms, particularly parental anxiety, negatively influence the likelihood that a child will be diagnosis-free at the end of treatment (Cobham et al., 1998; Southam-Gerow et al., 2001). Parental anxiety may also negatively influence the maintenance of treatment gains after one year (Kendall, Hudson, Gosch, Flannery-Schroeder, & Suveg, 2008). On the other hand, other studies did not find an association between parenting stress and parental anxiety symptoms (Victor, Bernat, Bernstein, & Layne, 2007) or parents' anxiety disorder status (Wood, Piacentini, Southam-Gerow, Chu, & Sigman, 2006) and child treatment outcome.

Given the expected bidirectionality of effects, a handful of studies have examined vicarious parental outcomes among youth participating in randomized controlled trials for anxiety. Vicarious outcomes can be defined as changes to the parents' own symptom levels despite the fact that the treatment is child-focused and does not directly target parental symptoms. Findings suggest improvement among parents of children with anxiety disorders who participate in child-focused cognitive-behavioral therapy (CCBT) programs (Crawford & Manassis, 2001; Keeton et al., 2013; Settapani, O'Neil, Podell, Beidas, & Kendall, 2013; Silverman, Kurtines, Jaccard, & Pina, 2009; Waters, Ford, Wharton, & Cobham, 2009). For instance, Silverman et al. (2009) conducted a CCBT treatment study with a parental involvement condition and a no parental involvement condition. They found similar treatment effects for child as well as parental anxiety regardless of parental involvement. They also found that changes in child anxiety from pretreatment to posttreatment were related to changes in parental anxiety during the same period. The authors concluded that since parents improved, even when they were not involved in the treatment, it is likely parental factors are influenced by improvements in child anxiety. Similarly, findings from the largest study of treatment for child anxiety (Child/Adolescent Anxiety Multimodal study) suggest that parental psychological distress and anxiety, as well as parent-reported family dysfunction, improved for parents of children who were treatment responders, but not for those with children who were not treatment responders; these changes were regardless of

whether the child was in a CCBT, medication, or combined treatment condition (Keeton et al., 2013). Given these findings, we hypothesize the following:

Hypothesis 1: Parental psychopathology, parental stress, and caregiver burden will decrease significantly from pretreatment to posttreatment.

Hypothesis 2: Parental reductions in parental psychopathology, parental stress, and caregiver burden will be associated with child treatment response.

Moreover, specific intervention characteristics may influence the strength of parental outcomes observed. Therefore, in addition to a standard in-person mode of delivery of CCBT, it is important to examine the effects of nontraditional modes of delivery on parent outcomes. This is important given the increase in need for self-directed treatments in communities where barriers to treatment preclude traditional in-person visits. Bibliotherapy interventions have been developed in response to limitations of treatment availability in rural communities (e.g., Lyneham & Rapee, 2006). For example, telephone-based, parent-mediated bibliotherapy requires parents to learn, teach, and practice the cognitive-behavioral therapy (CBT) skills with their children independently and receive support from a therapist by telephone (Lyneham & Rapee, 2006). Past research suggests that parent-mediated bibliotherapy interventions have similar response rates for children as in-person CCBT (Chavira et al., 2014; Leong, Cobham, de Groot, & McDermott, 2009; Lyneham & Rapee, 2006); however, it is important to note that many of these trials were not set up as non-inferiority trials.

The differential impact of mode of delivery on variables such as parental psychopathology, parenting stress, and caregiver burden has not been examined for novel modes of service delivery. The present study expands on a study by Chavira et al. (2014) that examined child treatment outcomes in a primary care sample across two modes of delivery. This study uses the same sample but examines vicarious parental improvement in psychopathology (i.e., anxiety, depression, and somatization), parenting stress, and caregiver burden across the two treatment delivery approaches: in-person, therapist-administered CCBT and parent-mediated bibliotherapy with therapist support via the telephone. Thus, we included an exploratory aim in this study:

Exploratory Aim 1: We will explore whether mode of intervention delivery is associated with a differential reduction in parental psychopathology, parenting stress, or caregiver burden at posttreatment.

