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Longitudinal study of parent caregiving self-efficacy and parent stress reactions with pediatric cancer treatment procedures

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Abstract

Background—Pain/distress during pediatric cancer treatments has substantial psychosocial consequences for children and families. We examined relationships between parents' caregiving self-efficacy, parents' affect in response to their children's cancer-related treatment procedures, and parents' symptoms of post-traumatic stress at follow-up.

Methods—Participants were 75 pediatric cancer patients and parents. On the day of each of three procedures (i.e., port-start, lumbar puncture, or bone marrow aspiration), parents rated their self-efficacy for six caregiving goals. Parents also self-reported their negative affect (i.e., state anxiety, negative mood, and distress) in response to each procedure. Three months after the last procedure, parents reported their level of post-traumatic stress symptoms (PTSS).

Results—Higher parent self-efficacy about keeping children calm *before* treatment and/or keeping children calm *during* the procedure was associated with lower state anxiety. Self-efficacy for keeping the child calm *during* procedures was significantly correlated with distress in parents at the time of procedures, and self-efficacy for keeping the child calm *before* procedures was significantly correlated with PTSS. All three negative affect measures significantly mediated the effects of parents' caregiving self-efficacy for both goals on parents' PTSS 3 months later.

Conclusions—Parents' caregiving self-efficacy influences their immediate and longer-term distress reactions to their children's treatment procedures. These findings provide a more nuanced understanding of how parents' cognitions contribute to their ability to cope with their children's treatment and suggest the benefit of an intervention that targets parents' procedure-specific caregiver self-efficacy.

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Conflict of interest

The authors have no financial relationships relevant to this article to disclose.

Introduction

Although almost 70% of pediatric cancer patients survive 10 years [1,2], the cancer experience can be distressing for parents and children [3,4] and affect parents' psychological and physical health [5–7]. For many parents, the most salient stressors during their child's cancer experience are numerous invasive cancer-related treatment procedures (henceforth 'procedures') that children must endure. This study focuses on factors that might affect parents' immediate and longer-term reactions to these procedures. Specifically, we focused on how parents' sense of caregiver self-efficacy influences their affective reactions to procedures [8,9].

Parent immediate and longer-term reactions to procedures

Parents consistently show elevated levels of state anxiety, emotional distress, and negative affect during their children's procedures [10,11]. Parents' emotional distress may actually increase over the course of treatment (e.g., 6–20 months post-diagnosis) [9,12–14].

With regard to parents' longer-term reactions, Dunn and colleagues [15] found that substantial percentages of mothers and fathers of pediatric cancer survivors reported greatly elevated levels of post-traumatic stress (PTSS; see also [16–18]). Further, the strength of parents' affect and cognitions while their children are in treatment has been associated with the strength of parents' subsequent psychosocial problems [12,19,20].

Self-efficacy

Self-efficacy is the expectation that one can cope with or succeed at specific tasks or challenges [21,22]. Self-efficacy is essential to sustaining an individual's effort to cope with stressful tasks, determining success in adversity management, and adjusting to stressful tasks over time [23–25]. Individuals with higher self-efficacy are likely to persist in coping efforts and, eventually, experience more positive outcomes (e.g., higher self-esteem and less psychopathology) [22,25]. Among parents of pediatric cancer patients, those with a higher sense of self-efficacy about their ability to cope with the general challenges of their child's illness report less distress [8,9] during and after their children's treatment [26].

Present study

The present study differs in several ways from previous research on the potential benefits of self-efficacy among parents of pediatric cancer patients. The first is how self-efficacy is conceptualized and measured. Bandura and others (e.g., [22,27]) conceptualize self-efficacy as a situation-specific or task-specific appraisal. However, previous studies of self-efficacy among these parents usually assess self-efficacy as a broad, generalized response to the trauma of pediatric cancer [8,9]. As far as we are aware, no previous studies of self-efficacy among these parents have measured self-efficacy about parents' ability to provide care *at the time of treatment procedures*.

