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# Parental autonomy granting and child perceived control: effects on the everyday emotional experience of anxious youth

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**Background:** Childhood anxiety is associated with low levels of parental autonomy granting and child perceived control, elevated child emotional reactivity and deficits in child emotion regulation. In early childhood, low levels of parental autonomy granting are thought to decrease child perceived control, which in turn leads to increases in child negative emotion. Later in development, perceived control may become a more stable, trait-like characteristic that amplifies the relationship between parental autonomy granting and child negative emotion. The purpose of this study was to test mediation and moderation models linking parental autonomy granting and child perceived control with child emotional reactivity and emotion regulation in anxious youth. **Methods:** Clinically anxious youth ( $N = 106$ ) and their primary caregivers were assessed prior to beginning treatment. Children were administered a structured diagnostic interview and participated in a parent-child interaction task that was behaviorally coded for parental autonomy granting. Children completed an ecological momentary assessment protocol during which they reported on perceived control, emotional reactivity (anxiety and physiological arousal) and emotion regulation strategy use in response to daily negative life events. **Results:** The relationship between parental autonomy granting and both child emotional reactivity and emotion regulation strategy use was moderated by child perceived control: the highest levels of self-reported physiological responding and the lowest levels of acceptance in response to negative events occurred in children low in perceived control with parents high in autonomy granting. Evidence for a mediational model was not found. In addition, child perceived control over negative life events was related to less anxious reactivity and greater use of both problem solving and cognitive restructuring as emotion regulation strategies. **Conclusion:** Both parental autonomy granting and child perceived control play important roles in the everyday emotional experience of clinically anxious children. **Keywords:** Parenting; anxiety; emotion; emotion regulation.

## Introduction

Childhood anxiety disorders are highly prevalent (Costello, Egger, Copeland, Erkanli, & Angold, 2011), associated with significant impairment across several domains of functioning (Breslau, Lane, Sampson, & Kessler, 2008; Verduin & Kendall, 2008), and portend elevated risk for depression and substance use later in life (Woodward & Fergusson, 2001). Etiological models aimed at understanding the development of childhood anxiety have implicated both family and individual risk factors such as parental autonomy granting and child perceived control (Chorpita & Barlow, 1998). Furthermore, difficulties with emotional reactivity and emotion regulation appear to be ubiquitous with these disorders (Legerstee, Garnefski, Jellesma, Verhulst, & Utens, 2010; Suveg & Zeman, 2004; Suveg et al., 2008). However, how these constructs relate to one another remains unclear. Based on a prominent developmental theory of childhood anxiety (Chorpita & Barlow, 1998), this study examines competing models testing how child perceived control and

parental autonomy granting might relate to clinically anxious children's day-to-day emotional reactivity and emotion regulation.

Anxiety is associated with a lack of mastery over one's environment (Burns, Anstey, & Windsor, 2011), making parenting behaviors that engender this feeling particularly important in etiological models. Parents who are low in autonomy granting tend to discourage their children's choices and fail to acknowledge and solicit their perspectives (Clark & Ladd, 2000). This parental style encourages children to remain dependent on their parents, preventing them from learning that they can successfully cope with situations on their own. The resulting lack of mastery may indirectly contribute to anxiety by leading children to perceive everyday events as beyond their control (Chorpita & Barlow, 1998). Empirical studies have found mixed support for this mediational model (Chorpita, Brown, & Barlow, 1998; McGinn, Cukor, & Sanderson, 2005; Nanda, Kotchick, & Grover, 2012; Rekart, Mineka, Zinbarg, & Griffith, 2007).