Alternative hypotheses can be generated regarding whether or not delivery mode will have a differential impact on vicarious parental improvements in child CBT treatment. Findings from the learning literature potentially support the hypothesis that parents may exhibit more improvement in the telephone-based, parent-mediated bibliotherapy condition than in the in-person condition. For instance, individuals who know they are about to teach material will more effectively organize and recall information than individuals who are not told that they will have to teach the material (Nestojko, Bui, Kornell, & Bjork, 2014). It is possible that parents in the parent-mediated telephone condition, who know they will need to teach the material to their children, will be more highly motivated to learn the material; thus, we may expect vicarious benefits in the form of symptom reduction for these parents.

On the other hand, previous literature on bibliotherapy does not support differences between telephone-based bibliotherapy and in-person CBT for child symptom outcomes (Chavira et al., 2014; Leong et al., 2009). In addition, findings from in-person CBT treatments suggest similar vicarious improvement regardless of parental level of involvement (Silverman et al., 2009). Given the exploratory nature of this work, we do not offer a hypothesis about the differential parental outcomes by delivery mode.

## Methods

### Participants

A total of 62 children (aged 8 to 13 years) with anxiety disorders and their mothers were recruited from three primary care clinics (for a full description, please see Chavira et al., 2014). Informed consent was obtained and all procedures were approved by the appropriate institutional review boards.

Children were eligible to participate if they had a primary diagnosis of specific phobia, generalized anxiety, social anxiety, separation anxiety, or obsessive-compulsive disorder based on the Anxiety Disorders Interview Schedule for *DSM-IV*: Child and Parent Versions (ADIS-C/P; Silverman & Albano, 1996). Comorbid conditions such as depression, attention-deficit/hyperactivity disorder (ADHD), oppositional defiant disorder, and high-functioning autism were permitted provided they were not the child's primary presenting problem at the time of pretreatment assessment. Children receiving psychotropic medication were also included to maximize generalizability to usual care populations. However, medication dose was required to remain stable for the duration of participation in the study. Fourteen families were excluded for not having a primary presenting diagnosis of one of the above anxiety disorders or obsessive-compulsive disorder. The 48 remaining eligible families were randomized to a condition using a computerized random number generator. Twenty-four children participated in the in-person CCBT condition, and twenty-four children participated in the telephone-based, parent-mediated condition.

The final sample consisted of 48 children (27 female; mean age = 9.63,  $SD = 1.66$ ) and their parents (48 female; mean age = 42.00,  $SD = 4.31$ ). In addition, 72.9% of the children were Caucasian, 10.4% were Latino, and 16.7% identified as being from multiple ethnic/racial groups. There were no differences on any demographic or clinical variables between the telephone and in-person conditions at pretreatment (for a full description, including the distribution of primary anxiety disorders and comorbid conditions, please see Chavira et al., 2014).

### Treatment conditions

All participants received either in-person CCBT delivered at their primary care clinic (i.e., The Cool Kids Program; Lyneham & Rapee, 2006; Rapee, Abbott, & Lyneham, 2006) or CCBT delivered using a parent-mediated, bibliotherapy format with therapist support via telephone (i.e., The Cool Kids Outreach Program; Lyneham & Rapee, 2006). Parent and child workbooks have been developed to facilitate the delivery of the program (see *Helping Your Anxious Child, 2nd edition*; Rapee, Wignall, Spence, Cobham, & Lyneham, 2008).

### **The Cool Kids Program (in-person CCBT)**

The Cool Kids program consisted of 10 weekly sessions of CBT principles. These principles include changing unhelpful thoughts (cognitive restructuring), fear exposure hierarchies (gradual exposure), problem solving, assertiveness skills, and relaxation techniques. Parents were typically present for the first and last 10 minutes of the session. Each session lasted approximately 60 to 90 minutes, with the first eight sessions occurring weekly and the last two sessions biweekly. Treatment duration was approximately three to four months.

