

Parental reactions to children's negative affect: The moderating role of parental GAD

Brenda Arellano*, Colette Gramszlo, Janet Woodruff-Borden

University of Louisville, United States



ARTICLE INFO

Keywords:

Generalized anxiety disorder
Anxiety
Emotion socialization
Parenting

ABSTRACT

The impact of parental anxiety disorders has been explored in broad categories of parenting behaviors; however, less is known about the impact of parental anxiety on emotion socialization behaviors. The current study tested the conditional effect of parental Generalized Anxiety Disorder (GAD) on one aspect of emotion socialization, parents' reactions to their child's negative affect. Participants were 89 children between ages 3 and 12 and their parents, from a community sample. Parents completed the Anxiety Disorders Interview Schedule-IV (ADIS-IV), an interaction task with their child, and the Beck Anxiety Inventory-II (BAI-II). Overall, the data supported study hypotheses. Parental GAD moderated the relationship between child's negative affect and parental over control and emotional discouragement. Specifically, children's negative affect was positively related to parental emotional discouragement for parents with GAD, but not for parents without a diagnosis. Conversely, children's negative affect was not predictive of parental overcontrol for parents with GAD, but increases in children's negative affect did predict increases in parental overcontrol for parents without a diagnosis. The present findings suggest parents diagnosed with GAD are discouraging of their children's emotional experiences and fail to adjust their level of guidance throughout situations which induce negative affect, leaving children to cope with negative emotions on their own.

1. Introduction

Parents play a vital role in teaching their children about emotions through the process of emotion socialization (Castro, Halberstadt, Lozada, & Craig, 2015). As part of this process, children learn about emotions through emotional expressions, emotion discussions and reactions to their emotional displays (Eisenberg, Cumberland, & Spinrad, 1998). Research suggests children display optimal emotional competence when parents express more positive emotions (Meyer, Raikes, Virmani, Waters, & Thompson, 2014), discuss emotions (Eisenberg et al., 1998), and react to their child's displays of negative emotions with support and warmth (Denham, Bassett, & Wtatt, 2007; Eisenberg, Fabes, & Murphy, 1996). The bulk of research to date has focused on emotion socialization in healthy parents and children (e.g., Brand & Klimes-Dougan, 2010; Miller-Slough & Dunsmore, 2016). Through this research, evidence has accumulated suggesting healthy emotion socialization practices are linked to children's emotional competence (Davidov & Grusec, 2006; Jones, MacKinnon, Eisenberg, & Fabes, 2002; Shewark & Blandon, 2015) and psychological functioning (Oppenheimer et al., 2016; Southam-Gerow & Kendall, 2002; Suveg,

Zeman, Flannery-Schroeder, & Cassano, 2005). Relatedly, unsupportive emotion socialization, specifically in the form of discouraging children's negative emotions, is linked to poorer emotion regulation in children (Eisenberg & Fabes, 1994; Shaffer et al., 2012). Though theoretical models (Chorpita & Barlow, 1998; Eisenberg et al., 1998) and prior research (e.g. Brown, Craig, & Halberstadt, 2015) point to the importance of parenting in the emotion socialization process, little research to date has examined the role of parental factors, such as parental psychopathology and parental worry. Given the important role emotion socialization plays in children's development (Barrasso-Catanzaro & Eslinger, 2016), however, it is important to understand elements which interfere with the process.

Parental anxiety disrupts the emotion socialization process. Breaux, Harvey, and Lugo-Candelas (2016) found that mothers who self-reported more anxiety symptoms tended to be more unsupportive in their reactions to children's negative emotions than were mothers who self-reported fewer anxiety symptoms. The researchers hypothesize the difference may be due to greater difficulties with emotion regulation in anxious parents, making parents with higher anxiety symptoms more sensitive to children's negative emotions. In fact, previous research

* Corresponding author at: Brenda Arellano, University of Louisville, Department of Psychological and Brain Sciences, Life Sciences Building Room 317, Louisville, KY 40292, United States.

E-mail address: b0arel01@louisville.edu (B. Arellano).

<https://doi.org/10.1016/j.janxdis.2017.10.006>

Received 10 February 2017; Received in revised form 22 August 2017; Accepted 25 October 2017

Available online 31 October 2017

0887-6185/ © 2017 Elsevier Ltd. All rights reserved.

suggests parental emotion dysregulation is linked to parents' non-supportive reactions to children's displays of negative emotion, such that parents with greater emotion dysregulation are more likely to display non-supportive reactions to their child's negative emotion (Yan, Han, & Li, 2016). This parallels past research proposing anxious parents engage in more anxiety-provoking behaviors and fewer anxiety reducing behaviors than nonanxious parents (Möller, Majdandžić, & Bögels, 2015). Specifically, research suggests anxiety status in parents is linked to maladaptive changes in parenting behavior such that anxious parents tend to be more overcontrolling (e.g., Epkins & Harper, 2016), less productively engaged and more disengaged (Woodruff-Borden, Morrow, Bourland, & Cambron, 2002).

Just as there are differences observed between parents with an anxiety disorder and those without, there is also research to suggest observable differences in parenting behavior based on anxiety disorder subtype. For instance, there are differential patterns of parenting behavior characteristic of those with Generalized Anxiety Disorder (GAD) symptoms and those with Social Anxiety Disorder (SAD) symptoms (Möller et al., 2015). Other researchers have suggested that for parents with a diagnosis of GAD and SAD, behavioral differences are especially noticeable in disorder-salient situations. For parents with a diagnosis of GAD, interference with parenting behavior was most apparent during an ambiguous situation while parents with a diagnosis of SAD experienced the most interference during a social task (Murray et al., 2012). This research presents the possibility that interference to parenting behavior may be due to more than just anxiety. There may be factors characteristic of specific anxiety disorder subtypes, beyond anxiety per se, related to changes in parenting behavior. Research has examined specific disorders in relation to broad categories of parental responses to child behavior (e.g. Budinger, Drazdowski, & Ginsburg, 2013). However, little is known regarding the impact of specific anxiety disorders on specific aspects of parenting, such as emotion socialization and parents' reactions to their children's affect.

GAD may uniquely impact emotion socialization beyond the effects of anxiety in general. The chronic worry characteristic of GAD is associated with the depletion of cognitive resources (Owens, Derakshan, & Richards, 2015) which interferes with the ability to modulate emotional responses (Vytal, Cornwell, Arkin, & Grillon, 2012). Given the emotional difficulties associated with GAD, emotion socialization could be a disorder-salient situation. More specifically, it can be hypothesized the emotion socialization process is especially challenging for parents with GAD given the deficits in emotional intelligence associated with the disorder (Lizeretti & Extremera, 2011) coupled with the demand for emotional knowledge intrinsic to healthy emotion socialization (Castro et al., 2015). By extending key principles of GAD derived from theoretical models of worry to emotion socializing behaviors, it is possible to make predictions of how GAD may impact parents' reactions to children's affect.