Parental control is a broader, related construct under which low autonomy granting can be subsumed. Controlling parents regulate their children's

Conflict of interest statement: See Acknowledgements for disclosures.

activities, are overprotective, and instruct them on how to think, feel and behave (Barber, Olsen, & Shagle, 1996). It is essential to discuss this construct because there is a substantial parental control-child anxiety literature that does not address autonomy granting specifically. For example, Chorpita and Barlow (1998) describe a shift in the relationship between parental control and perceived control across development. In early development, high levels of parental control are thought to decrease child perceived control, which in turn increases child negative emotion (i.e., a mediational model). Information learned during this early period about one's control over the environment is thought to be stored in memory and becomes increasingly resistant to new material over time, fostering a cognitive vulnerability later in development that heightens the emotional impact of environmental events (e.g., parenting). This latter moderation model has found mixed support in empirical work (e.g., Ballash, Pemble, Usui, Buckley, & Woodruff-Borden, 2006; Muris, Meesters, Schouten, & Hoge, 2004). Despite evidence that parental autonomy granting may be more strongly related to child anxiety than parental control (McLeod, Wood, & Weisz, 2007), the relationship between autonomy granting and children's perceived sense of control has received little attention in the literature.

In addition to its links with parental autonomy granting and child perceived control, there is also evidence that child anxiety is associated with altered emotional reactivity and emotion regulation. Studies employing self-report and behavioral observation have shown that anxious youth, compared to their nonanxious counterparts, experience higher intensities of worry and anger; use largely maladaptive emotion regulation strategies such as catastrophizing, rumination, and avoidance to a greater degree; and use adaptive strategies such as reappraisal less frequently (Legerstee et al., 2010; Suveg & Zeman, 2004; Suveg et al., 2008).

Ecological momentary assessment (EMA) is frequently used to assess emotional reactivity and emotion regulation in youth, gathering representative real-time data on emotion and behavior in natural environments through the use of signaling devices (Silk et al., 2011). It has several desirable characteristics: it accesses emotions experienced in real-world contexts, circumvents memory biases associated with retrospective recall, and enables collection of information about social contributors to emotional experience. EMA studies have found that highly anxious youth, compared to low anxious youth, report higher levels of negative emotion at the time of the sampling point (Henker, Whalen, Jamner, & Delfino, 2002), as well as greater emotional reactivity (nervous, sad, and upset) in response to negative events, greater physiological arousal, and less effective use of acceptance as a strategy for managing arousal (Tan et al., 2012).

While autonomy granting is often studied in relation to child anxiety, theory suggests it may exert its impact through more immediate effects on emotional reactivity and emotion regulation, making emotional outcomes a critical area of investigation. Parental behaviors such as autonomy granting are hypothesized to be a key mechanism via which parents contribute to the development of child emotion regulation (Morris, Silk, Steinberg, Myers, & Robinson, 2007). Others speculate that parents who consistently attempt to control the environments and emotions of their children fail to provide their offspring with the opportunities necessary to learn how to independently regulate their own emotions (Luebke, Bump, Fussner, & Rulon, 2014; Woodruff-Borden, Morrow, Bourland, & Cambron, 2002). An EMA study showed that greater parental control on 1 day predicted greater negative emotions in young children on the following day (Aunola, Tolvanen, Viljaranta, & Nurmi, 2013). Parental control has also been linked to less effective anger regulation and reduced use of effective coping strategies (Cui, Morris, Criss, Houltberg, & Silk, 2014; Luebke et al., 2014).

Child perceived control is also thought to be linked to both emotional reactivity and emotion regulation (Weems & Silverman, 2006). A recent meta-analysis described low levels of perceived control as a transdiagnostic vulnerability that confers risk for a number of disorders characterized by emotion dysregulation (Gallagher, Bentley, & Barlow, 2014). Although work in anxious youth is lacking, perceived control in young adults is related to more active coping (such as problem solving), and less behavioral disengagement and rumination (Fontaine, Manstead, & Wagner, 1993). Conversely, youth with low levels of perceived control may rely on emotion regulation strategies that encourage disengagement from the stressor at hand, an avoidant style that may lead to anxiety in the long-term.