### **The Cool Kids Outreach Program (parent-mediated bibliotherapy)**

The Cool Kids Outreach Program was designed to include the same principles as the in-person Cool Kids Program, but in a telephone-based, parent-mediated format that is able to address potential barriers to service use and enable greater access to treatment. The outreach program was also designed to match the in-person version in frequency of treatment and duration (10 sessions over three to four months). Rather than coming to a primary care clinic for sessions, the families received parent and child workbooks, based on the book *Helping Your Anxious Child, 2nd Edition* (Rapee et al., 2008). Each week parents were directed to read a chapter related to an anxiety CBT skill and complete activities designed to help the parent apply what they learned to their child's anxiety. The child workbook also had worksheets and activities for the child to complete each week with or without the parent. In addition to using the workbooks, parents were assisted by telephone sessions with a therapist, typically lasting 30 to 45 minutes. These sessions occurred exclusively with the parents and involved a review of the previous week as well as clarification of concepts by the therapist.

### **Procedure**

All parent-child dyads enrolled in the study completed assessments at pretreatment, midtreatment, posttreatment, and three-month follow-up (for a full description of procedure and training, see Chavira et al., 2014). Assessments consisted of questionnaires as well as a clinical interview by an independent evaluator who was blind to treatment condition. Data from the pretreatment and posttreatment assessments were utilized in this study.

### **Measures**

**ADIS-C/P**—ADIS-C/P interviews from pretreatment and posttreatment were used to indicate diagnostic status of a child's anxiety disorder (Silverman & Albano, 1996). The ADIS-C/P are semi-structured interviews that assess child anxiety, depressive, and behavioral disorders according to DSM-IV criteria. There are interview versions for both the parent and child. Clinicians gave a clinical severity rating (CSR) for potential disorders. Three clinicians were trained and established an 80% agreement rate on severity ratings (for further information regarding the establishment of reliability and training of clinicians, please see Chavira et al., 2014). CSRs range from zero to eight. A severity rating of four was required for a clinical diagnosis. Remission from a disorder was defined as a CSR rating of less than or equal to three for the primary anxiety disorder based on both the parent and child ADIS.

**Brief Symptom Inventory-18 (BSI-18)**—The BSI-18 is an abbreviated (18-item) version of the Symptom Checklist-90-Revised (Derogatis, 2001) that was used to measure parental psychopathology. Respondents rated each of the BSI-18 items on a five-point Likert scale according to how distressed they have felt during the past seven days. The BSI-18 has three symptom subscales of six items each, in addition to a Global Severity Index (GSI), which is the summation of these subscales. The three subscales measure somatization (distress caused by the perception of bodily dysfunction), depression (symptoms of dysphoric mood reflecting self-deprecation, anhedonia, loss of hope, and suicidal ideation), and anxiety (symptoms of nervousness, tension, motor restlessness, apprehension, and panic states). The BSI-18 has internal consistency reliabilities ranging from .74 to .90 (Derogatis, 2001). Cronbach’s alphas in the current sample were .70 for the anxiety subscale, .78 for the depression subscale, and .63 for the somatization subscale at pretreatment.

**Parenting Stress Index, Short Form (PSI-SF)**—The PSI-SF was adapted from the PSI full-length questionnaire (Abidin, 1995). The PSI-SF consists of three subscales with 12 items each: Parental Distress (PD), Parent–Child Dysfunctional Interaction (PCDI), and Difficult Child (DC). Parents rate the 36 items on a five-point scale ranging from “strongly disagree” to “strongly agree.” The PD subscale measures distress a parent feels due to personal factors related to parenting, including lack of social support (e.g., “I feel alone and without friends”). The PCDI subscale measures whether the parent considers interactions with the child as reinforcing or satisfying (e.g., “My child rarely does things for me that make me feel good”). The DC subscale assesses characteristics of the child’s defiant or temperamental behavior (e.g., “My child seems to cry or fuss more often than most children”). The measure has internal reliability coefficients of .80 to .87 for the three subscales (Abidin 1995). Cronbach’s alphas in the current sample were .95 for the total score, .86 for the PD subscale, .92 for the PCDI subscale, and .91 for the DC subscale at pretreatment.