One model of worry which can help elucidate the specific impact of GAD on parents' reactions to children's affect is the emotion dysregulation model (EDM). The EDM posits those with GAD employ worry in an effort to minimize and avoid the distress brought about by their intense emotional experiences (Behar, DiMarco, Hekler, Mohlman, & Staples, 2009). The EDM suggests because of the interference of worry, those with GAD have a poorer understanding of emotions, experience emotions with greater intensity and are therefore more likely to perceive emotions as threatening than controls (Mennin, Heimberg, Turk, & Fresco, 2005). As the EDM asserts, those with GAD experience greater difficulty utilizing the information conveyed by negative emotion. Therefore, parental GAD may conditionally affect parent's reactions to children's negative affect. As the EDM suggest, because those with GAD experience emotions more intensely and perceive emotions as threatening, it can be hypothesized parents with GAD would avoid the child's emotional displays. It is hypothesized parents with GAD will display this avoidance by discouraging emotions, avoiding involvement following their child's negative emotional displays and hesitating to take

control when needed in order to avoid the distress which accompanies involvement with threatening emotional situations. This could be observed in the form of higher levels of emotional discouragement, and lower levels of productive engagement and overcontrol following children's displays of negative affect when parents have a diagnosis of GAD.

The purpose of the current study is to investigate the conditional effect of parental GAD on the relationship between child negative affect and parental behavior. Extending key features of the EDM to emotion socialization behavior, it is hypothesized that parental GAD will strengthen the relationship between child negative affect and parental emotional discouragement, productive engagement and overcontrol. Specifically, it is hypothesized that parents diagnosed with GAD will respond to their child's displays of negative affect with greater increases of emotional discouragement and greater decreases of productive engagement and overcontrol.

2. Methods

2.1. Procedure

Participants for this study were recruited from local schools, after-school programs, mental health agencies, community self-help groups and community locations as part of a larger study of anxiety and families. Parents and their biological child between ages 3 and 12 years were invited to participate in the study. Participation was limited to only one parent and one child per family. All participating parents lived with the participating child at the time of the assessment. Dyads were excluded from the study if parents met criteria for a primary or secondary diagnosis other than anxiety. Both parent informed consent and child assent were obtained prior to participation in the study, and no monetary compensation was given to families. As part of this study, eligible families were mailed packets with age appropriate measures of anxiety, depression, temperament and family functioning and brought to the lab to complete diagnostic interviews. Diagnostic interviews lasted between 1.5 and 3 h, depending on the nature of the participant's symptoms. All interviews were conducted by doctoral students in clinical psychology and supervised by a licensed clinical psychologist. After diagnostic interviews were completed, dyads were asked to complete a 10 min interaction task. The interaction tasks were recorded and later transcribed and coded by upper level undergraduate and doctoral students blind to diagnostic status. Recruitment and study materials were submitted and approved by University of Louisville's Institutional Review Board prior to use.

2.2. Participants

Participants were 89 parent-child dyads; 32 children were male and 57 were female. An a priori power analysis indicated that at least 68 participants would be needed to observe a medium Cohen's $\eta^2 = 0.15$ with an α -level of 0.05 and power of 0.80 (Faul, Erdfelder, Lang, & Buchner, 2007). The children were 3–12 years of age, with a mean age of 7.92 years ($SD = 2.88$). Ethnic composition of the sample was as follows: 75.3% ($n = 67$) European American, 11.2% ($n = 10$) Hispanic, 7.9% ($n = 7$) African American, 1.1% ($n = 1$) Asian, and 2.2% ($n = 2$) other/mixed. Ethnic identity was not reported for two children. Most parents were mothers (93.3%), and the mean age of the parents was 37.69 years ($SD = 6.43$). Most parents reported being currently married (75.3%), college educated (68.5%), and a household income of over \$60,000 a year (52.8%).

Thirty-one parents met criteria for a diagnosis of Generalized Anxiety Disorder (GAD). GAD was the primary diagnosis for twenty-five parents, and the secondary diagnosis for 6 parents. Parents were also administered the Beck Anxiety Inventory-II (BAI-II; Beck, Epstein, Brown, & Steer, 1988), which is a self-report measure of somatic symptoms of anxiety. Parents with a diagnosis of GAD self-reported

significantly higher levels of anxiety ($M = 10.10$) when compared to parents with no diagnosis ($M = 2.17$), $t(89) = -7.19$, $p < 0.001$. Comorbidity was common in the sample, with 13 of the parents with a primary diagnosis of GAD also meeting criteria for a secondary anxiety disorder. Comorbidity for parents with GAD were as follows: Panic Disorder without Agoraphobia ($n = 2$), Panic Disorder with Agoraphobia ($n = 1$), Social Phobia ($n = 10$). Additionally, 5 of the parents with a primary GAD diagnosis also met criteria for a depressive disorder. Comorbidity with depressive disorders was as follows: Major Depressive Disorder ($n = 3$), Persistent Depressive Disorder ($n = 1$), Depressive Disorder Not Otherwise Specified ($n = 1$).

2.3. Measures

2.3.1. Anxiety Disorders Interview Schedule- IV- Client Version (ADIS-IV; DiNardo, Brown, & Barlow, 1994)

The ADIS-IV is a widely used semi structured interview used to assess for anxiety and mood disorders as outlined by the 4th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM IV; American Psychiatric Association, 2013) in adults. The interview is organized by initial screening questions for each of the disorders, with in-depth follow up questions administered following positive responses. The ADIS-IV lifetime version has strong psychometric properties, with good to excellent levels of reliability for the majority of the DSM-IV categories (Brown, DiNardo, Lehman, & Campbell, 2001).

Interviews were conducted by upper-level doctoral students in clinical psychology. Interviewers were required to meet the reliability criteria of four consecutive matches on diagnosis and severity prior to conducting interviews. Training required approximately 12 h to complete. All interviews were recorded and one third of the interviews were rated by a second interviewer with a resulting kappa of 0.89 for primary diagnosis.

2.3.2. Beck Anxiety Inventory-II (BAI-II; Beck et al., 1988)

The BAI- II is a 21 item self-report scale designed to measure the severity of anxiety symptoms. The BAI-II measures predominantly physiological symptoms of anxiety. This scale demonstrated high test retest reliability (0.75; Beck et al., 1988) and adequate convergent validity (Osman, Kopper, Barrios, Osman, & Wade, 1997). In this sample, the BAI-II demonstrated high internal consistency (0.92). Higher scores indicate higher levels of anxiety symptoms.