In sum, although we know that parental autonomy granting, child perceived control, and child emotional reactivity and emotion regulation are associated with child anxiety, this literature lacks a comprehensive model of how these constructs interrelate. This is important because treatments currently target these features separately (Bögels & Siqueland, 2006; Suveg, Kendall, Comer, & Robin, 2006), and understanding pathways among them could lead to more efficient or mechanistically tailored treatments. For example, if perceived control mediates the relationship between autonomy granting and emotion regulation, then perhaps only autonomy granting need be targeted in treatment. However, if perceived control moderates this relationship, successful treatment outcomes may be achieved by attending to either construct, enabling treatment personalization depending on child and family preferences. Following Chorpita and Barlow (1998), we examined mediation and moderation models of the effect of parental autonomy granting

and child perceived control on child emotional reactivity and emotion regulation. To validate the clinical significance of our findings, we also assessed relationships among emotional experiences and anxious symptomatology. As our sample falls primarily in late childhood, we predicted that we would find evidence of moderation: low parental autonomy granting coupled with low child perceived control would lead to less favorable emotional outcomes in anxious youth.

## Methods

### Participants

Data come from a large treatment outcome study of pediatric anxiety (clinicaltrials.gov NCT00774150; Silk et al., under review). The original sample consisted of 131 clinically anxious children and their primary caregivers. Eligible youth met DSM-IV (American Psychiatric Association, 1994) criteria for a primary diagnosis of generalized anxiety disorder (GAD;  $N = 72$ ), separation anxiety disorder (SAD;  $N = 27$ ), or social phobia (SP;  $N = 24$ ). For full information on recruitment methods and exclusion criteria, see Tan et al. (2012). The final sample for this study (those with full data) included 106 anxious youth (55% female), ages 9–14 years ( $M = 11.03$ ,  $SD = 1.46$ ). Participants were 91% Caucasian, 5% Biracial, 3% African American, and 1% Hispanic. Twenty-nine children met criteria for more than one anxiety disorder and 12 had other comorbid disorders. Primary caregivers participating included 98 biological mothers, five biological fathers, one adopted father, one grandmother, and one step-mother (hereafter referred to as ‘parent’).

### Procedures

Informed consent and child assent were obtained and study procedures were approved by the Institutional Review Board. Following a brief phone screen, a structured diagnostic interview was administered to the child and his/her parent to confirm presence of an anxiety disorder. Qualifying youth then completed a baseline assessment that included, among other measures, behavioral observation tasks with his/her parent and an EMA protocol.

### Structured diagnostic interviews

Youths’ psychiatric history was assessed using the Schedule for Affective Disorders and Schizophrenia in School-Age Children - Present and Lifetime Version (KSADS-PL, Kaufman, Birmaher, Brent, & Rao, 1997). Parents and youth were interviewed separately, with independent evaluators (trained BA- and MA-level research clinicians) integrating data from both informants to arrive at final diagnoses. Interview results were presented at a consensus case conference with a child psychiatrist who reviewed the preliminary diagnoses and provided final diagnoses based on DSM-IV criteria. Interrater reliability was calculated on preconsensus diagnoses for approximately 22% of the current sample (interviews were a mixture of pretreatment, post-treatment, and 1-year follow-up); reliability for anxiety disorder diagnoses was high ( $\kappa = .92$ ).

### Worry discussion

Children and parents completed an interaction task designed to elicit individual differences in parental autonomy granting (Whaley, Pinto, & Sigman, 1999). They were asked to talk for 5 minutes about something that makes the child worried, and

the task was videotaped for later coding. Parents were instructed to ‘Try to help your child figure out how to deal with whatever they are worrying about.’ Parental autonomy granting was coded using an adaptation of the Living in Family Environments coding system, an event-based, microanalytic coding system (Hops, Biglan, Tolman, Arthur, & Longoria, 1995). Autonomy granting behavior was coded based on validation (e.g., statements that acknowledged the parent is open to the child’s point of view) and guidance tactics (e.g., attempts to guide or lead the child toward solving a problem on their own). A rate/minute variable was calculated to reflect the frequency of autonomy granting throughout the interaction. Coding was conducted by extensively trained research staff who were blind to child diagnosis. Interrater reliability was calculated for approximately 20% of the original sample; the intraclass correlation coefficient was .65, reflecting sufficient interrater agreement.