The second difference is that, rather than measuring parents' general reactions to their child's disease and treatment, we measured parents' immediate affective reactions to specific procedures and how these reactions related to longer-term psychosocial problems.

Finally, we tested whether the effects of task-specific self-efficacy on parents' longer-term psychosocial problems are mediated by parents' immediate affective reactions to specific procedures (Figure 1). Mediation allows the exploration of indirect effects. Specifically, testing for mediation determines whether the impact of a predictor on an outcome variable is best explained by the inclusion of some intermediate, explanatory variable. Identifying

mediators can inform focused ways to reduce parents' psychosocial problems associated with pediatric cancer [28].

Hypotheses

The first hypothesis was that parents with higher caregiving self-efficacy at the time of procedures would report less state anxiety, negative affect, and distress before and after the procedures.

The second hypothesis was that parents with higher caregiving self-efficacy at the time of procedures would also report lower levels of psychosocial problems (i.e., PTSS) at 3-month follow-up.

The final hypothesis concerned mechanisms that might explain a relationship between caregiving self-efficacy and PTSS. We hypothesized that the impact of task-specific self-efficacy on longer-term psychosocial problems is primarily an indirect one. That is, the relationship between parents' caregiving self-efficacy and parents' psychosocial problems is mediated through parents' immediate affective reactions at the time of the procedures.

Methods

Participants and procedures

This study is part of an ongoing longitudinal study that began in 2009 at children's hospitals in Detroit, Michigan, and Memphis, Tennessee. Participants were children (ages 3–12 years) recently diagnosed with pediatric cancer and their adult primary caregivers (henceforth 'parents'). Participants completed assessments at the time of entry into the study, immediately before and after one of three types of treatment procedures (i.e., port-starts, lumbar punctures, or bone marrow aspirations), and 3 months after the final procedure. The procedures, each separated by at least 2 weeks, occurred over a 3- to 5-month period. For the current study, participants were 75 families who had completed the initial assessment, data collection for at least two procedures, and the 3-month follow-up.

On average, children had been in treatment for 15.01 weeks ($SD = 16.67$; range = 4–74) and in the 2 months prior to entering the study had undergone 3.63 ($SD = 2.35$; range = 0–10) lumbar punctures, 1.99 ($SD = 1.72$; range = 0–7) bone marrow aspirations, and 5.96 ($SD = 5.55$; range = 0–30) port-start procedures. Forty-eight percent of the procedures assessed in this study were port-starts for chemotherapy infusion with topical anesthesia and 52% were lumbar punctures/bone marrow aspirations with general anesthesia. Average length of procedures was 4.01 min ($SD = 2.55$; range = 0.85–14.09). The majority of children were diagnosed with acute lymphoblastic leukemia (ALL; 80%), followed by Wilm's tumors (5%), non-Hodgkin's lymphoma (4%), astrocytoma (3%), rhabdomyosarcoma (1%), and other (7%).

Study overview

The study protocol was reviewed and approved by each institution's human subjects review board. Families were initially approached by clinic staff members. Interested parents signed informed consent, and when appropriate, children provided verbal assent. Eighty-seven percent of eligible families agreed to participate. Parents and children received gift cards for their participation.

Treatment procedures and recordings

As part of the larger study, video-recordings of procedures were made via a system specifically developed to research interactions between pediatric cancer patients and their

families. The system is minimally intrusive and nonreactive in a medical setting [29,30]. No one refused to participate in the video-recording.

Questionnaires

Baseline—The baseline questionnaire contained questions about parents' own and their children's demographic characteristics, and children's medical history (e.g., type of cancer, time since diagnosis, and number of procedures in the past 2 months).

The questionnaire also included several dispositional measures not discussed here (e.g., resilience and depression) and a measure of social desirability. Social desirability concerns the tendency to provide socially acceptable and/ or self-enhancing responses on self-report measures [31]. As this can lead to invalid measures of the constructs of interest, it is often advisable to control for social desirability in self-report data. We assessed social desirability using Reynolds' [32] 13-item short form Marlow–Crowne Social Desirability Scale. The short form correlates well with the full version. The coefficient alpha was 0.67.

