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Authors

Oppenheimer, Caroline W
Ladouceur, Cecile D
Waller, Jennifer M
[et al.](#)

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Emotion Socialization in Anxious Youth: Parenting Buffers Emotional Reactivity to Peer Negative Events

Caroline W. Oppenheimer¹ · Cecile D. Ladouceur¹ · Jennifer M. Waller² · Neal D. Ryan¹ · Kristy Benoit Allen¹ · Lisa Sheeber³ · Erika E. Forbes¹ · Ronald E. Dahl⁴ · Jennifer S. Silk^{2,1}

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Abstract Anxious youth exhibit heightened emotional reactivity, particularly to social-evaluative threat, such as peer evaluation and feedback, compared to non-anxious youth. Moreover, normative developmental changes during the transition into adolescence may exacerbate emotional reactivity to peer negative events, particularly for anxious youth. Therefore, it is important to investigate factors that may buffer emotional reactivity within peer contexts among anxious youth. The current study examined the role of parenting behaviors in child emotional reactivity to peer and non-peer negative events among 86 anxious youth in middle childhood to adolescence (Mean age = 11.29, 54 % girls). Parenting behavior and affect was observed during a social-evaluative laboratory speech task for youth, and ecological momentary assessment (EMA) methods were used to examine youth emotional reactivity to typical daily negative events within peer and non-peer contexts. Results showed that parent positive behaviors, and low levels of parent anxious affect, during the stressful laboratory task for youth buffered youth negative emotional reactivity to real-world negative peer events, but not non-peer events. Findings inform our understanding of

parenting influences on anxious youth's emotional reactivity to developmentally salient negative events during the transition into adolescence.

Keywords Child and adolescent anxiety · Parenting · Emotional reactivity · Peer negative events

Anxious youth experience more intense negative affect and greater emotional reactivity to negative events relative to their non-anxious peers (Henker et al. 2002; Suveg and Zeman 2004; Tan et al. 2012). In addition, research suggests that anxious youth experience heightened reactivity to social threat, such as social evaluation and peer feedback (Silk et al. 2012). As children transition into adolescence, this reactivity to social stimuli coincides with the normative developmental increases both in the desire for and valuing of peer relationships, as well as in the frequency of encountering negative peer events (Buhrmester and Furman 1987; Hankin et al. 2007). It is thus important to examine factors that may contribute to the exacerbation or amelioration of emotional reactivity within peer contexts amongst anxious youth during the transition into adolescence.

Substantial theory and research suggest that parenting behaviors play a crucial role in helping to regulate emotional reactivity among youth (Albers et al. 2008; Cassidy 1994; Contradt and Ablow 2010; Crockenberg and Leerkes 2004; Jahromi and Stifter 2007). However, the majority of studies investigating associations between parenting and youth emotional reactivity have focused on infants, toddlers, and preschoolers, and have been conducted in healthy samples. It is especially important to understand how parenting may

✉ Caroline W. Oppenheimer
oppenheimercw@upmc.edu

¹ Department of Psychiatry, University of Pittsburgh School of Medicine, 121 Meyran Avenue, Pittsburgh, PA 15260, USA

² Department of Psychology, University of Pittsburgh, 210 S. Bouquet St., Pittsburgh, PA, USA

³ Oregon Research Institute, 1715 Franklin Blvd., Eugene, OR, USA

⁴ School of Public Health, University of California, 50 University Hall, Berkeley, CA, USA

influence youth negative affect among vulnerable youth during the transition into adolescence, when developmental demands, such as increased autonomy from parents and greater desire for peer acceptance, may tax the abilities of these youth to independently regulate emotional responses (Yap et al. 2010). The goal of the current study was to address major gaps in knowledge regarding how parenting behaviors may buffer emotional responses to negative peer events among anxious youth transitioning from middle childhood into adolescence.

Parenting in Emotion-Eliciting Contexts during the Transition into Adolescence

Positive parenting behaviors in response to youth negative emotions, such as displays of affection, support, and concern, may communicate to children that the expression and sharing of negative emotions is acceptable, and may encourage children to experience and learn about their emotions and how to effectively manage them (Eisenberg et al. 1998; Gottman et al. 1996; Leerkes et al. 2012). On the other hand, low levels of positive parenting and high levels of negative parenting may contribute to maladaptive regulatory behaviors, such as attempt to over-regulate emotions, which may have emotional and physiological costs (i.e., heightened arousal), or the under-regulation of emotions. In addition, clinical research on child anxiety suggests that parent displays of anxious affect may influence responses to challenging or stressful situations among anxious youth. Studies suggest that parents' modeling of anxiety contributes to the perception that events are threatening and that successful outcomes are unlikely (Merckelbach et al. 1996; Ollendick and King 1991; Becker and Ginsburg 2011). This research is in line with theory on emotion socialization and the role of parent modeling positing that adolescents continue to look to parents in novel and stressful situations in order to gain information on possible emotional responses and to learn ways to cope with emotion (Morris et al. 2007). Thus, parent modeling of anxious affect within emotion-eliciting contexts is likely also an important factor in emotion-regulation abilities among anxious youth.