### Ecological momentary assessment

We used a cellphone methodology developed for collecting EMA data on youths’ real-world emotional processes (see Silk, Steinberg, & Morris, 2003; Silk et al., 2011; Tan et al., 2012, for additional detail). A brief interview assessed, among other things, youths’ emotional, cognitive, and behavioral responses to a negative emotional event that occurred in the past hour. This window of time was intended to maximize the chances of assessing naturally occurring emotional experiences while minimizing recall bias.

Youth were called 14 times within a sampling period spanning from Thursday afternoon to the following Monday evening. Phone calls were included in the analyses if youth were able to identify a negative event in the past hour, and the event elicited a rating  $\geq 3$  on any of four negative emotions (nervousness, sadness, anger, upset). This ensured that youth were responding to events that were at least moderately distressing, and consequently, necessitated emotion regulation. Of the 14 phone calls made, an average of 7.16 ( $SD = 3.24$ ) met the criteria described above.

*Perceived control.* Youth rated from 1 to 5 how much control they felt they had over the self-nominated negative events.

*Emotional reactivity.* Youth rated how nervous they felt at the worst point of the negative event, using a five-point scale ranging from (1) very slightly or not at all to (5) extremely. Youth also reported whether or not they experienced somatic symptoms (e.g., sweating, fast heart rate) in response to the negative events (i.e., physiological responding).

*Emotion regulation.* Youth were asked whether or not they used a number of adaptive (cognitive restructuring, problem solving, acceptance, and distraction) and maladaptive (avoidance and rumination) emotion regulation strategies in response to the negative events. The strategies assessed were taken from a previous EMA study (Silk et al., 2003), which was adapted from the Responses to Stress Questionnaire (Connor-Smith, Compas, Wadsworth, Thomsen, & Saltzman, 2000). Youth could endorse multiple strategies for the same event. Dichotomous variables indicating the presence or absence of each strategy were used to create ratios indexing the proportion of negative events in which youth used a specific strategy.

### Anxiety measure

The Screen for Child Anxiety-Related Emotional Disorders (SCARED) is a 41-item measure of child anxiety that has

demonstrated good reliability and validity (Birmaher et al., 1997). The total score from child-report was used as a measure of child anxious symptomatology.

### Data analytic plan

Analyses were conducted in SPSS. Linear and generalized linear mixed-effects models were used to account for the nesting of EMA assessments within subjects (Hedeker & Gibbons, 2006). All models included sampling event as a repeated measure; subject and intercept as random effects, and autonomy granting, perceived control, and their interaction term as fixed effects. We controlled for multiple comparisons in all analyses using the false discovery rate (Benjamini & Hochberg, 1995). Post hoc probing of interactions was done at the mean, one standard deviation above, and one standard deviation below. When assessing relationships between anxious symptomatology and emotional experiences, we took an aggregated mean across all calls of the emotional reactivity and emotion regulation measures and correlated them with SCARED scores.

### Results

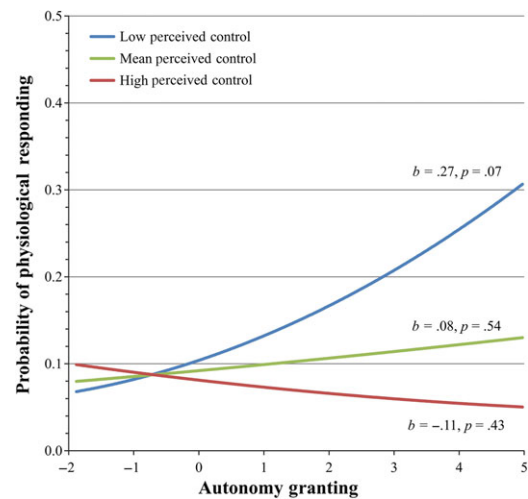
In testing the mediation model, we did not find evidence of a significant path between the predictor and mediator: parental autonomy granting was not related to child perceived control,  $t(1, 101) = 0.25$ ,  $p = .81$ . Therefore, we did not investigate this model further.