Day of procedures

Parents' caregiving goals: Immediately before each procedure, parents completed two items concerning six caregiving goals during that day's procedure (i.e., keeping child calm before the procedure, keeping child calm during the procedure, hiding emotions from child, gaining needed information from medical staff, keeping child involved in everyday activities, and providing explanations to child). Goals were selected on the basis of interviews and focus groups with parents of pediatric cancer patients and qualitative analyses of communication between parents and children during procedures. Using a five-point scale (from 'not at all' to 'completely'), parents first rated the *importance* of each goal and then their *confidence* about achieving the goal. These ratings were used to compute self-efficacy scores for each goal.

Parents' negative affective reactions

Parents' state anxiety: Immediately before each of the three procedures, parents also completed the state anxiety subscale of Spielberger's State-Trait Anxiety Inventory [33]. The measure has established construct validity [34]. Coefficient alphas were >0.92 for the assessments completed at each procedure.

Parents' negative affect: Immediately after each procedure, parents completed the Positive and Negative Affect Scale (PANAS; [35]), which assessed how they felt during the procedure (e.g., interested, alert, distressed, and upset). The PANAS has established construct validity [36]. The scale was used to measure parents' procedure-related distress. Coefficient alphas were 0.90 for each assessment.

Parents' distress: Immediately after each procedure, parents rated their own distress using Wong and Baker's FACES Scale [37]. The scale consists of six drawings of a face accompanied by verbal and numerical descriptions showing reactions to the treatment procedure (ranging from 'no distress at all' to 'extreme distress').

Standardization and averaging of scores

As children received either topical anesthesia or general anesthesia, prior to conducting analyses, we examined whether type of anesthesia affected scores on any predictor or outcome measures. Parents' self-efficacy, state anxiety, PANAS negative, and PTSS scores did not differ between types of anesthesia. However, parents' self-reports of distress did differ; therefore, we standardized these scores within each type of anesthesia and combined

standardized scores into a single distribution. This method effectively eliminates the impact of type of anesthesia on distress ratings.

Distress/negative affect—We next examined the temporal stability of each of the three measures of parent negative affect to see if they could be collapsed across the three procedures into a single, averaged score for each measure. The coefficient alphas for the measures across three procedures were as follows: State Anxiety 0.89, PANAS Negative 0.86, and 0.74 for parent distress. Given the relative stability of these measures across the procedures, scores were averaged across the three procedures and used in the following analyses.

Self-efficacy—Prior research [22,27] suggests that self-efficacy is most likely to affect performance when individuals consider a goal important *and* are confident they can perform the goal. Thus, for each goal, *the product (confidence × importance) was the operational definition of self-efficacy for that goal.*

Bandura [22] conceptualizes self-efficacy as a task-specific or situation-specific response. However, the task confronting the parents—providing care for their child during a procedure—was essentially the same across the three assessments. Therefore, we also examined the temporal stability of parents' self-efficacy scores across procedures. Self-efficacy scores for each goal also showed substantial temporal stability (coefficient alphas >0.76); therefore, self-efficacy scores were averaged across the three procedures and used in the analyses.

Selection of self-efficacy scores—We first considered whether the analyses should use average self-efficacy summed across the six goals or average self-efficacy scores for each goal. The primary criterion for this decision was how well a score predicted multiple ratings (parent, child, and independent observer) of children's distress (measured after procedures using the same Wong and Baker FACES scale used by parents [37]). Summed self-efficacy scores did not predict child distress ratings at any procedure. When parents' six scores were each individually correlated with children's distress ratings, only two—self-efficacy for keeping the child calm *before* the procedure and self-efficacy for keeping the child calm *during* the procedure—significantly predicted average scores for one or more ratings of child distress across procedures. A second selection criterion was the relative importance of each goal. Across all three procedures, keeping the child calm *before* and calm *during* the procedures were the most important parent goals ($M_s = 4.63$ and 4.70 ; all other $M_s = 4.44$). Therefore, the average self-efficacy scores for the goals of keeping the child calm *before* and for keeping the child calm *during* the procedure were used in the analyses. Although highly inter-correlated (0.84), we included both aspects of caregiving self-efficacy in the analyses because there was no theoretical or empirical basis for selecting one over the other or combining them.