2.4. Interaction Task

Dyads were video recorded as they completed a 10-min age-appropriate interaction task chosen to elicit negative affect in the child and provide the parent with an opportunity to respond. Dyads with a child between ages 3 and 5 completed difficult puzzles and dyads with a child between ages 6 and 12 completed unsolvable anagrams. Previous research has also utilized unsolvable anagrams (e.g. Harvison, Chapman, Ballash, & Woodruff-Borden, 2008) and difficult puzzles (Asbrand, Hudson, Schmitz, Tuschen-Caffier, 2017; Kahle, Grady, Miller, Lopez, & Hastings, 2017; Schrock & Woodruff-Borden, 2010) in order to recreate a stressful situation in which the child would display negative affect and the parent has an opportunity to respond to and assist their child. Instructions were directed at the child such that they were told to do their best with the task, the experimenter would return in 10 min to see how many they had solved correctly and they could ask their parent for help. After completion of the task, child and parent separated and completed self-report measures of their thoughts and affect during the task, as well as of their perceptions of the experience of the other member of the dyad during the task.

2.5. Data coding

Parent and child behaviors were coded from the videotaped

interaction by using a coding scheme modeled after Kerig, Cowan, and Cowan (1993). This coding scheme is specifically designed for the examination of parent-child interactions and allows for the examination of each dyad member’s contribution to the interaction in terms of affect, language and behavior. Interaction units were determined as “the smallest identifiable unit of words or behavior with an interaction intent” (Kerig et al., 1993, p. 934). Interactions were videotaped and transcribed; videos and transcripts were used concomitantly in order to code parent and child behavior for the following parameters: interactional function, affective tone, speech content and speaker. Though interactions were coded for negative, neutral and positive affective tone, the current study focused only on negative affect, as research suggests healthy and anxious parents respond to positive affect in children similarly (Hudson, Comer, Kendall, 2008).

Coders were upper-level undergraduate and doctoral students blind to the diagnostic status of dyad members. All coders were trained to 80% reliability; approximately 15 h of training was required in order to achieve the reliability criterion. One third of all video recordings were coded by a second coder in order to determine interrater reliability for the interaction function, affective tone and content. Five behavioral units were excluded due to failure to meet the agreement criterion of $\kappa = -0.80$. Kappas for coded categories are shown in Table 1.

In order to control the number of statistical tests, categories of behavior were combined to form three composite behaviors. Scores for composite behaviors are the sum of the frequency of behaviors in each item within the composite. Composite behaviors included productive engagement, overcontrol and emotional discouragement. The coding scheme consists of 20 content codes based in prior research on family emotional environment and parenting style. Composites were determined based on an a priori examination of the face validity of items from which they were comprised. Internal consistencies for each of the composite behaviors are shown in Table 1. Correlations among the composite behaviors are shown in Table 2. There is moderate overlap

Table 1
Interaction Coding Scheme.

Content Code	κ
Child	
Affective Tone	
Negative	0.85
Parent	
†Emotional Discouragement (ED) ^a	0.66
Pass turn	0.82
Ignore or switch topic	0.89
Minimal response	0.97
Interrupt	0.95
†Overcontrol (OC) ^b	0.65
Behavior regulation	0.82
Attention devices	0.80
Explicit directive	0.84
Implicit directive	0.85
Choice making or taking over	0.81
†Productive Engagement (PE) ^c	0.73
Assistives	0.89
Humor or language play	0.96
Positives	0.86
Agree or comply	0.81
Offer assistance	1.00
Acknowledge or reflect	0.86
Praise	0.91
Teach	0.82
Nonverbal listening	0.80
Helpful attempt	0.82

Note: Parent behaviors and child affect were coded from the videotaped interaction by using a coding scheme modeled after Kerig et al., 1993).

†Scores for composite behaviors are the sum of the frequency of behaviors in each item within the composite. a, b and c indicate the reliabilities for the composite behaviors.

Table 2
Correlations for Variables of Interest.

	ED	OC	PE	GAD	BAI	NA	Age	Sex	Child Diagnosis
Emotional Discouragement (ED)	–	–0.19	–0.09	–0.37**	–0.26	–0.28*	.46**	–0.17	–0.33
Overcontrol (OC)		–	.55**	0.03	0.02	.43**	–0.56**	–0.02	0.10
Productive Engagement (PE)			–	0.02	–0.05	.63**	–0.57**	–0.01	0.02
Parent GAD Status				–	.59**	.23**	–0.20	0.06	0.15
BAI scores					–	0.11	–0.16	–0.10	–0.02
Child Negative Affect (NA)						–	–0.10	–0.19	0.15
Child Age (Age)							–	0.10	–0.30
Child Sex (Sex)								–	0.03
Child Diagnosis									–
M	2.01	15.95	34.21	–	4.93	6.13	7.92	–	–
SD	2.86	11.92	20.33	–	6.22	8.59	2.88	–	–
Range	0–22	1–62	0–101	0–1	0–27	0–51	0–14	0–1	0–2

* $p < 0.05$.
** $p < 0.01$.

between overcontrol and productive engagement.

2.6. Statistical analysis

Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 20 running the PROCESS script (Hayes, 2013). Correlations and descriptive statistics were calculated prior to completing the moderation analysis. Prior to conducting moderation analyses, linear regressions predicting parent behavior from child affect were conducted. Of note, some participants were missing data for behavioral variables. This was addressed by including all participants with data relevant to each analysis. As a result, not all participants could be included in all analyses. In order to examine whether GAD diagnostic status uniquely impacts the relationship between child affect and parental behavior, moderation analyses were then completed utilizing either GAD diagnostic status or symptoms of anxiety as a moderator. A bootstrapping analysis ($n = 5000$ bootstrap samples) was employed to test the significance of the interaction between GAD status and child affect and BAI-II and child negative affect.

In moderation, bootstrapping takes n samples of the data set with replacement. From this, a sampling distribution of the interaction effect for each of these trials is created. The null hypothesis that the interaction effect of the moderator has no significant effect can be rejected if a 95% confidence interval created from the sampling distribution does not include zero. Bootstrapping allows a confidence interval to be formulated without the assumption that the original sample is normally distributed.

This study tested four moderation models, as seen in Figs. 1 and 2. The models shown in Fig. 1 were chosen based on work demonstrating the links between parent GAD diagnostic status and parenting behavior (Murray et al., 2012), anxiety and emotion socialization behavior in parents (Breux et al., 2016) as well as theoretical models suggesting the interference of GAD on emotion related tasks (Mennin et al., 2005).

3. Results

3.1. Descriptive statistics and correlational analyses

Descriptive statistics and zero order Pearson correlations are shown in Table 2. Overcontrol, productive engagement, emotional discouragement, and BAI scores displayed significant positive skewness and were accordingly square root transformed. After the transformation, all variables appeared approximately normally distributed (i.e., $Z_{skewness} < 1.96$). Transformed variables were used in subsequent analyses.