The results of moderation analyses explaining emotional reactivity outcomes are depicted in Table 1. Child perceived control was related to lower child nervousness during negative events, but the interaction between autonomy granting and perceived control was not significant. Conversely, self-reported somatic symptoms in response to negative events were predicted by the autonomy granting  $\times$  perceived control interaction. Post hoc probing (see Figure 1) revealed that as perceived control decreased, the relationship between autonomy granting and physiological responding became stronger. Unexpectedly, the greatest rates of physiological responding occurred in youth reporting low levels of perceived control over negative events, who

**Table 1** Summary of fixed effects for linear and generalized linear mixed-effects models of the relationship between parental autonomy granting, child perceived control, and child emotional reactivity

Predictors	Nervousness			Physiological Responding		
	<i>b</i>	<i>SE</i>	<i>t</i>	<i>b</i>	<i>SE</i>	<i>t</i>
Autonomy granting	0.03	0.05	0.53	0.08	0.13	0.62
Perceived control	-0.09	0.04	-2.50*	-0.10	0.08	-1.22
Autonomy granting $\times$ Perceived control	0.02	0.02	1.09	-0.14	0.05	-2.63*

\* $p_{\text{FDR}} < .05$ .



**Figure 1** Interaction of parental autonomy granting and child perceived control in the prediction of physiological responding.

also had parents observed to be high in autonomy granting during a laboratory stressor.

The results of moderation analyses predicting emotional regulation strategy use are presented in Table 2. Child perceived control was related to greater use of problem solving and cognitive restructuring in response to negative events. Furthermore, the interaction between autonomy granting and perceived control significantly predicted the use of acceptance as an emotion regulation strategy. Post hoc probing (see Figure 2) revealed that contrary to our hypothesis, autonomy granting was negatively related to acceptance, but only at low levels of perceived control. Youth with the lowest probability of using acceptance as an emotion regulation strategy were those with low perceived control and parents who were high in autonomy granting.

In correlational analyses among emotion measures and child anxiety, only physiological responding was found to be marginally related to child-reported SCARED scores,  $r = .22$ ,  $p = .06$ .

### Discussion

The child anxiety literature lacks a comprehensive model of the influences of parental autonomy granting and child perceived control, emotional reactivity, and emotion regulation. This is despite theory implicating mediation and moderation models that vary across development (Chorpita & Barlow, 1998). Given the emergence of both emotion regulation and perceived control as transdiagnostic constructs (Gallagher et al., 2014; Kring & Sloan, 2009), a clearer understanding of these pathways is important because it could lead to more efficient or mechanistically tailored treatments. The results of this study demonstrate that child perceived control when faced with daily negative life events is related to both emotional reactivity and emotion regulation during those events: lower child nervousness and greater use of both problem solving and cognitive

**Table 2** Summary of fixed effects for linear and generalized linear mixed-effects models of the relationship between parental autonomy granting, child perceived control, and child emotion regulation

Predictors	Cognitive restructuring			Problem solving			Acceptance		
	<i>b</i>	<i>SE</i>	<i>t</i>	<i>b</i>	<i>SE</i>	<i>t</i>	<i>b</i>	<i>SE</i>	<i>t</i>
Autonomy granting	0.05	0.10	0.52	0.07	0.09	0.83	-0.17	0.12	-1.41
Perceived control	0.31	0.08	3.85***	0.28	0.07	3.87***	-0.19	0.09	-2.23
Autonomy granting × perceived control	0.10	0.05	1.97	0.07	0.04	1.47	0.17	0.06	2.96*

Predictors	Distraction			Avoidance			Rumination		
	<i>b</i>	<i>SE</i>	<i>t</i>	<i>b</i>	<i>SE</i>	<i>t</i>	<i>b</i>	<i>SE</i>	<i>t</i>
Autonomy granting	0.13	0.07	1.82	0.13	0.12	1.07	-0.03	0.10	-0.24
Perceived control	0.12	0.07	1.90	0.11	0.08	1.34	-0.13	0.07	-1.72
Autonomy granting × perceived control	0.02	0.04	0.40	0.08	0.05	1.48	0.07	0.05	1.45

\* $p_{\text{fidr}} < .05$ , \*\* $p_{\text{fidr}} < .001$ .