3-Month follow-up

Post-Traumatic Stress Symptoms: The Impact of Events Scale—Revised (IES-R [38,39]) was completed by parents 3 months after the third procedure (usually 5–7 months after recruitment). This 22-item self-report measure mirrors *DSM-IV* symptom criteria for Post-traumatic stress disorder, assessing symptoms of intrusion, avoidance, and hyper-arousal specific to a life event. In this instance, the measure was keyed to parents' experience of their child's cancer treatment procedures [14]. The IES-R has established construct validity [38,40,41]. Cronbach's alpha for the total scale was 0.91.¹

¹Analyses using the PTSS subscales as outcomes yielded a similar pattern of results as using PTSS total scores. Thus, in the interest of brevity, we discuss only the results for PTSS total scores.

Table 1 presents means and standard deviations for parents' negative affective reaction measures, self-efficacy scores (confidence \times importance) for the six caregiving goals, and total PTSS score.

Data preparation and analysis

Values for sporadic missing data (1% of all items) were imputed using substitution of sample mean. Data were inspected for outliers, but none were identified. Statistical analyses were performed using the IBM Statistical Package for the Social Sciences, Release 20.0. Mediation analyses used Hayes and Preacher's [42] bootstrapping procedure (5000 samples), which estimates path coefficients and calculates bootstrap confidence intervals for total and indirect effects in mediator models. The test of indirect effects is whether the product of the paths from predictor to mediator and from mediator to outcome differs significantly from zero.

Results

Table 2 shows parent and child demographics for the 75 families in the study.

Average caregiving self-efficacy, parent/child demographics, child clinical variables, and social desirability

Prior to testing the first hypothesis, we examined co-variation between parent/child demographic and child clinical variables, social desirability, and parents' two self-efficacy scores to determine if we needed to control for any of these variables in the major analyses. Consistent with previous literature [43,44], the only predictor significantly related to self-efficacy scores was child age (calm before, $r = 0.34$; calm during, $r = 0.37$, $ps < 0.01$). Therefore, child age was controlled in all analyses. Parents' PTSS showed a marginal positive relationship ($p = 0.054$) with household income but was not related to any parent/child demographics or children's clinical variables.

Caregiving self-efficacy and parents' negative affective reactions

Our first hypothesis was that higher caregiving self-efficacy would be associated with lower parents' negative affective reactions immediately before and immediately after procedures. As shown in Table 3, parents' self-efficacy for keeping their child calm *before* procedures and self-efficacy for keeping their child calm *during* procedures were each significantly and negatively associated with parents' state anxiety immediately before procedures. Self-efficacy for keeping the child calm *during* procedures was also significantly and negatively correlated with parents' self-reported distress during them. Self-efficacy for calm *before* procedures and self-efficacy for keeping their child calm *during* procedures showed trend negative relationships with parents' PANAS negative scores immediately after the procedure. Thus, the first hypothesis is relatively well supported for these two kinds of self-efficacy.

Our second hypothesis was that caregiving self-efficacy would be associated with parents' PTSS at the 3-month follow-up. Self-efficacy for keeping the child calm *before* procedures was significantly and negatively associated with total PTSS scores (Table 3). Thus, the second hypothesis was supported for self-efficacy about keeping the child calm *before* procedures.

Parents' negative affective reactions as a mediator

Our third hypothesis was that parents' negative affective reactions at the time of procedures (state anxiety before the procedures, and negative affect and distress immediately after the procedures) would mediate the relationship between parents' self-efficacy and total PTSS

score at the 3-month follow-up. Given the significant relationship between self-efficacy and child age, we again controlled for child age in the analyses.