Correlations were conducted between the variables of interest in the proposed models. Though, GAD diagnostic status and anxiety symptoms reported on the BAI-II were correlated ($r = 0.59$), multicollinearity did

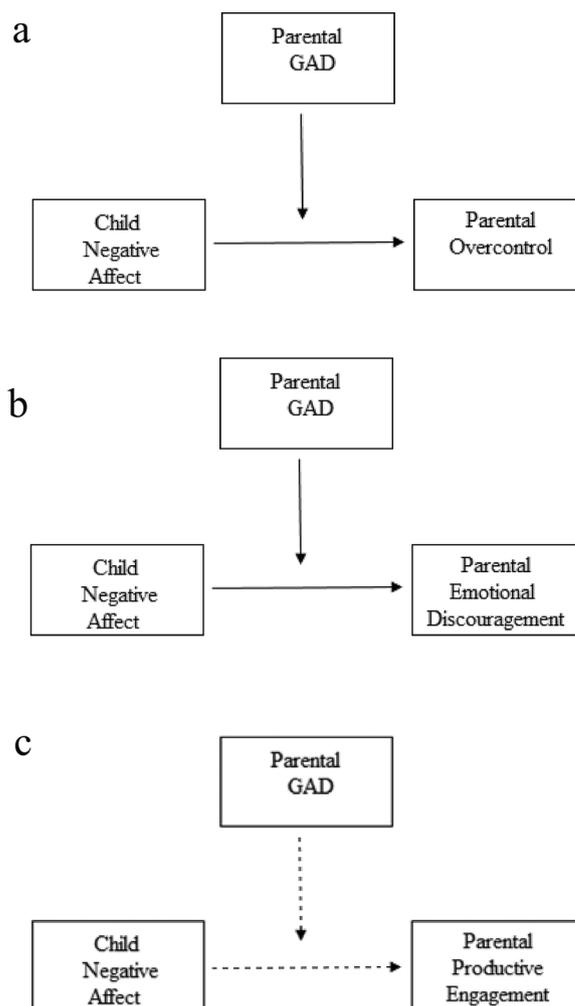


Fig. 1. a: A model depicting the moderating role of parental GAD on the relation between child negative affect and parental overcontrol. Solid lines represent significant associations. b: A model depicting the moderating role of parental GAD on the relation between child negative affect and parental emotional discouragement. Solid lines represent significant associations. c: A model depicting the moderating role of parental GAD on the relation between child negative affect and parental productive engagement. Solid lines represent significant associations and dashed lines represent non-significant relationships.

not appear to be a concern based on the appropriate tolerance statistics found when conducting a regression predicting child negative affect from parental GAD status and BAI-II scores (tolerance = 0.65). Independent sample t -tests revealed no significant differences between

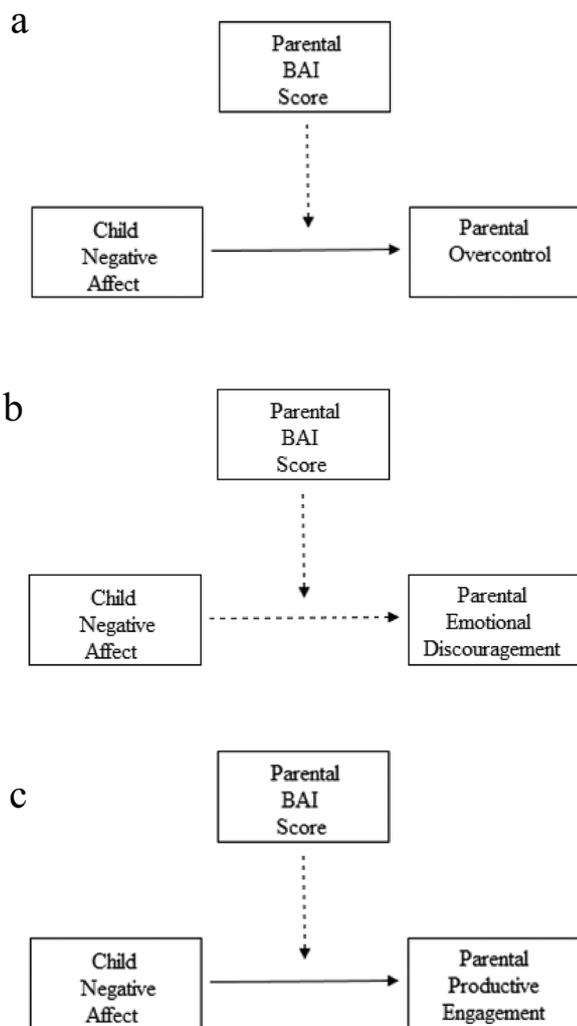


Fig. 2. a: A model depicting the moderating role of parental BAI-II scores on the relation between child negative affect and parental overcontrol. Solid lines represent significant associations and dashed lines represent non-significant relationships. b: A model depicting the moderating role of parental BAI-II scores on the relation between child negative affect and parental emotional control. Dashed lines represent non-significant relationships. c: A model depicting the moderating role of parental BAI-II scores on the relation between child negative affect and parental productive engagement. Solid lines represent significant associations, while dashed lines represent non-significant associations.

male and female children for all variables of interest. Given the significant correlation between child age and parental emotional discouragement, overcontrol and productive engagement, age was examined as a moderator of the relation between child negative affect and parental reactions.

Age did not significantly moderate the relation between child negative affect and parental reactions. Specifically, in terms of parental overcontrol, though the overall model was significant ($R^2 = 0.39$, $F(3, 85) = 18.18$, $p < 0.0001$, $f^2 = 0.71$), child age did not significantly interact with child negative affect ($\beta = 0.008$, $t = 1.31$, $p = 0.19$, 95% boot-strap CI $-0.004 - 0.021$). In terms of parental emotional discouragement, though the overall model was significant ($R^2 = 0.35$, $F(3, 45) = 8.52$, $p = 0.0001$, $f^2 = 0.28$), child age did not significantly interact with child affect ($\beta = 0.005$, $t = 1.20$, $p = 0.23$, 95% boot-strap CI $-0.003 - 0.0128$). In terms of productive engagement, though the overall model was significant ($R^2 = 0.37$, $F(3, 85) = 26.67$, $p < 0.0001$, $f^2 = 0.62$), child age did not significantly interact with child affect ($\beta = -0.007$, $t = -0.68$, $p = 0.50$, 95% boot-strap CI $-0.027 - 0.014$). Given that child age did not significantly interact with child negative affect in predicting parental responses, child age

Table 3
Demographic Variables by Parent Group.