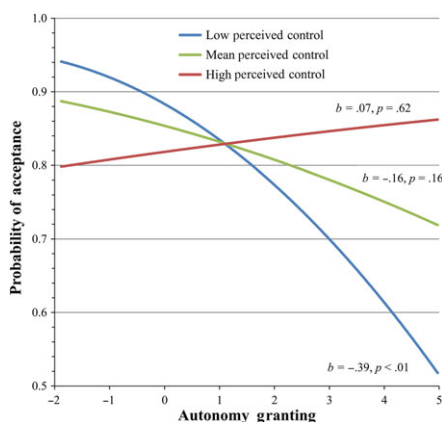
restructuring as emotion regulation strategies. Furthermore, consistent with our main hypothesis, child perceived control moderated the relationship between parental autonomy granting and both child physiological reactivity and emotion regulation strategy use; however, the direction of the moderated relationships was unexpected. The greatest rates of physiological responding, and the lowest rates of acceptance, occurred in youth low in perceived control with parents high in autonomy granting. To our knowledge, this is the first study to test a moderated relationship between parental autonomy granting and child perceived control in a clinically anxious sample.

According to Chorpita and Barlow (1998), a lack of perceived control becomes a cognitive vulnerability in late childhood that amplifies the effect of environmental events. Therefore, we predicted that low perceived control coupled with low autonomy granting would lead to less favorable emotional outcomes, similar to findings from Muris et al. (2004) in the area of anxious rearing. Our results, however, may be more intuitive in terms of a goodness-of-fit conceptualization. Perhaps clinically anxious youth who are low in perceived control lack the skills to confidently handle stressful situations, and when left by their parents to do so on their own, experience

increased levels of physiological activation and are less likely to use acceptance, an emotion regulation strategy thought to be particularly effective in low control situations (Compas, Banez, Malcarne, & Worsham, 1991). These youth may not yet have the skills to adequately cope with an environment that encourages independence and autonomy. These unexpected moderation findings hold important implications for Chorpita and Barlow's (1998) theory, which does not address the role of children as agents of change in their own environment. Our data are consistent with a developmental psychopathology framework that highlights the complexity of variables that confer risk for youth anxiety, and fits with other studies showing that child characteristics can predict parenting behavior (e.g., Hudson, Doyle, & Gar, 2009). An updated model of the role of control in the development of anxiety would be enhanced by a closer examination of the goodness-of-fit between parent and child characteristics.

Our results also highlight important developmental considerations. Chorpita and Barlow (1998) note a general developmental shift in the relationship among variables, the timing of which is largely unspecified. This study suggests that the move to a moderational model has already occurred by the time children reach 9–14 years of age. Future longitudinal work could help to unpack the trajectory of this change in more detail. Furthermore, it is possible that high levels of parental autonomy granting may have been ill-timed for the youth in our study, as normative increases in autonomy more typically begin in the developmental period spanning mid-late adolescence (Zimmer-Gembeck & Collins, 2003).

We found evidence of moderation for one of two measures of emotional reactivity. It is not clear why the interaction between autonomy granting and perceived control predicted self-reported somatic symptoms and not self-reported nervousness, but the former was the only emotion measure to be linked to anxiety symptoms, making it uniquely clinically relevant. In a past study with a subsample of these anxious youth, both anxious reactivity and physiological responding differentiated anxious youth from controls (Tan et al., 2012), suggesting



**Figure 2** Interaction of parental autonomy granting and child perceived control in the prediction of acceptance.

that the current findings could be indicative of individual differences within an anxious sample. Similarly, we only found evidence of moderation for one of six emotion regulation strategies. Parenting behaviors other than autonomy granting, such as emotion socialization, may be better predictors of child emotion regulation strategy use more broadly (Kiel & Kalomiris, 2015).