A number of studies have used observational methods to examine how parenting behaviors may regulate child emotional reactivity during emotion-eliciting or threatening events among samples of infants and young children, such as during immunizations, exposure to novelty, or after caregiver withdrawal during the still-face paradigm (Contradt and Ablow 2010; Crockenberg and Leerkes 2004; Kiel and Buss 2010; Moore and Calkins 2004; Spinrad et al. 2004). These studies have typically focused on positive parenting behaviors, and have shown that low levels of maternal sensitivity, support, or soothing to child distress signals is associated with greater child behavioral and physiological reactivity. This work is consistent with theory and findings that parent responses to child distress cues, or bids for protection, safety, and comfort

(e.g., expressions of negative affect, crying) are particularly important for adaptive emotion regulation and predictive of social-emotional outcomes, whereas parent responses to non-distress behaviors (e.g., neutral vocalizations or overtures) may be more important for functioning in other areas, such as cognitive and language development (Leerkes et al. 2012).

Studies conducted among pre-school and school-age children suggest that negative, invalidating, or punitive parenting responses to youth expressions of negative emotions are associated with inappropriate emotion regulation strategies and generally poor emotional and social competence (Eisenberg and Fabes 1994; Eisenberg et al. 1992, 1996; Morris et al. 2002). However, the majority of these studies are based on parent or child self-report. Thus, there is a need for more observational studies among school-aged children and adolescents that assess both positive and negative parenting behaviors in response to youth within emotion-eliciting contexts. Observational studies are able to better address potential limitations of questionnaire methods, such as shared method variance that can inflate associations, and biased perceptions of self and others.

The few existing observational studies examining associations between positive and negative parenting and adolescent emotional responses have shown that low levels of supportive, caring, validating, and approving parent behaviors, and high levels of aggressive, angry, critical, or argumentative behaviors, are associated with greater youth negative affect (Yap et al. 2010; Sheeber et al. 2000). Yet, it is important to note that these studies assessed parenting either during a conflict resolution task which requires parents and children to discuss a source of disagreement, or during an event planning task during which participants plan a fun activity. In order to investigate how parenting behaviors may buffer emotional reactivity among older youth, it is important to observe parenting behaviors in contexts designed to elicit parent caregiving responses to child distress among older youth.

Finally, a few studies on parent modeling of anxiety have used observational methods in samples of school-aged children and adolescents (Chorpita et al. 1996; Cobham et al. 1999; Dadds et al. 1996; Shortt et al. 2001). However, these studies examined child outcomes such as biased cognitions, or coping styles, rather than emotional reactivity or regulation. One study of children ages 6–14 demonstrated that mothers' display of greater anxious affect was associated with heightened anxious emotions among youth in response to a challenging spelling task (Burnstein and Ginsburg 2010). This finding suggests that low levels of parent anxious affect may help to buffer youth emotional reactivity to stressors.

Emotion in Real-World Peer Contexts among Anxious Youth

The way in which parents interact with anxious youth during emotion-eliciting contexts may influence how well these

youth regulate emotion in response to negative events in daily life. More intense emotional responses to real-world daily negative events may be associated with the maintenance and exacerbation of anxiety symptoms. It may be difficult for youth during the transition into adolescence to independently regulate emotion in peer contexts as peer relationships increase in importance, and as exposure to negative peer events rises. Anxious youth likely have even greater difficulty regulating emotion within peer contexts during this developmental period, given that sensitivity to social evaluation is a core component of child anxiety (Silk et al. 2012). Studies show that anxious youth exhibit greater attention biases and heightened neural reactivity to negative social stimuli compared to other youth, such as greater amygdala activity to fearful or angry faces and peer evaluation (Bar-Haim et al. 2007; Guyer et al. 2008; Ladouceur et al. 2006; McClure et al. 2007; Monk et al. 2008). For these reasons, it is important to assess anxious youths' emotional responses within developmentally relevant peer contexts in daily life.

In addition, theory on the role of parenting in child emotional development posits that parenting behaviors, particularly in the face of stress, contributes to how youth interpret and respond to negative experiences within their social environment in particular (Bowlby 1977; Calkins 1994). Consistent with this idea, emerging evidence suggests that parenting is associated with problematic reactions to negative peer events, more than other types of negative events. Specifically, Hazel et al. (2014) recently found that high quality positive relationships with parents protected against depressive symptoms in response to peer stressors, but did not find this same buffering effect for non-peer stressors. Mezulis et al. (2006) also found that expressions of maternal anger in the context of peer events, rather than other types of negative events, more consistently predicted negative interpretations about stressors (i.e. negative cognitive style). Thus, emotional learning that occurs within the context of parent-child relationships may more strongly influence emotional responses within other interpersonal contexts, such as peer relationships. Therefore, youth's interactions with parents may be especially relevant to learning to regulate emotion in response to peer negative events versus non-peer events (e.g., achievement, health events) during the transition into adolescence.