Variable	GAD	No Diagnosis	t/χ^2
Parent Gender			0.94
Female	30	53	
Male	1	5	
Parent Age			1.94
M	35.90	38.64	
SD	7.12	5.87	
Gross Family Income			8.40
< 30,000	7	9	
30,000–60,000	9	14	
60,000+	15	32	
Decline to state	0	3	
Marital Status			16.74**
Married	24	43	
Divorced and remarried	1	0	
Divorced and single	0	12	
Separated	0	1	
Never Married	6	1	
Decline to state	0	1	
Parent Education			8.69
High school/GED	3	4	
Some college	12	9	
College graduate	9	22	
Graduate training	7	23	
Race			4.64
African-American	3	4	
Caucasian	22	45	
Hispanic	6	4	
Asian	0	1	
Other	0	2	
Decline to state	0	2	
BAI			-7.19***
M	10.10	2.17	
SD	7.74	2.43	
Child Age			1.93
M	7.13	8.34	
SD	2.66	2.92	
Child Gender			0.28
Female	21	36	
Male	10	22	
Child Diagnosis			2.97
Anxiety Disorder	12	12	
Externalizing Disorder	0	1	
Both	2	0	

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

was not included in further analyses.

3.2. Group composition

Group demographics are shown in Table 3. Parents in the two groups did not differ with regards to gender, family income, parent age, education, race, child age, and child's gender. The groups did, however, differ in terms of marital status ($\chi^2 = 16.74$, $p = 0.002$). Parents with no diagnosis ($n = 43$) were more likely to be married than parents with GAD ($n = 24$). As would be expected, parents with GAD also reported significantly higher BAI scores ($t = -7.19$, $p < 0.001$). The correlation between marital status and each of the composite parent behaviors was examined. No significant correlations were revealed, therefore the variable was not considered in subsequent analyses.

3.3. Testing moderation models

Prior to testing the moderation models, each of the regression models was tested individually. Child negative affect significantly predicted parental overcontrol ($R^2 = 0.095$, $F(1, 87) = 9.15$, $p = 0.003$, $f^2 = 0.11$), parental emotional discouragement ($R^2 = 0.077$, $F(1, 67) = 5.55$, $p = 0.02$, $f^2 = 0.073$), and parental

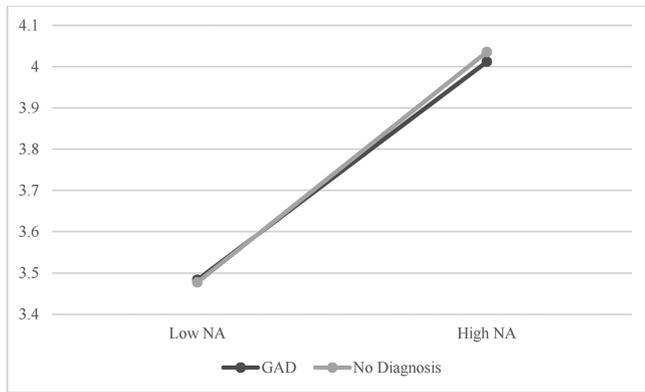


Fig. 3. Moderating effect of parental GAD on relation between child negative affect and parental overcontrol.

productive engagement ($R^2 = 0.061$, $F(1, 87) = 5.62$, $p = 0.02$, $f^2 = 0.064$).

The model testing the moderating role of parental GAD status on the relation between child negative affect during the task and parental overcontrol was tested first (see Fig. 1a). The overall model significantly predicted parental overcontrol ($R^2 = 0.077$, $F(1, 67) = 5.55$, $p = 0.02$, $f^2 = 0.11$), with a significant interaction between GAD diagnostic status and child negative affect ($\beta = -0.05$, $t = -1.98$, $p = 0.05$, 95% boot-strap CI $-0.11 - 0.00$).

The pick a point approach was used to better understand the conditional effect of GAD status on the relation between child affect and parental overcontrol (Hayes, 2013). The pick a point approach calculates the conditional effect of the independent variable on the dependent variable at selected values of the moderator (Hayes, 2013). The conditional effect of child negative affect on parental overcontrol was obtained for parents presenting with GAD and with no diagnosis. The pick a point approach indicated that the conditional effect for parents with no GAD was 0.06, $t(68) = 3.97$, $p < 0.001$, and 0.01, $t(68) = 0.42$, $p = 0.68$ for parents diagnosed with GAD. Interaction effects are depicted graphically in Fig. 3.

In order to determine whether this interaction is unique to GAD, the moderating role of anxiety symptoms on the relation between child negative affect and parental overcontrol was next tested. Results suggest that though the overall model significantly predicted parental overcontrol ($R^2 = 0.10$, $F(3, 85) = 9.34$, $p = 0.04$, $f^2 = 0.11$) symptoms of anxiety did not interact significantly with child negative affect ($\beta = 0.001$, $t = 0.69$, $p = 0.49$, 95% boot-strap CI $-0.002 - 0.004$).

Next, the moderating role of GAD on the relation between child negative affect and parental emotional discouragement was examined. The overall model significantly predicted parental emotional discouragement ($R^2 = 0.25$, $F(3, 64) = 6.13$, $p = 0.001$, $f^2 = 0.31$) and negative affect and GAD interacted significantly ($\beta = 0.023$, $t = 2.04$, $p = 0.045$, 95% boot-strap CI $0.0005 - 0.046$). For this model, the pick a point approach indicated a conditional effect of 0.006, $t(68) = 0.87$, $p = 0.89$, when parents did not have GAD and 0.029, $t(68) = 0.3.06$, $p = 0.003$ when parents had GAD. Findings are depicted graphically in Fig. 4.

In order to examine whether this relation is unique to GAD status, the moderating role of anxiety symptoms on the relation between child negative affect and parental emotional discouragement was examined. The overall model did not significantly predicted parental emotional discouragement ($R^2 = 0.12$, $F(3, 45) = 1.00$, $p = 0.40$, $f^2 = 0.15$) and there was not a significant interaction of anxiety symptoms and child negative affect ($\beta = -0.0003$, $t = -0.05$, $p = 0.96$, 95% boot-strap CI $-0.01 - 0.01$).