**Child Anxiety Life Interference Scale (CALIS)**—The parent-report CALIS was utilized to measure caregiver burden, which is an indicator of a type of parenting stress specific to caring for a child with an anxiety disorder (Lyneham et al., 2013). For the current study, only the CALIS–Parent Life subscale was utilized. The Parent Life subscale consists of the prompt “How much do your child’s fears and worries interfere with your everyday life in the following areas?” and then lists nine items, such as “your relationship with your partner or a potential partner” and “your ability to go out to activities/events without your child.” Parents respond on a five-point Likert scale with higher scores indicating greater caregiver burden. The CALIS has good internal consistency (Cronbach’s alphas .88-.90) and moderate to high test-retest reliability and is sensitive to treatment change (Lyneham et al., 2013). Cronbach’s alpha for the pretreatment Parent Life subscale in the current sample was .77.

### Statistical analyses

Missing data were handled using the multivariate imputation algorithm in SAS assuming missing data at random. Fifty imputed data sets were generated, and analyses were performed on each imputed data set. These analyses were combined in SAS using Rubin’s



guidelines, which account for the uncertainty associated with imputed values. For hypothesis 1, a series of two-way mixed analyses of variance (ANOVAs) using Proc Mixed in SAS were conducted to examine whether there were significant differences between pretreatment and posttreatment scores on measures of parental psychopathology, parental stress, and caregiver burden. In order to examine the exploratory aim of differences in parent outcomes by treatment condition, condition and a condition  $\times$  time interaction were included in these models.

For hypothesis 2, regressions using Proc Reg in SAS were used to assess whether improvements in parental outcomes were associated with child treatment responder status, as measured by the ADIS-C/P. Each model included treatment condition, responder status, a condition  $\times$  responder status interaction term, pretreatment scores for each of the dependent variables (i.e., the BSI-18, PSI, and CALIS), age, and gender.

## Results

### Descriptive analyses

Seven of the forty-eight families terminated treatment due to scheduling conflicts ( $n = 3$ ), child noncompliance (e.g., child refusing to do exercises or come to in-person sessions;  $n = 2$ ), child improvement ( $n = 1$ ), or initiation of a new dosage of ADHD medication ( $n = 1$ ). Families withdrew from both the in-person condition ( $n = 3$ ) and the telephone condition ( $n = 4$ ). The remaining 41 parent–child dyads completed all 10 sessions of the Cool Kids Programs.

Responder status was defined as remission of the primary anxiety disorder (i.e., CSR of less than or equal to three for the primary anxiety disorder of both the parent and child ADIS-C/P). A total of 33 (68.75%) participants were classified as responders. A chi-square test of independence was performed to examine the relation between condition (in-person vs. telephone, parent-mediated bibliotherapy) and responder status. No significant differences were found,  $\chi^2(1, n = 41) = .75, p = .39$ .

### Pre-/posttreatment and condition differences: Reduction in parental psychopathology, stress, and burden

A series of two-way mixed ANOVAs were conducted to determine whether parental psychopathology, parenting stress, and caregiver burden decreased significantly from pretreatment to posttreatment or differed by condition. Condition, time, and a condition  $\times$  time interaction were included in the models. Table 1 contains the statistics for each ANOVA. There was a significant reduction in parental anxiety, parental depression, parenting stress, and caregiver burden from pretreatment to posttreatment. The reduction in parental somatization from pretreatment to posttreatment was not significant. The proportion of variance accounted for by time ranged from .057 to .095 for the BSI-18 subscales, .050 to .151 for the PSI subscales, and .044 for the CALIS Parent Life subscale.

There was no effect of condition and no interaction for any of the parental outcome variables. Condition explained less than 1% of the total variance in each of the parental outcome variables (Table 1).