The majority of prior research on emotional reactivity is somewhat limited by a reliance on retrospective self-report or laboratory methods. Retrospective methods are subject to response biases, such as the tendency to recall the most recent or most intense emotional experience (Frederickson 2000; Stone et al. 1998). Laboratory paradigms are able to capture youth emotional responses in real-time, but are limited in ecological validity and may not generalize to real-world contexts. A major strength of the Ecological Momentary Assessment (EMA) approach is that it obtains ecologically valid information on youth's emotional experiences as they naturally occur

in daily life (Smyth and Stone 2003). EMA has been used to assess emotional reactivity in both non-clinical (Larson et al. 1990; Silk et al. 2003) and clinical samples of youth, including anxious youth (Silk et al. 2011; Tan et al. 2012). Consistent with prior research showing poorer emotion regulation abilities and more experiences of more intense negative emotion among anxious youth (Carthy et al. 2010; Suveg and Zeman 2004), Tan and colleagues demonstrated that clinically anxious children, compared to controls, reported higher negative emotional reactivity ratings in response to recent negative events as measured by EMA. However, no study has examined how parenting behaviors may buffer emotional responses to real-world negative peer and non-peer events in daily life among anxious youth.

Current Study

The current study examined the extent to which parenting behaviors buffer child emotional reactivity within peer and non-peer contexts among anxious youth in middle childhood to adolescence. All youth had a history of clinical anxiety and previously completed individual anxiety treatment. However, anxious symptoms still varied at the time of the current study. Our focus was specifically on the influence of parenting on youth emotion regulation, therefore examination of prior treatment effects was beyond the scope of the current study (but see Silk et al. 2016 for more details). We posited that associations between parenting behaviors and youth emotional reactivity would have important implications for understanding risk for persistent problems with anxiety. Parenting was observed during a social-evaluative laboratory speech task in order to assess behaviors within an emotion-eliciting context. EMA was used to examine youth emotional reactivity to typical daily negative events within peer and non-peer contexts. Specifically, we predicted that high levels of parent positive behaviors, and low levels of negative parenting and parent anxious affect during the social-evaluative task would be associated with lower levels of youth negative affect in response to daily events, particularly peer events.

Method

Participants

The current study included participants from a larger treatment study of pediatric anxiety (Silk et al. 2016). This study included 86 youth with a history of a clinical anxiety disorder (separation anxiety disorder, generalized anxiety disorder, or social phobia) who completed a randomized treatment for anxiety (16 sessions of either cognitive-behavioral therapy or child-centered supportive therapy) several days prior to the current study. Treatment sessions were conducted with

primarily the child alone, and parent involvement was minimal. However, in both treatment groups, therapists met with parents for two of the sessions. Parents were not treated as co-clients in these sessions, but rather as consultants to the child's treatment (e.g., parents provided information about primary concerns and goals). Approximately half of the sample were girls (54 %). Age of youth ranged from 9 to 14 ($M = 11.29$), and school grade level ranged from 3rd to 10th grade ($M = 5.42$). This age range was chosen because it encompasses the transition from middle childhood into adolescence. All youth participated in the study with a primary caregiver, defined as the individual who spent the most time involved in caregiving activities. The vast majority (98 %) of caregivers were biological parents, 1 % were step-parents, and 1 % were grandparents (hereafter defined as "parent" for simplicity). The majority of parents were mothers (95 %). The sample was 93 % Caucasian, 2 % African-American, and 5 % Biracial. Average family income for the sample was approximately \$68,000. Following treatment, trained interviewers administered the Schedule for Affective Disorders and Schizophrenia for School-Aged Children (K-SADS; Kaufman et al. 1997) to participants to assess for the presence of a Diagnostic and Statistical Manual for Mental Disorders (DSM 4th ed.; American Psychiatric Association 1994) diagnosis of an anxiety disorder. At the time of the current study, 1 participant met for separation anxiety disorder, 6 participants met criteria for social phobia, 5 participants met criteria for generalized anxiety disorder, and 1 participant met criteria for both social phobia and generalized anxiety disorder (thus approximately 15 % met full criteria for one of these anxiety disorders). In addition, although the mean level of anxiety symptom scores of the current sample fell below the clinical range at post-treatment (Birmaher et al. 1999), significant variability in level of anxiety symptoms (see Table 1) was still observed among youth at the time of the present study.

Youth were excluded from the study if they were taking psychotropic medications, were acutely suicidal or homicidal, had a developmental disorder (i.e., autism or Asperger's syndrome), or had an IQ below 70. Also excluded were youth with a primary diagnosis of major depressive disorder,

obsessive compulsive disorder, post-traumatic stress disorder, conduct disorder, substance abuse or dependence, ADHD (predominantly hyperactive-impulsive type or combined type), or a lifetime diagnosis of schizophrenia, schizoaffective disorder, bipolar disorder, or depression with psychosis. At the time of the current study, 7 participants met criteria for a secondary, comorbid diagnosis, including Specific Phobia ($N = 2$), ADHD ($N = 3$), Tourettes ($N = 1$), and Enuresis ($N = 1$).