State anxiety as a mediator—The full model with parents' self-efficacy for keeping their child calm *before* treatment procedures as the predictor, state anxiety as the mediator, and PTSS total as the outcome variable significantly predicted total PTSS score ($F[3, 71] = 9.14, p = 0.0000, R^2 = 0.28$). When state anxiety was included in the model in addition to self-efficacy for keeping the child calm *before* procedures, the previously significant direct effect of self-efficacy on total PTSS was no longer significant, $p = 0.24$, but the indirect effect through state anxiety was significant, *indirect effect* = $-0.60, SE = 0.19, 95\% CI [-1.06, -0.30]$.

The model with parents' self-efficacy for keeping their child calm *during* procedures also significantly predicted total PTSS, $F[3, 71] = 8.64, p = 0.0001, R^2 = 0.27$. The direct relationship between self-efficacy and PTSS was not significant, $p = 0.59$, but the indirect effect through state anxiety was significant, *indirect effect* = $-0.65, SE = 0.19, 95\% CI [-1.10, -0.33]$.

PANAS as a mediator—The full model with self-efficacy about keeping the child calm *before* procedures as a predictor, parents' immediate post-procedure negative affect (as measured by the PANAS) as the mediator, and PTSS as the outcome was significant, $F[3, 71] = 6.88, p = 0.0004, R^2 = 0.23$. The direct effect of self-efficacy was significant, $p = 0.03$, but self-efficacy also had a significant indirect effect on PTSS through parents' negative affect, *indirect effect* = $-0.25, SE = 0.15, 95\% CI [-0.67, -0.05]$.

The model with self-efficacy for keeping their child calm *during* procedures as a predictor of PTSS was also significant, $F[3, 71] = 4.97, p = 0.003, R^2 = 0.17$. The direct relationship between self-efficacy and PTSS was not significant, $p = 0.53$, but the indirect effect through PANAS negative was significant, *indirect effect* = $-0.26, SE = 0.14, 95\% CI [-0.67, -0.07]$.

Parent distress as a mediator—The full model with parent self-efficacy about keeping the child calm *before* procedures as a predictor, parents' distress (measured by the FACES scale) as the mediator, and PTSS as the outcome was significant, $F[3, 71] = 5.09, p = 0.003, R^2 = 0.18$. The direct effect of self-efficacy remained significant, $p = 0.02$, but self-efficacy also had a significant indirect effect on PTSS through parents' self-rated distress, *indirect effect* = $-0.21, SE = 0.15, 95\% CI [-0.63, -0.01]$.

The model using self-efficacy for keeping their child calm *during* procedures as a predictor of PTSS was also significant, $F[3, 71] = 3.18, p = 0.03, R^2 = 0.12$. The direct relationship between self-efficacy and PTSS was not significant, $p = 0.56$; however, the indirect effect through parents' self-related distress was significant, *indirect effect* = $-0.28, SE = 0.16, 95\% CI [-0.71, -0.05]$.

Ancillary analyses—All the analyses were carried out again using social desirability as a covariate to control for possible self-presentational response biases; there were no meaningful changes in any results.² The prior mediational analyses make a strong case for an indirect relationship between parents' caregiving self-efficacy and PTSS with parents' negative affect as a mediator. However, state anxiety and caregiving self-efficacy were measured essentially at the same time; thus, the possibility exists that a model in which *self-*

²Although parents' self-efficacy, state anxiety, and negative affect were not significantly different by type of anesthesia, we also reran all the analyses using scores standardized by type of anesthesia. Results showed the exact same pattern of relationships and significance and virtually identical F ratios and R^2 values as reported above.

efficacy mediates the relationship between state anxiety and PTSS would also be viable. The analysis of this model showed the indirect effect for self-efficacy for keeping their child calm *before* procedures as a mediator was not significant, *indirect effect* = 0.06, *SE* = 0.05, 95% CI [-0.03, 0.17]. The indirect effect for self-efficacy for keeping their child calm *during* procedures as a mediator was also not significant, *indirect effect* = -0.02, *SE* = 0.05, 95% CI [-0.11, 0.09].

In summary in all six analyses, there were significant indirect effects, which support the third hypothesis. However, there was also evidence of direct effects of self-efficacy on PTSS in two of the analyses.