## Effects of child responder status on parental outcomes

Regressions were conducted in order to test the hypothesis that outcomes of parental variables were related to child treatment responder status in each condition. Each model included treatment condition, responder status, a condition  $\times$  responder status interaction term, pretreatment scores for each of the dependent variables, age, and gender. Responder status and treatment condition did not significantly predict the posttreatment GSI of the BSI. Given that the intervention specifically targeted anxiety, rather than depression or somatization, the subscales were examined separately. Child treatment responder status was associated with parental anxiety at posttreatment, as measured by the BSI (Table 2). Parents of children who were responders (i.e., children without a primary anxiety diagnosis at posttreatment) had lower anxiety scores ( $M = 1.34$ ,  $SE = 0.28$ ) than parents of children who were not responders (i.e., children who still had a primary anxiety diagnosis at posttreatment;  $M = 2.62$ ,  $SE = 0.60$ ). Child responder status was not significantly associated with parental depressive or somatic symptoms as measured by the BSI. The proportion of variance explained by responder status ranged from .306 to .345 for the BSI subscales. Condition and the condition  $\times$  responder status interaction were not significantly associated with any of the BSI subscales.

Responder status, treatment condition, and the interaction were not associated with any of the subscales or the total score of the PSI-SF; however, responder status was associated with the CALIS Parent Life subscale, a measure of caregiver burden that is specific to stressors related to child anxiety (Table 2). Parents of children who were treatment responders had CALIS Parent Life scores that were significantly lower ( $M = 2.55$ ,  $SE = .55$ ) than those parents of children who were not responders ( $M = 6.95$ ,  $SE = 1.17$ ). The proportion of variance explained by responder status was .384 for the CALIS Parent Life subscale. Condition and the condition  $\times$  responder status interaction did not significantly predict the CALIS Parent Life scores.

## Discussion

The present study examined the vicarious effects of a child-focused anxiety treatment on parental psychological well-being across two different modes of treatment delivery. It was hypothesized that parental outcomes, including psychopathology, parenting stress, and caregiver burden, would improve from pretreatment to posttreatment and that these improvements would be associated with child treatment outcome. An exploratory aim of the study was to determine whether mode of intervention delivery is associated with a differential reduction in parental psychopathology, parenting stress, or caregiver burden at posttreatment.

Parents of children who were responders to the intervention had lower parental anxiety and caregiver burden scores at the end of treatment than parents of children who were not responders, regardless of the treatment condition; however, they were not better off on other aspects of parental functioning, suggesting only partial support for this hypothesis. These findings are consistent with previous research indicating that child-focused treatment has vicarious effects on parental mental health, including anxiety reduction. These findings have implications for understanding the effects of a child-focused CBT program beyond short-

term symptom improvement. The reduction of parental anxiety symptoms may facilitate long-term treatment gains for children by interrupting the maladaptive cycle between parent and child anxiety. Existing literature indicates that the lack of parental anxiety is associated with treatment gains that are still present after a one-year follow-up (Kendall et al., 2008). More longitudinal research investigating the role of parental factors in the maintenance of child treatment gains is needed. At present, no claims can be made about the directionality of the effect. These associations may be bidirectional; reciprocity between child and parent anxiety has been supported in previous studies (Hudson et al., 2009; Southam-Gerow et al., 2001).

It is noteworthy that the only parental variables that were significantly related to child outcome were those variables associated with anxiety (i.e., parental anxiety and burden centered on having a child with an anxiety disorder). This suggests that the relationship between the reduction of child anxiety symptoms and parental well-being may be domain-specific. That is, the present study did not generalize to other aspects of familial well-being such as parental depression and parenting stress.

Although the families were not recruited on the basis of psychopathology in the parents, many parents did have clinically meaningful levels of distress upon entering the study. On the BSI GSI, previous studies have used a cutoff of  $T_{GSI} = 57$  to identify individuals as significantly distressed (e.g., Zabora et al., 2001). Using this cutoff, seven parents (14.6%) at pretreatment and one parent (2.1%) at posttreatment identified as significantly distressed. For the anxiety subscale, 14 parents (29.2%) at pretreatment and 2 (4.2%) parents at posttreatment had a T-score  $\geq 57$ . Although a majority of parents did not express symptoms in the clinical range at pretreatment, anxiety decreased in a clinically significant manner for those parents who did have clinically significant symptoms.