Procedure

This study's procedures were approved by the university's Institutional Review Board. Parents provided parental consent and youth assented to participation. Caregivers and youth participated in behavioral observation tasks and completed questionnaires during a laboratory visit that occurred approximately 1 week after treatment completion. Additionally, participants completed one block (5 days of calls) of an ecological momentary assessment (EMA) protocol that assessed social and emotional functioning that began several days following their final treatment session. Participants received compensation for completing assessments.

Measures

Speech Task Youth and their parents completed a 5-min speech task during the study visit (Silk et al. 2013). Children were told they would be giving the speech in front of a video camera. We attempted to ensure that the task would elicit mild negative emotions for the majority of youth by telling them that their performance skills would be assessed and compared to other children's skills and by providing speech topics that would be feasible but challenging. The child and parent were told that the child would be giving a 1.5 min speech on one of three topics and that the speech would be videotaped. Youth were asked to rank their preference of topics, selecting from: "Talk about another country or culture that you know about", "Talk about a famous person in history", or "Talk about something that you think is wrong with your school and how you

Table 1 Means, standard deviations, and bivariate correlations for parenting variables, anxiety symptoms, and age

	1	2	3	4	5
1. Parent anxious affect	–				
2. Parent pos. interpersonal	–0.20	–			
3. Parent agg. interpersonal	–0.09	–0.27*	–		
4. Youth anxiety symptoms	0.05	–0.10	–0.09	–	
5. Age	0.01	0.12	–0.03	0.04	–
<i>M</i>	2.43	1.70	1.00	17.63	11.29
<i>SD</i>	2.05	1.66	1.51	14.82	1.35
<i>Range</i>	0–9.94	0–6.51	0–8.51	0–58	9.40–14.51

* $p < 0.05$

would fix it.” All youth were asked to respond to their second choice topic in the speech. Parents and children were then given 2 min to prepare for the speech. The pre-speech preparation provided a naturalistic assessment of parent-child interactions within an emotion-eliciting context. Youth then gave a 1.5-min speech. In addition, youth were given the option of giving another speech on their third choice topic. The purpose of the optional speech was to introduce a new stressor that could potentially be avoided in order to observe behaviors in response to youth heightened emotions in this context. Youth gave the optional speech if they decided to do so following the interaction with their parent.

Parent positive and aggressive interpersonal behavior as well as anxious affect, were coded using the Living in Family Environments (LIFE) coding system, an event-based, microanalytic coding system in which observers code second-by-second verbal content and affective behavior from video-recorded interactions (Hops et al. 1995a). Parent positive interpersonal scores included all parent statements made with happy, pleasant and caring affect as well as approving or affirming statements. Aggressive interpersonal scores included statements made with irritable affect as well as disapproving, threatening, or argumentative statements directed toward the youth. Anxious affect was coded based on parent facial expressions, tone of voice, body posture, and movement. The validity of the LIFE coding system to meaningfully represent parenting behavior derived from parent-child interactions has been demonstrated in a number of studies on youth (Davis et al. 2000; Sheeber et al. 2000, 1998), and parent coding constructs have been shown to be significantly associated with established measures of youth psychiatric problems and family functioning (Hops et al. 1995b). More detailed information about the psychometric properties of the LIFE system is presented in Hops et al. (1995b). All video recordings were coded by extensively trained observers who were blind to participant characteristics (e.g. psychiatric diagnoses) and study hypotheses. Random pairs of observers were assigned to the interactions to minimize drift between any two observers. A second observer coded approximately 20 % of the interactions to provide an estimate of observer agreement. A rate per minute (RPM) variable was calculated to reflect the frequency of maternal anxious affect and positive and aggressive interpersonal behavior per minute throughout the interaction. Higher scores indicate that a parent exhibited a particular type of behavior or affect a greater number of times per minute on average. The intraclass correlation coefficient (ICC) for each variable was 0.74 for anxious affect, 0.76 for positive interpersonal behavior, and 0.84 for aggressive interpersonal behavior.

Ecological Momentary Assessment To examine social and emotional functioning in youths’ daily lives, participants were asked to complete a 5-day block of EMA assessments that

focused on experiences and behavior in natural settings. Youth were provided with study cell phones. Study staff who were blind to participant characteristics called participants 14 times over a 5-day period that included two weekend days and three weekdays (i.e., 4 PM on Thursday to 9:30 PM on Monday). Phone calls were made throughout the day; however, weekday calls were limited to after-school hours and no calls were made between 9:30 PM and 11 AM on any day. Overall, the number of completed calls was high ($M = 89\%$ of calls were answered). EMA calls consisted of a brief structured interview adapted from previous EMA studies of emotional and behavioral functioning in this age group (Silk et al. 2011, 2003). The interview queried youth regarding the most negative event that had occurred in the hour preceding the call. Calls lasted approximately 5 min, on average.