Discussion

Parents with higher procedure-specific self-efficacy about keeping their child calm *before* cancer-related treatment procedures and/or *during* procedures reported lower negative affective reactions at the time of their children's procedures. Although no one has previously examined procedure-specific caregiving self-efficacy in a pediatric cancer context, these findings are conceptually consistent with theories of self-efficacy [21–23,45]. However, this still begs the question: Why was higher self-efficacy associated with lower negative affective reactions among the parents?

Bandura [46] argued that people with high self-efficacy are more likely to view difficult situations 'as challenges to be mastered rather than threats to be avoided (p. 184).' Given this confidence in their ability to effectively keep their child calm, highly self-efficacious parents may have focused on the challenging rather than the threatening aspects of the task and, therefore, felt relatively comfortable with their ability to cope with this challenge. Thus, as hypothesized, this sense of self-confidence to successfully address the challenge was associated with lower levels of negative affective reactions both before and after procedures.

In contrast, parents with low self-efficacy may have felt that their child was going to be distressed no matter what they did. Thus, these parents may have focused more on the threatening aspects of the task and their inability to cope with them; as a result, they experienced higher levels of negative affect before and after procedures.

The second hypothesis was also confirmed: task-specific self-efficacy was negatively associated with longer-term psychosocial problems (i.e., PTSS). This finding is consistent with previous research on more general parental self-efficacy in a pediatric cancer context [8,26,47]. However, the reason for this relationship needs further exploration, which was the rationale for conducting the mediational analyses. These analyses provided some evidence for direct effects of self-efficacy on PTSS (two of the six models) but stronger evidence of significant mediation by parents' immediate affective reactions at the time of the procedures (all six models).

Limitations

These results should be interpreted in light of certain limitations. The first is why only self-efficacy about keeping the child calm before and calm during procedures seem to be relevant to the phenomena of interest—parents' affective reactions and psychosocial problems. As previously reported, other aspects of caregiving self-efficacy did not predict child distress. We presently cannot explain why only these two kinds of self-efficacy affected the outcomes of interest. Future research would benefit from in-depth qualitative interviews to determine the reasons why self-efficacy for certain goals seems to influence parents' negative affective reactions and psychosocial problems more than others.

Second, the significant indirect effects in our mediational analyses suggest that the relationship between self-efficacy and PTSS may be primarily explained by the impact of task-specific self-efficacy on parents' affective reactions at the time of a treatment procedure. However, self-efficacy for keeping one's child calm before and calm during procedures could be influenced by a more general sense of overall confidence in one's ability to cope with challenges of pediatric cancer. Future research might benefit from measuring *both* general dispositional and task-specific self-efficacy.

Third, we assessed PTSS 3 months after the final recorded procedure. About 80% of the children were still in active treatment; thus, we do not know if the relationships found between task-specific parent self-efficacy, parent affective reactions, and parent PTSS would be present once procedures ended. Future research should explore these relationships over a longer period. However, even if the relationship between self-efficacy and PTSS is limited to when children are still in active treatment, it would still seem important to identify ways to reduce even transitory psychosocial problems associated with the challenges of being a parent to a pediatric cancer patient.

Finally, we acknowledge the percentage of parents with college education and the number of children with an ALL diagnosis might not be representative of the larger population of families seen in cancer outpatient clinics. Future studies would likely benefit from testing these research questions in larger, more diverse samples.

With these limitations in mind, the results remain important from both a theoretical and clinical perspective. Theoretically, the findings provide strong support for self-efficacy theory in the context of a real-world setting—the treatment of pediatric cancer. As suggested by Bandura's model, a strong sense of self-efficacy has both immediate and longer-term beneficial effects. Further, the mediational analyses provide insight into how the more immediate effects of task-specific self-efficacy are translated in longer-term outcomes. The study also extends prior work in pediatric cancer that has focused on parents' more global self-efficacy [8,9,26] rather than task-specific self-efficacy. The findings suggest that both forms of self-efficacy may be important in parents' ability to successfully cope with the personal and medical challenges presented by pediatric cancer. It is likely that global self-efficacy enables parents to feel prepared and able to cope with their child's cancer experience in general, whereas task-specific self-efficacy has a more proximal effect on how parents respond to their children receiving invasive treatment procedures and, as a result, how parents (and their children) respond to procedures. However, as already noted, future research will benefit from more directly exploring the relationship between task-specific and general parenting self-efficacy and their respective impact on parents' reactions to their child's cancer treatment procedures.