The decrease of parental depression and parenting stress over the course of treatment regardless of child treatment response may indicate a non-targeted success of CCBT. It is possible that the mere participation and support that occurs in the context of therapy, regardless of whether a child demonstrates significant clinical gains, enables improvement in parent functioning. Unfortunately, the lack of a control group limits our ability to conclude that these reductions were associated with the intervention itself. It is also possible that reductions in parental depression and parenting stress may have been due to time or expectancy effects that come with participating in a treatment study.

As hypothesized, no significant differences between the modes of delivery were found for any of the parent variables. None of the interactions were significant, suggesting that the association between responder status and parental variables did not depend on treatment condition. Overall, parents in both conditions demonstrated reductions in anxiety, depression, parenting stress, and caregiver burden from pretreatment to posttreatment. It is important to note that the treatment conditions did not only differ on mode of service delivery (in-person vs. telephone) but on level of parental involvement (therapist-delivered vs. parent-mediated). The finding of no differences between conditions, regardless of level of parental involvement, is consistent with previous literature (e.g., Silverman et al., 2009).

Limitations of the present study include that the parental variables—psychopathology, parenting stress, and caregiver burden—were all operationalized with self-report measures, which may influence the internal validity of the results. Social desirability to show improvement may bias or distort parent reports of symptom levels. Future research examining parental variables may include clinician-administered assessments of parental psychological variables. In addition, results of the present study may have been limited by the small sample size ( $N = 48$ ). It is possible that the relationship between child treatment response and parental depression, somatization, and parenting stress were not detected due to the small sample size. As shown in Table 1, the effect sizes for the nonsignificant differences between condition on each of the parental outcome variables are small (Cohen, 1988). It is also important to note, however, that medium to large effect sizes were found for the effect of responder status and a responder status by condition interaction (Table 2), suggesting that the study may be underpowered to detect the effect of child responder status on parenting stress, parental somatization, and parental depression.

Another limitation of the study is that the version of the ADIS-C/P used includes DSM-IV-TR, rather than DSM-5, guidelines. The diagnostic changes are not hypothesized to influence the results of the present study; however, further research with updated diagnostic criteria is needed. Last, the present study was limited in the generalizability of the findings to families of differing races, ethnicities, or socioeconomic conditions. Participants were predominantly Caucasian (72.9%) and the majority of parents were college-educated (64.6%). Although the study included participants who were Latino or multiethnic, there was not a sufficient sample size to be able to make cross-ethnic comparisons.

These findings provide further support for the dynamic relationship between child and parent anxiety as well as the efficacy of child-focused behavioral interventions for not just child anxiety but parental anxiety. The finding that parental psychological distress variables are reduced regardless of the mode of delivery of the intervention has favorable implications for disseminating therapies to families who face barriers to treatment access. Future research may also involve broader family functioning factors in relation to child anxiety. Variables such as family cohesion and family conflict may be reciprocally associated with child anxiety (Crawford & Manassis, 2001; Hudson et al., 2009; Silverman et al., 2009). It would be interesting to examine the relationship between these variables and child treatment outcome using alternative modes of treatment delivery.

## Conclusion

The present study provides some evidence for vicarious, beneficial effects on parental psychological well-being for two modes of CBT delivery for children with anxiety disorders. The association between child improvement during treatment and improvements in parental well-being was limited to parental anxiety and caregiver burden. These effects were consistent regardless of whether the treatment was delivered in-person or through a parent-mediated bibliotherapy program. Reducing parental anxiety and burden may have important effects on the maintenance of therapeutic outcomes for children with anxiety. While hypotheses were partially supported, additional research with larger sample sizes and

longitudinal designs is necessary to fully understand the impact of child mental health interventions on parental mental health functioning and well-being.

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**Table 1.**

Mixed factorial analyses of variance on parental outcomes.