During each EMA call, youth were asked to describe a time when they had felt the worst (i.e., experienced the most negative affect) in response to a self-nominated negative event that occurred within the past hour. Youth rated their peak levels of negative emotions by responding to four items adapted from the Positive and Negative Affect Schedule for Children (see Silk et al. 2003, 2011, 2012). Participants rated the degree to which they experienced each of the four negative emotions (angry, nervous, sad, and upset) on a scale from 1 to 5 (1 = *very slightly or not at all*, 5 = *extremely*). The average of all four items was used as a measure of overall peak negative affect. Thus, total possible negative affect scores also ranged from 1 to 5, with higher scores indicating greater negative affect. The PANAS-C has been shown to have good internal consistency reliability and convergent and discriminant validity with established measures of child anxiety and depression (Laurent et al. 1999).

Trained coders classified peak negative events as peer events if they occurred within a peer context (e.g., disagreement with friend, friend was mean, or was unable to spend time with a friend). All other events were categorized as non-peer events, such as school events (e.g., had a lot of homework), health events (e.g., had a stomach ache) or general disappointments (e.g., started to rain while biking). Non-peer events were coded as 0, and peer events were coded as 1. Inter-rater agreement was adequate for coding of the category of events (Cohen’s Kappa = 0.70).

Anxiety Symptoms Youth completed the Screen for Childhood Anxiety Disorders (SCARED; Birmaher et al. 1997) which assessed current anxiety symptoms following the completion of study treatment. Participants are asked to what degree each of the 41 items is true of them on a scale from 0 to 2 (0 = Not true or hardly ever true, 2 = very true or often true). Total possible scores range from 0 to 82, and higher scores represent greater levels of anxiety symptoms. The recommended cutoff score for clinical levels of anxiety is 25 or greater (Birmaher et al. 1999). This is a validated scale

for assessing youth's severity of anxiety symptoms and has demonstrated high internal consistency reliability in previous research (Birmaher et al. 1997, 1999). Internal consistency was excellent in this sample ($\alpha = 0.95$).

Statistical Approach

The primary hypotheses were evaluated using hierarchical linear modeling (HLM; Raudenbush et al. 2011) in which EMA observations were nested within individuals. EMA peak negative affect scores served as the dependent variable for all HLM models. To examine the influence of parenting variables on youth negative affect in response to peer versus non-peer events, the event category (peer or non-peer event) recorded at each EMA observation was entered as a level 1 (within-person) predictor of EMA peak negative affect. The intercept and the effect of event category on EMA peak negative affect was in turn predicted at level 2 by parenting variables (between-person predictors). This allowed us to test the main hypothesis and examine whether parenting variables influenced the association between emotional responses to peer or non-peer events (i.e. parenting \times event category interaction effects). The effect of positive interpersonal, aggressive interpersonal, and anxious affect parenting variables were examined in separate models. Gender and child anxious symptoms were also entered as covariates at Level 2. Full maximum likelihood (FIML) estimation was used for all models.

Significant interaction effects were probed using the HLM computational tools offered by Preacher and colleagues (Preacher et al. 2006). This tool estimates simple slopes of the regression of y (negative affect) on the focal predictor (peer negative events), at conditional values of the moderator (parenting).

Results

Preliminary Analyses

Table 1 shows means, standard deviations, and bivariate correlations for parenting variables and age. As expected, parenting variables ranged from moderately to nonsignificantly correlated with one another, supporting that these were independent measures of parenting behaviors. The parenting variables were not associated with youth anxiety symptoms at the time of the current study, which is consistent with prior studies examining direct associations between parenting behaviors and youth anxiety that have yielded mixed findings (Ginsburg et al. 2004; McLeod et al. 2007). There were no differences in levels of parent behaviors across age. Similarly, independent t-tests showed that parenting did not vary according to youth gender.

Youth negative affect scores ranged from 1 to 4.52 ($M = 2.20$, $SD = 0.72$). Initial HLM analyses examining demographic predictors of peak negative affect revealed gender differences, such that girls experienced more intense negative affect in response to negative events compared to boys ($b = 0.39$, $p < 0.05$). Age was not significantly associated with peak negative affect ($b = -0.02$, $p = 0.80$). Given gender effects for EMA negative affect, gender was included as a control variable in all mixed effect models testing main hypotheses.

In addition, HLM analyses showed that on average, intensity of youth negative affect was similar in response to peer and non-peer events ($b = -0.18$, $p = 0.11$), suggesting that there is no main effect of event category on negative affect intensity.