The moderating role of GAD on the relationship between child negative affect and parental productive engagement was examined. The full model was not significant ($R^2 = 0.07$, $F(3, 85) = 1.21$, $p = 0.31$,

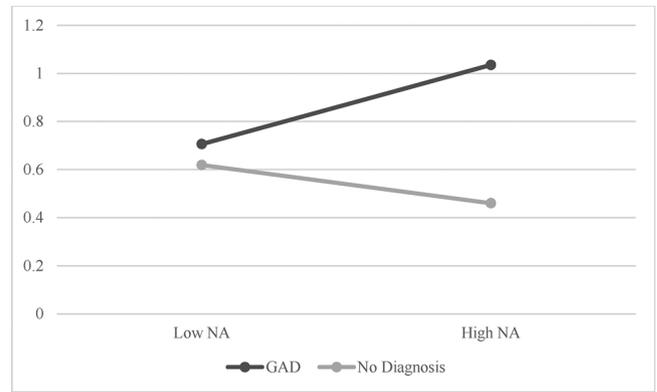


Fig. 4. Moderating effect of parental GAD on relation between child negative affect and parental emotional discouragement.

$f^2 = 0.073$), and there was not a significant interaction between child negative affect and parental GAD ($\beta = -0.03$, $t = -0.48$, $p = 0.63$, 95% boot-strap CI $-0.10 - 0.16$). General symptoms of anxiety were next examined as a moderator in the relation between productive engagement and child negative affect. Results suggest that though the overall model significantly predicted productive engagement ($R^2 = 0.08$, $F(3, 85) = 5.09$, $p = 0.003$, $f^2 = 0.064$), there was not a significant interaction between child negative affect and parental symptoms of anxiety ($\beta = 0.005$, $t = 1.43$, $p = 0.16$, 95% boot-strap CI $-0.002 - 0.012$). The results of each moderation analysis tested are shown in Table 4.

4. Discussion

The present study examined the impact of parental GAD on parent’s emotion socialization behavior, and whether this impact is unique to GAD. Emotion socialization provides an opportunity to examine the impact of worry in a disorder-salient situation. Thus, emotion socialization behavior can elucidate differences in what children of parents with GAD learn about emotions, and enhance our overall understanding of how anxiety disorders are transmitted from parents to children. The EDM of GAD suggests that individuals with GAD are thought to experience emotions more intensely, view emotions as threatening and therefore employ worry as a way to avoid and minimize distressing emotional states (Mennin et al., 2005). By extending key principles of the EDM to emotion socialization behavior, it was hypothesized that the presence of parental GAD would strengthen the relationship between children’s negative affect and parental emotional discouragement, productive engagement and parental overcontrol. Specifically, it was hypothesized that parents would respond to negative affect in their children with greater increases in emotional discouragement and greater decreases in overcontrol and productive engagement if they had

Table 4
Moderation Results.

IV	Moderator	DV	B	p	95% CI
Negative Affect	GAD	Overcontrol	-0.05	0.05	-0.11 - 00
Negative Affect	BAI	Overcontrol	0.0005	0.84	-0.004-0.005
Negative Affect	GAD	Emotional Discouragement	0.02	0.045	.0005-0.046
Negative Affect	BAI	Emotional Discouragement	-0.0003	0.96	-0.012-0.011
Negative Affect	GAD	Productive Engagement	-0.03	0.63	-0.10-0.16
Negative Affect	BAI	Productive Engagement	0.005	0.16	-0.002-0.012

GAD. Further, given research which suggests that changes in parenting behavior are most clearly observed in disorder-salient situations (Murray et al., 2012), it was hypothesized that parent's anxiety symptoms would not moderate parent's responses to children's affect.

Overall, results suggest that parental GAD changes the relationship between children's affective displays and parental reactions. Findings also indicate that this is not the case for parent's anxiety. These findings extend previous research proposing a unique impact of specific anxiety disorders to broad categories of parenting (e.g., Budinger et al., 2013). Results suggest that the relationship between children's negative affect and emotional discouragement was stronger for parents with GAD. This suggests that children of parents with GAD are encouraged to suppress emotional experiences, rather than taught to effectively manage and cope with negative emotions. This helps to expand on previous research stating that the children of anxious mothers tend to experience difficulties regulating their emotions (West & Newman, 2003).

Findings indicate that child negative affect was not significantly predictive of overcontrol for parents with GAD, however, overcontrol among parents without a diagnosis was significantly predicted by child negative affect. That is, healthy parents' use of overcontrol was responsive to their child's level of negative affect, while overcontrol among parents with GAD was not. This is in line with previous research suggesting that parental psychopathology is linked to non-responsive reactions to children's negative affect (Breux et al., 2016). It is important to note, however, that in this sample, parents with no diagnosis displayed higher levels of overcontrol than did parents with GAD. This departs from previous findings that anxious parents tend to be more overcontrolling than healthy parents when interacting with their children (Epkins & Harper, 2016). This highlights both the importance of examining disorder-salient situations (Murray et al., 2012), as well as the impact of specific anxiety disorders on parenting behaviors. Given that generally, levels of overcontrol remained low, and that the variable included such behaviors as redirecting the child's attention and suggesting a new direction or approach (see Table 1), it is possible that healthy parents increased their levels of overcontrol in order to provide structure and guide the child towards a more pleasant activity or prompted them to engage in active coping. It is possible that because of the cognitive load associated with worry (Owens et al., 2015), coupled with the difficulty in utilizing the information conveyed by emotions (Mennin et al., 2005), parents with GAD did not adjust their levels of control in response to their children's displays of negative affect. As a result, their children may be left to cope with negative emotions on their own, without assistance or guidance. This is in line with previous findings proposing that because anxious parents are more withdrawn, their children are left to cope with stressful situations with less assistance than the children of healthy parents (Woodruff-Borden et al., 2002).

It is important to note that the hypothesis that parental GAD would impact the relation between negative affect and productive engagement was not supported. Once again, this is different from the behavior of anxious parents; previous research suggests that anxious parents display less productive engagement than healthy parents when interacting with their children (Woodruff-Borden et al., 2002). It is possible that differences in productive engagement were not observed because task demands increased the likelihood of productive engagement, especially given that parents were being observed. Thus, the current measure may have been an underestimate of differences in parental engagement which may be observed in a more naturalistic environment.

The EDM would suggest that the observed differences in parent's reactions to their children's affect are due to the distress experienced in response to their more extreme experiences of emotions coupled with an increased difficulty in understanding and utilizing the information conveyed by emotional displays (Fresco, Mennin, Moore, Heimberg, & Hambrick, 2014; Mennin et al., 2005). It may be that worried parents dedicate more cognitive resources towards efforts to modulate their emotional experiences and may experience worry in response to these

experiences, which further depletes cognitive resources (Owens et al., 2015). Additionally, the EDM would suggest that parents with GAD have less effective mechanisms for coping with emotions than those without GAD (Behar et al., 2009; Hong, 2007), which would make it more difficult for parents with GAD to teach their children effective ways to manage and display their emotions. Beyond the lab setting, it is possible that children of parents with GAD may have greater difficulty managing their emotions in social and academic domains because their parents do not teach them techniques to effectively manage emotions.