From a clinical perspective, these findings identify an important intervention target that may be more amenable to change than global caregiving self-efficacy. An intervention providing parents with skills to calm their child might be carried out very early in the course of treatment, thereby offering parents a way to increase both their global and task-specific self-efficacy about coping with the challenges of pediatric cancer. Indeed, we are now conducting such an intervention, which will use motivational interviewing [48] to help parents identify ways in which they can calm their child and, at the same time, increase their sense of self-efficacy about their ability to effectively cope with their children's procedure.

In conclusion, our findings provide a more nuanced understanding of how parents' cognitions influence parents' affective reactions to their children's cancer-related treatment procedures and further suggest the benefits of an intervention that would target parents' task-specific caregiving self-efficacy.

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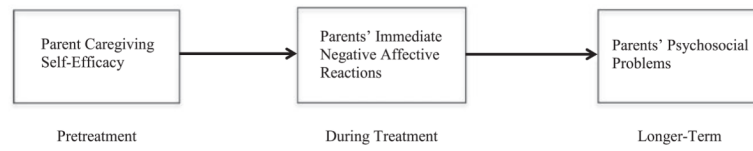


Figure 1.
Parents' immediate negative affective reactions as a mediator of parents' caregiving self-efficacy and parents' psychosocial problems

Table 1

Average state anxiety, PANAS negative, parent distress, and caregiving self-efficacy for each goal across three treatments, and PTSS total score ($N = 75$)

Parent Measure	Mean	Standard deviation	Range
State anxiety	49.12	14.21	20.33–78
PANAS negative	16.92	6.59	10–37
Distress	2.43	1.06	1–5
Caregiving self-efficacy			
Keeping child calm before treatment	20.04	4.71	5.33–25
Keeping child calm during treatment	19.62	5.05	7–25
Hide emotions from child	16.94	6.42	1.33–25
Gain needed information	17.78	6.00	5–25
Keep child involved in everyday activities	20.01	4.94	5–25
Provide explanations to child	19.15	5.43	6.67–25
PTSS total	27.35	14.57	0–72

Parents' scores are raw scores averaged across all treatment procedures. For comparison, a State-Trait Anxiety Inventory mean of 49.14 is equivalent to the 88th percentile for college undergraduates who were asked about anxiety before an exam. A PANAS Negative mean of 16.89 is equivalent to the 69th percentile for a general adult population. Normative data are not available for the remaining variables.

Table 2Parent and Child Demographics ($N = 75$)

Mean parent age (SD)	35.65 (7.47)
Parent relationship	80% mothers
Parent income	31% <\$20,000 28% \$20,000–\$59,000 31% \$60,000–\$100,000 10% >\$100,000
Parent education	13% <high school diploma 21% high school diploma 39% some college, 27% college degree
Parent race/ethnicity	72% white 21% black 4% Hispanic/Latino 3% other
Mean child age (SD)	6.6 (3.24)
Child gender	61% male

Table 3

Correlations between parents' caregiving self-efficacy and parents' negative affective reactions to treatments and PTSS (controlling for child age)

	Calm before treatment	Calm during treatment
Parent state anxiety	-0.41 ***	-0.40 ***
Parent PANAS	-0.21 †	-0.22 †
Parent distress	-0.20 †	-0.29 *
PTSS total	-0.32 **	-0.16

State anxiety was assessed before each treatment; PANAS and distress were assessed after each treatment. PTSS was assessed at 3 months post procedure. Parents' scores were averaged across all treatment procedures.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

† $p < 0.10$.