Parent Anxious Affect \times Event Category Predicting Youth Peak Negative Affect

Table 2 shows results of a hierarchical mixed effects model examining parent anxious affect, category of negative event (peer or non-peer), and the interaction of these variables (parent anxious affect \times event category) as predictors of peak negative affect. Consistent with our main hypothesis, parent anxious affect significantly interacted with event category to predict peak negative affect in response to negative events. The parent anxious affect \times event category interaction is illustrated in Fig. 1, with parent anxious affect depicted at 1.5 SD above and below the mean.

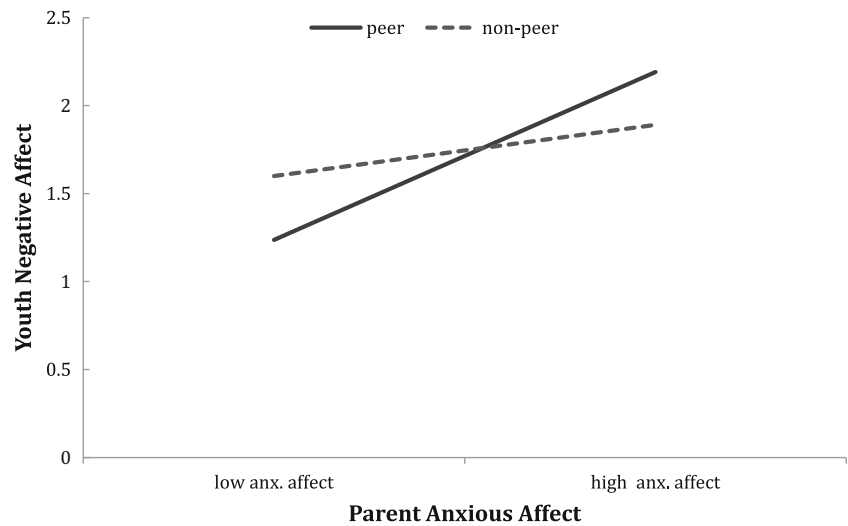
Follow-up analyses showed that youth exposed to low levels of parental anxious affect during an emotion-eliciting context experienced significantly lower levels of negative affect in response to negative peer events, compared to non-peer events ($b = -0.36$, $p < 0.05$). Youth experienced equally high

Table 2 Parent anxious affect \times event category predicting youth peak negative affect in response to negative events

Predictor	<i>b</i>	<i>SE</i>	<i>t</i>	<i>df</i>
Fixed effects				
Level 1				
Intercept	1.75	0.11	16.16**	82
Event category	-0.03	0.08	-0.38	84
Level 2				
P anxious affect	0.05	0.04	1.31	82
C anxious symptoms	0.02	0.004	4.71**	82
Gender	0.25	0.12	2.01*	82
P anxious affect \times event category	0.11	0.03	3.77**	84
Variance components				
Intercept	0.40**			
Event category	0.17**			

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

Fig. 1 The interaction for parent anxious affect × event category predicting youth peak negative affect



levels of negative affect in response to peer and non-peer events when exposed to high levels of parent anxious affect ($b = 0.30, p = 0.18$). Findings suggest that low parent anxious affect protected against negative affective reactivity in response to challenging peer events in particular, whereas youth exposed to high parent anxious affect were at risk for experiencing more intense negative affect in response to peer events.

Parent Positive Interpersonal Behavior × Event Category Predicting Youth Peak Negative Affect

Hierarchical mixed effects analyses examining the interaction between parent positive interpersonal behavior and category of negative event yielded a similar pattern of results. As can be seen in Table 3, there was a significant interaction between parent positive interpersonal behavior and event category. The interaction effect is shown in Fig. 2, with parent positive

interpersonal behavior depicted at 1.5 SD above and below the mean.

Follow-up analyses showed that for youth exposed to high levels of parent positive interpersonal behavior during an emotion-eliciting context, they experienced significantly lower levels of negative affect in response to negative peer events compared to non-peer events ($b = -0.42, p < 0.05$), suggesting that positive interpersonal behavior from parents also buffered negative affective reactivity to peer events. Youth experienced equally high levels of negative affect in response to peer and non-peer events when exposed to low levels of parent positive interpersonal behavior ($b = 0.22, p = 0.29$).

Parent Aggressive Interpersonal × Event Category Predicting Youth Peak Negative Affect

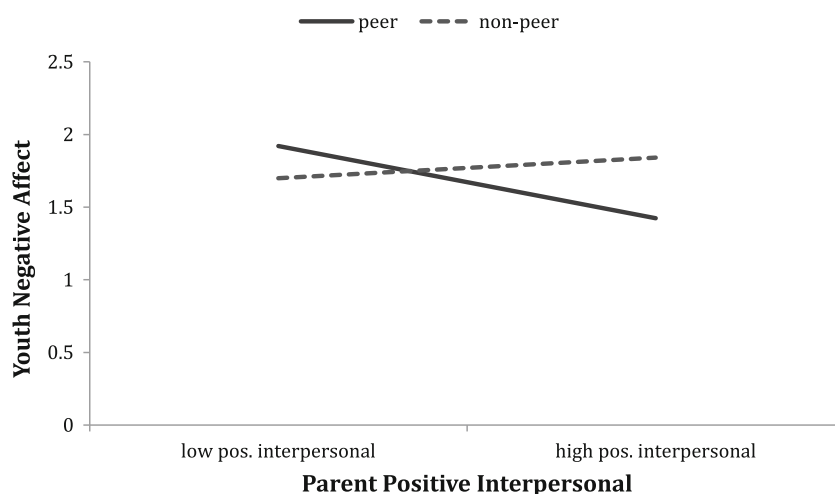
When aggressive interpersonal parenting was examined in the model, aggressive interpersonal behavior did not significantly