This study was not without limitations. First, due to the number of statistical tests, two age groups were combined within the study (3–5 years of age and 6–12 years of age) in order to reduce Type I error and increase power. It is possible parent's reactions to their children's affect changes with development (Waite & Creswell, 2015). Future research should examine the effect of children's developmental stage on parental emotion socialization behavior over time, and how this behavior may impact the development or maintenance of anxiety and worry in children. The present study was also limited due to missing data. Analyses in the current study included all participants with data for variables relevant to that analysis, thus not all participants were included in all analyses. This study was also limited to the examination of one parent's reaction to their child. Further research is needed in order to determine co-parenting practices in the socialization of emotions, as well as potentially protective qualities which the other parent may provide. The current study was limited to the examination of one disorder, GAD, on emotion socialization. Given the high rate of comorbidity between GAD and depressive disorders (Wittchen et al., 2002), future studies should examine how both GAD and a comorbid depressive disorder impact parent's emotion socialization behaviors. Additionally, the current study was limited in that it utilized parents with either a primary or secondary diagnosis of GAD. Future research should examine whether differences in emotion socialization practices exist between parents with a primary versus secondary GAD diagnosis. The study was also limited to the role of parental GAD on reactions to affect. Given the bidirectional nature of parent-child interactions (Williams, Kertz, Schrock, & Woodruff-Borden, 2012), future research is needed to understand how the emotion socialization process may differ in worried and healthy dyads. Given research that suggests that child anxiety is an important determinant of parental levels of control (Hudson, Doyle, & Gar, 2009), it is possible that worried dyads interact differently than do healthy dyads, or dyads in which only one individual is clinically worried. Finally, given that the sample was largely Caucasian with an income above \$60,000, these findings are limited by sample characteristics. Previous research suggests that mothers of Indian, Indian American and American descent socialize children's emotions differently (Karkhanis & Winsler, 2016). Future research should examine whether GAD plays a similar role in families of more diverse backgrounds.

The results of the current study extend our knowledge of the emotion socialization behavior of worried parents. This examination of the behavioral reactions of worried parents to their children's affect in the context of the EDM helps to provide another potential link to the development and maintenance of worry in children. Overall, these findings suggest that GAD changes the way parents respond to their children's displays of negative emotions in a way which cannot be explained by anxiety symptoms alone. Findings indicate that GAD strengthens the relationship between negative affect and emotional discouragement, and that parents with GAD do not adjust their levels of control to meet the child's needs. These findings highlight the importance of teaching parents with GAD effective tools to manage emotions and cope with distress. Additionally, treatments for parents with GAD may benefit from specifically addressing interactions with children and providing parents with effective ways of teaching their children to manage and express emotions.