	Omnibus Test		Condition			Time			Condition × Time					
	<i>F</i>	<i>p</i>	$\beta$	<i>t</i>	<i>p</i>	$\eta^2$	$\beta$	<i>t</i>	<i>p</i>	$\eta^2$	$\beta$	<i>t</i>	<i>P</i>	$\eta^2$
BSI GSI	5.27	.001	-.73	-.47	.640	.004	-3.30	-2.43	.019	.043	-.83	-.43	.672	.067
BSI Som	1.67	.171	.61	-1.07	.291	.006	-0.58	-1.09	.282	.086	-0.13	-.17	.868	.122
BSI Dep	3.33	.02	-.32	-0.48	.631	.005	-3.03	3.31	.002	.057	-.48	-.59	.560	.074
BSI Anx	3.96	.008	.18	.23	.817	.009	-1.77	-2.35	.024	.095	-0.24	-0.21	.831	.171
PSI Total	2.59	.051	-5.92	-.86	.394	.002	-8.76	-1.69	.049	.141	.97	.15	.879	.147
PSI PD	4.80	.002	-1.55	-0.73	.467	.007	-3.68	-2.68	.011	.072	0.13	.07	.947	.093
PSI DC	3.47	.015	-2.51	-0.88	.381	.002	-4.18	-2.20	.034	.151	.260	.10	.922	.129
PSI DI	1.06	.365	-1.85	-.72	.477	.003	-3.17	-1.74	.044	.050	2.72	1.09	.283	.075
CALIS PL	37.96	<.001	-1.17	-.84	.404	.006	-9.05	-7.95	<.001	.044	0.94	.58	.566	.067

Parental outcomes included the Brief Symptom Inventory Global Severity Index (BSI GSI); the BSI Somatization (BSI Som), Depression (BSI Dep), and Anxiety (BSI Anx) subscales; the Parenting Stress Index (PSI) total score; the PSI Parental Distress (PSI PD), PSI Difficult Child (PSI DC), and PSI Dysfunctional Interaction (PSI DI) subscales; and the Child Anxiety Life Interference Scale Parent Life Subscale (CALIS PL).

**Table 2.**

Regression analyses on each parental outcome.

	Condition				Responder Status				Condition × Responder Status			
	$\beta$	<i>t</i>	<i>p</i>	$\eta^2$	$\beta$	<i>t</i>	<i>p</i>	$\eta^2$	$\beta$	<i>t</i>	<i>p</i>	$\eta^2$
BSI GSI	−2.10	−1.38	.167	.154	−.77	−.29	.771	.375	2.79	.80	.424	.221
BSI Som	−.81	−1.06	.288	.198	−.76	1.33	−.57	.335	1.05	.57	.568	.301
BSI Dep	−.77	−1.28	.202	.202	−.55	−.45	.653	.345	.39	.27	.742	.361
BSI Anx	−.28	−.35	.726	.287	1.78	1.99	.026	.306	.79	.39	.699	.265
PSI Total	−2.75	−.42	.673	.160	3.90	.29	.772	.335	7.66	.47	.637	.358
PSI PD	−1.16	−.60	.54	.149	3.33	.90	.371	.302	.54	.12	.907	.301
PSI DC	−.91	−.34	.736	.196	3.54	.67	.506	.312	.26	.04	.968	.367
PSI DI	.989	.41	.684	.108	.43	.07	.940	.399	4.36	.68	.497	.388
CALIS PL	−.01	−.01	.991	.148	4.31	−1.69	.045	.384	−1.74	−.59	.560	.233

Parental outcomes included the Brief Symptom Inventory Global Severity Index (BSI GSI); the BSI Somatization (BSI Som), Depression (BSI Dep), and Anxiety (BSI Anx) subscales; the Parenting Stress Index (PSI) total score; the PSI Parental Distress (PSI PD), PSI Difficult Child (PSI DC), and PSI Dysfunctional Interaction (PSI DI) subscales; and the Child Anxiety Life Interference Scale Parent Life subscale (CALIS PL).

Models included condition, responder status, the interaction term, the respective pretreatment variables, gender, and age.