Table 3 Parent positive interpersonal behavior × event category predicting youth peak negative affect in response to negative events

Predictor	<i>b</i>	<i>SE</i>	<i>t</i>	<i>df</i>
Fixed effects				
Level 1				
Intercept	1.77	0.11	15.61**	82
Event category	-0.10	0.10	-1.0	82
Level 2				
P pos. interpersonal	0.03	0.05	0.60	82
C anxious symptoms	0.02	0.004	4.35**	82
Gender	0.19	0.14	1.33	82
P pos. interpersonal × event category	-0.13	0.06	-2.20*	84
Variance components				
Intercept	0.41**			
Event category	0.11**			

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

Fig. 2 The interaction for parent positive interpersonal behavior \times event category predicting youth peak negative affect



interact with event category to predict youth negative affect ($b = 0.08$, $p = 0.55$), unlike the other parenting variables examined. Results again showed no effects of aggressive interpersonal parenting ($b = -0.02$, $p = 0.78$), or event category ($b = -0.20$, $p = .15$) on peak negative affect.

Discussion

Cumulating evidence suggests that childhood anxiety is associated with difficulties in emotion regulation abilities and heightened negative emotional reactivity (Tan et al. 2012). Even following treatment, anxious symptoms persist for many youth (Ginsburg et al. 2011), suggesting that these youth may continue to have difficulty regulating negative emotions. As anxious youth transition from middle childhood to adolescence, emotion regulation within peer contexts poses a particular challenge because peer relationships increase in significance, frequency of peer negative events increases, and anxious youth are likely to be more sensitive to negative peer events than are other youth. Results from the current study show that parents' positive behaviors (e.g., approving, caring, or affirming statements) and low levels of parent anxious affect during a stressful youth laboratory task buffered negative emotional responses to real-world negative peer events, but not non-peer events.

Findings are consistent with other studies that have found that parenting behaviors buffer negative responses to peer negative events, versus non-peer events, among youth during the transition from middle childhood to adolescence (Hazel et al. 2014; Mezulis et al. 2006). We speculate that as youth face the developmental challenge of forming more significant and meaningful peer relationships, emotional learning that occurs within the parent-child relationship may be particularly applicable to other interpersonal contexts outside the family. Therefore, youth may especially rely on interactions with parents to learn to regulate emotion in response to peer negative

events versus non-peer events (e.g., achievement, health events) during the transition into adolescence. It is also important to take into consideration that parenting was purposefully measured during a socially relevant, challenging context (social-evaluative laboratory public-speaking task) in this study, and it is possible that parenting measured in this particular context is more strongly associated with emotional reactivity to social negative events, such as peer events.

More nuanced investigations are needed to explore whether youth experience different types of negative affect more intensely to peer and other types of events, and how parenting behaviors may differentially influence these types of negative emotion. It is possible that parenting behaviors might regulate some negative emotions more so than others. This hypothesis is in line with recent evidence showing that youth use emotion-specific regulation strategies, and are more likely to seek social support for some emotions, such as sadness, compared to other emotions (Zimmerman and Iwanski 2014). In addition, based on theory that there is a difference between social emotions (emotions associated with social goals), versus nonsocial emotions (emotions associated with biological/visceral needs; Britton et al. 2006), future studies could include a greater variety of emotions and make distinctions between those that might include a social component (e.g., rejection, shame), and those that are nonsocial (e.g., disgust). We speculate that parent-child interpersonal interactions could more strongly influence social emotions among older youth.

Findings are also in line with the developmental and anxiety literature on the influence of parenting on youth emotion regulation within emotion-eliciting or challenging contexts. Positive parenting in response to youth distress has consistently been shown to be associated with improved emotion regulation abilities among young children (Propper and Moore 2006). Parent expressions of warmth, approval, and affirmation towards youth within challenging contexts may provide encouragement and support for anxious youth as they experience heightened emotions and learn to self-regulate. On the

other hand, parent modeling of negative affect has shown to be associated with poor emotion regulation strategies (Morris et al. 2007). As anxious youth look to parents to gain information about how to respond within emotion-eliciting contexts, youth may learn negative affective responses to stressful situations from observing parent anxious affect (Burnstein and Ginsburg 2010).