References

- American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.
- Asbrand, J., Hudson, J., Schmitz, J., & Tuschen-Caffier, B. (2017). Maternal parenting and child behaviour: an observational study of childhood social anxiety disorder. *Cognitive Therapy and Research*, 41(4), 1–14.
- Barrasso-Catanzaro, C., & Eslinger, P. J. (2016). Neurobiological bases of executive function and social-emotional development: Typical and atypical brain changes. *Family Relations*, 65(1), 108–119.
- Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology*, 56(6), 893–897.
- Behar, E., DiMarco, I. D., Hekler, E. B., Mohlman, J., & Staples, A. M. (2009). Current theoretical models of generalized anxiety disorder (GAD): Conceptual review and treatment implications. *Journal of Anxiety Disorders*, 23(8), 1011–1023.
- Brand, A. E., & Klimes-Dougan, B. (2010). Emotion socialization in adolescence: The roles of mothers and fathers. *New Directions for Child and Adolescent Development*, 2010(128), 85–100.
- Breaux, R. P., Harvey, E. A., & Lugo-Candelas, C. I. (2016). The role of parent psychopathology in emotion socialization. *Journal of Abnormal Child Psychology*, 44(4), 731–743.
- Brown, T. A., DiNardo, P. A., Lehman, C. L., & Campbell, L. A. (2001). Reliability of DSM-IV anxiety and mood disorders: Implications for the classification of emotional disorders. *Journal of Abnormal Psychology*, 110(1), 49–58.
- Brown, G. L., Craig, A. B., & Halberstadt, A. G. (2015). Parent gender differences in emotion socialization behaviors vary by ethnicity and child gender. *Parenting*, 15(3), 135–157.
- Budinger, M. C., Drazdowski, T. K., & Ginsburg, G. S. (2013). Anxiety-promoting parenting behaviors: A comparison of anxious parents with and without social anxiety disorder. *Child Psychiatry & Human Development*, 44(3), 412–418.
- Castro, V. L., Halberstadt, A. G., Lozada, F. T., & Craig, A. B. (2015). Parents' emotion-related beliefs, behaviours, and skills predict children's recognition of emotion. *Infant and Child Development*, 24(1), 1–22.
- Chorpita, B. F., & Barlow, D. H. (1998). The development of anxiety: The role of control in the early environment. *Psychological Bulletin*, 124(1), 3.
- Davidov, M., & Grusec, J. E. (2006). Untangling the links of parental responsiveness to distress and warmth to child outcomes. *Child Development*, 77(1), 44–58.
- Denham, S. A., Bassett, H. H., & Wyatt, T. (2007). The socialization of emotional competence. In J. Grusec, & P. Hastings (Eds.). *Handbook of socialization: Theory and research* (pp. 614–637). New York: Guilford Press.
- DiNardo, P. A., Brown, T. A., & Barlow, D. H. (1994). Anxiety disorders interview schedule for DSM-IV: life time version. In P. A. DiNardo, T. A. Brown, & D. H. Barlow (Eds.). *Client interview schedule* Graywind.
- Eisenberg, N., & Fabes, R. A. (1994). Mothers' reactions to children's negative emotions: Relations to children's temperament and anger behavior. *Merrill-Palmer Quarterly*, 40, 138–156.
- Eisenberg, N., Fabes, R. A., & Murphy, B. C. (1996). Parents' reactions to children's negative emotions: Relations to children's social competence and comforting behavior. *Child Development*, 67, 2227–2247.
- Eisenberg, N., Cumberland, A., & Spinrad, T. L. (1998). Parental socialization of emotion. *Psychological Inquiry*, 9(4), 241–273.
- Epkins, C. C., & Harper, S. L. (2016). Mothers' and fathers' parental warmth, hostility/rejection/neglect, and behavioral control: Specific and unique relations with parents' depression versus anxiety symptoms. *Parenting*, 16(2), 125–145.
- Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39, 175–191.
- Fresco, D. M., Mennin, D. S., Moore, M. T., Heimberg, R. G., & Hambrick, J. (2014). Changes in explanatory flexibility among individuals with generalized anxiety disorder in an emotion evocation challenge. *Cognitive Therapy and Research*, 38(4), 416–427.
- Harvison, K. W., Chapman, L. K., Ballash, N. G., & Woodruff-Borden, J. (2008). Anxiogenic patterns in mother-child interactions. *Child & Family Behavior Therapy*, 30(2), 137–151.
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: Guilford Press.
- Hong, R. Y. (2007). Worry and rumination: Differential associations with anxious and depressive symptoms and coping behavior. *Behaviour Research and Therapy*, 45(2), 277–290.
- Hudson, J. L., Comer, J. S., & Kendall, P. C. (2008). Parental responses to positive and negative emotions in anxious and nonanxious children. *Journal of Clinical Child & Adolescent Psychology*, 37(2), 303–313.
- Hudson, J. L., Doyle, A. M., & Gar, N. (2009). Child and maternal influence on parenting behavior in clinically anxious children. *Journal of Clinical Child and Adolescent Psychology*, 38(2), 256–262.
- Jones, S., MacKinnon, D. P., Eisenberg, N., & Fabes, R. A. (2002). Parents' reactions to elementary school children's negative emotions: relations to social and emotional functioning at school. *Merrill-Palmer Quarterly*, 48(2), 133–159.
- Kahle, S., Grady, J. S., Miller, J. G., Lopez, M., & Hastings, P. D. (2017). Maternal emotion socialization and the development of inhibitory control in an emotional condition. *Infant and Child Development* Advance online publication.
- Karkhanis, D. G., & Winsler, A. (2016). Temperament, gender, and cultural differences in maternal emotion socialization of anxiety, somatization, and anger. *Psychological Studies*, 61(3), 137–158.
- Kerig, P. K., Cowan, P. A., & Cowan, C. P. (1993). Marital quality and gender differences in parent-child interaction. *Developmental Psychology*, 15, 931–939.
- Lizeretti, N. P., & Extremera, N. (2011). Emotional intelligence and clinical symptoms in outpatients with generalized anxiety disorder (GAD). *Psychiatric Quarterly*, 82(3), 253–260.
- Möller, E. L., Majdandžić, M., & Bögels, S. M. (2015). Parental anxiety, parenting behavior, and infant anxiety: Differential associations for fathers and mothers. *Journal of Child and Family Studies*, 24(9), 2626–2637.
- Mennin, D. S., Heimberg, R. G., Turk, C. L., & Fresco, D. M. (2005). Preliminary evidence for an emotion dysregulation model of generalized anxiety disorder. *Behaviour Research and Therapy*, 43(10), 1281–1310.
- Meyer, S., Raikes, H. A., Virmani, E. A., Waters, S., & Thompson, R. A. (2014). Parent emotion representations and the socialization of emotion regulation in the family. *International Journal of Behavioral Development*, 38(2), 164–173.
- Miller-Slough, R. L., & Dunsmore, J. C. (2016). Parent and friend emotion socialization in adolescence: Associations with psychological adjustment. *Adolescent Research Review*, 1(4), 1–19.
- Murray, L., Lau, P. Y., Artech, A., Creswell, C., Russ, S., Zoppa, L. D., & Cooper, P. (2012). Parenting by anxious mothers: Effects of disorder subtype, context and child characteristics. *Journal of Child Psychology and Psychiatry*, 53(2), 188–196.
- Oppenheimer, C. W., Ladouceur, C. D., Waller, J. M., Ryan, N. D., Allen, K. B., Sheeber, L., & Silk, J. S. (2016). Emotion socialization in anxious youth: Parenting buffers emotional reactivity to peer negative events. *Journal of Abnormal Child Psychology*, 44(7), 1–12.
- Osman, A., Kopper, B. A., Barrios, F. X., Osman, J. R., & Wade, T. (1997). The Beck Anxiety Inventory: Reexamination of factor structure and psychometric properties. *Journal of Clinical Psychology*, 53(1), 7–14.
- Owens, M., Derakshan, N., & Richards, A. (2015). Trait susceptibility to worry modulates the effects of cognitive load on cognitive control: An ERP study. *Emotion*, 15(5), 544–549.
- Schrock, M., & Woodruff-Borden, J. (2010). Parent-child interactions in anxious families. *Child & Family Behavior Therapy*, 32(4), 291–310.
- Shaffer, A., Suveg, C., Thomassin, K., & Bradbury, L. L. (2012). Emotion socialization in the context of family risks: links to child emotion regulation. *Journal of Child and Family Studies*, 21(6), 917–924.
- Shewark, E. A., & Blandon, A. Y. (2015). Mothers' and fathers' emotion socialization and children's emotion regulation: A within-family model. *Social Development*, 24(2), 266–284.
- Southam-Gerow, M. A., & Kendall, P. C. (2002). Emotion regulation and understanding: Implications for child psychopathology and therapy. *Clinical Psychology Review*, 22(2), 189–222.
- Suveg, C., Zeman, J., Flannery-Schroeder, E., & Cassano, M. (2005). Emotion socialization in families of children with an anxiety disorder. *Journal of Abnormal Child Psychology*, 33(2), 145–155.
- Vytal, K., Cornwell, B., Arkin, N., & Grillon, C. (2012). Describing the interplay between anxiety and cognition: From impaired performance under low cognitive load to reduced anxiety under high load. *Psychophysiology*, 49(6), 842–852.
- Waite, P., & Creswell, C. (2015). Observing interactions between children and adolescents and their parents: the effects of anxiety disorder and age. *Journal of Abnormal Child Psychology*, 43(6), 1079–1091.
- West, A. E., & Newman, D. L. (2003). Worried and blue: Mild parental anxiety and depression in relation to the development of young children's temperament and behavior problems. *Parenting: Science and Practice*, 3(2), 133–154.
- Williams, S. R., Kertz, S. J., Schrock, M. D., & Woodruff-Borden, J. (2012). A sequential analysis of parent-child interactions in anxious and nonanxious families. *Journal of Clinical Child & Adolescent Psychology*, 41(1), 64–74.
- Wittchen, H. U., Kessler, R. C., Beesdo, K., Krause, P., Höfler, M., & Hoyer, J. (2002). Generalized anxiety and depression in primary care: Prevalence, recognition, and management. *The Journal of Clinical Psychiatry*, 63(8), 24–34.
- Woodruff-Borden, J., Morrow, C., Bourland, S., & Cambron, S. (2002). The behavior of anxious parents: examining mechanisms of transmission of anxiety from parent to child. *Journal of Clinical Child and Adolescent Psychology*, 31(3), 364–374.
- Yan, J., Han, Z. R., & Li, P. (2016). Intergenerational transmission of perceived bonding styles and paternal emotion socialization: Mediation through paternal emotion dysregulation. *Journal of Child and Family Studies*, 25(1), 165–175.