This study also extends prior research by focusing on older youth across the transition from middle childhood to adolescence. Our findings show that parenting continues to influence youth emotional reactivity among older youth, even into the adolescent developmental period. However, there is a need for a more fine-grained understanding of what specific parenting behaviors are most influential for each stage of development. For instance, some evidence suggests that parent expressions of physical comfort may be a successful emotion regulation strategy for younger children, but less effective for older children (Morris et al. 2011). On the other hand, it is also possible that there are some parenting behaviors, such as verbal expressions of approval and encouragement, that might remain effective in regulating distress within emotion-eliciting contexts across child and adolescent development. However, as youth transition into adolescence, they frequently experience decreases in positive parenting, and increases in parent-child conflict (e.g., McGue et al. 2005). At the same time, evidence suggests that youth total repertoire of emotion regulation strategies shrinks during the adolescent transition, including support seeking strategies (Zimmerman and Iwanski 2014). This suggests the possibility that although certain adaptive parenting behaviors may continue to effectively regulate emotion for older youth transitioning into adolescence, these youth may be less likely to receive optimal parenting at time when they have a diminished repertoire of strategies, and are more likely to encounter negative events. Thus, shifts in parent-child relationships, together with other important developmental changes, appear to exacerbate risk for anxiety during the transition into adolescence.

Results did not support an association between negative parenting, namely aggressive interpersonal behavior (e.g., argumentative behavior, irritable, disapproving, etc.), and emotional reactivity to either peer or non-peer events. One possibility is that aggressive parenting has less of an effect on youth emotional reactivity among older, anxious youth, whereas high levels of supportive, positive parenting and low parent anxious affect are better able to buffer youth emotional reactivity in peer contexts. Another possibility is that although extreme levels of aggressive interpersonal parenting are detrimental to emotion regulation among anxious youth, parents in this study simply did not exhibit very high levels of negative parenting on average. This possibility is supported by the relatively low mean levels and low variability of aggressive parenting in this study, compared to the positive parenting and anxious affect variables. It is possible that another type of

parent-child interactional task, such as a conflict discussion task which are commonly used with adolescent youth, would have elicited greater negative parenting behaviors. Thus, more observational research is needed to better understand the role that negative parenting plays in emotion regulation abilities among older, anxious youth.

This study has several innovative features that help to advance knowledge on parenting as a buffer against youth emotional reactivity to developmentally salient negative events during the transition from middle childhood into adolescence. We used observational methods to assess parenting behaviors within an emotion-eliciting context among older youth transitioning into adolescence. We also used a sample of anxious youth. Finally, we examined emotional reactivity to real-world peer and non-peer events using real-time EMA methods.

Despite several strengths of this study, future research should address limitations. Constructs were assessed concurrently in this study, which limits interpretations about how parenting may influence emotional reactivity to peer events and anxiety symptoms. Longitudinal research is needed to understand how parenting factors, in combination with peer events, contribute to increases in emotional reactivity and future anxiety problems during the transition from middle childhood to adolescence. Future research should also make further distinctions among non-peer categories of negative events. It is possible that youth may respond in different ways to various types of negative non-peer events, such as school versus health versus other non-peer events. Also, we focused on peer events in this study given the developmental significance of peer relationships, the rising rates of peer stressors in adolescence, and prior studies showing that adaptive parenting protects against the deleterious effects of peer events in particular. However, it is possible that parenting behaviors similarly buffer emotional reactivity to other interpersonal negative events, but this will need to be studied further. It should also be noted that parenting was examined in only one context in this study. Future research should compare whether parenting during emotion-eliciting contexts, versus other types of contexts (e.g. conflict, planning a fun activity, etc.), more strongly buffers emotional reactivity to daily events among older youth. Finally, anxious youth in this study had previously undergone anxiety treatment, and so caution is warranted when generalizing findings to populations with untreated clinical levels of anxiety. Also, the sample of youth consisted of parents committed to some treatment involvement (e.g., attended two parent consultation sessions, were willing to bring their child to treatment and supported treatment), which may limit generalizability of findings to other youth with less involved parents.

Our results bring attention to the role of parent involvement in youth treatments for anxiety. The literature on the efficacy of the inclusion of parents in anxiety treatments is mixed

(Breinholst et al. 2012). Our findings suggest that it may be important to go beyond simply examining the effect of whether parents participate in treatment, to more closely investigating *how* parents participate. Family components of youth anxiety interventions have typically focused on psychoeducation for parents, training parents in youth cognitive-behavioral therapy (CBT) skills, parent anxiety management, problem solving, and/or other parenting skills (Breinholst et al. 2012). However, parent interventions to date have not targeted parent emotion socialization practices that may help improve emotion regulation abilities among anxious youth. Our findings suggest that future family-based anxiety interventions may benefit from more specifically targeting parenting behaviors in response to youth expressions of negative emotions as a way to help anxious youth learn to manage emotions within interpersonal contexts as they face an increase in negative peer events. However, future research is needed to further understand how parent emotion socialization strategies may enhance anxiety intervention among older youth.

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Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

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