In contrast to Chorpita et al. (1998) and Nanda et al. (2012), we did not find evidence that autonomy granting was related to perceived control, and therefore did not examine the proposed mediation model further. This could be due to methodological differences in terms of age, clinical status, parenting construct assessed (e.g., autonomy granting vs. control), the operationalization of perceived control, and the outcome measure. Alternatively, although parenting plays a major role in shaping a child's environment, a host of other factors may contribute to the development of a sense of control, for example, stressful life events (Chorpita & Barlow, 1998). Therefore, our lack of findings could be explained by a simplified model focusing solely on autonomy granting.

Last, perceived control, independent of parenting, predicted less anxiety and increased adaptive emotion regulation strategy use during negative events in day-to-day life. This is consistent with other studies that have found a link between perceived control and emotion regulation (Gallagher et al., 2014), and in particular, research showing that perceived control in young adults was positively related to more active coping, such as problem solving (Fontaine et al., 1993). Given this, utilizing therapeutic approaches that foster a sense of perceived control may be particularly helpful in encouraging the use of adaptive coping strategies. Importantly, perceived control did not predict the use of maladaptive emotion regulation strategies (e.g., rumination). It may be that these more emotion-focused forms of coping are better predicted by emotional distress (Compas et al., 1991). Of note, perceived control predicted both a primary control coping strategy (problem solving) and a secondary control coping strategy (cognitive restructuring), the former of which denotes strategies aimed at altering objective conditions, whereas the latter refers to attempts to adapt to the situation (Connor-Smith et al., 2000). There is evidence that primary control coping strategies are associated with situations that are highly controllable, whereas secondary control coping strategies are linked to those seen as uncontrollable (Compas et al., 1991), which is inconsistent with our cognitive restructuring finding. However, there is some indication that engaging in secondary control coping may provide a sense of perceived control (Morling & Evered, 2006), so it could be that cognitive restructuring in anxious youth actually leads to an increase in perceived control, and not the other way around. This could be addressed in future

research by asking youth to report on perceived control both before and after employing emotion regulation strategies.

This study has several limitations. Our data were cross-sectional in nature, limiting the conclusions we can draw about the direction of relationships. Perceived control, emotional reactivity, and emotion regulation were measured concurrently with EMA, so the relationships between these variables could be due to shared method variance. We only focused on autonomy granting, but it may be that other parenting behaviors are more pertinent to child emotion regulation. For example, forthcoming studies may benefit from including measures of emotion socialization (Kiel & Kalomiris, 2015), as well as parental emotional reactivity and emotion regulation (Morris et al., 2007). Last, our measure of physiological reactivity was based on self-report. Future work incorporating more objective measures of physiological responding are needed to validate our findings.

Despite these limitations, this study has a number of strengths. We used methodologically rigorous measures, employing a clinical sample of children assessed with structured diagnostic interviews, parental autonomy granting assessed via reliable behavioral coding, and emotional reactivity and emotion regulation measures collected with EMA, an ecologically valid measure of emotional experience in the real world. In addition, our study is the first to assess perceived control, a key variable in the child anxiety literature, using EMA. It is particularly novel that relationships were found among variables collected in varying settings (e.g., parental autonomy granting in the lab and child perceived control in real-world emotion-eliciting contexts).

## Conclusions

In addition to providing key insights into the relationships among parental autonomy granting and child perceived control, emotional reactivity, and emotion regulation, this study fits into a broader framework of child psychopathology that emphasizes the need to take into account both child and parent factors (Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000), particularly when physiological symptoms are a primary concern and/or when employing an acceptance-based approach. Children experience parenting in different ways, individual differences that are important when considering both risk for anxiety disorders and treatment. Our findings suggest that child perceived control is a key indicator of emotional reactivity and emotion regulation and that addressing parental autonomy granting alone will not necessarily have downstream effects on this cognitive vulnerability. Indeed, treatment may be enhanced by taking into account both autonomy granting and perceived

control, as well as specific deficits in emotional reactivity and emotion regulation.

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## Key points

- Little is known about how parental autonomy granting and child perceived control, emotional reactivity, and emotion regulation interact in clinically anxious youth.
- Results suggest that the relationship between autonomy granting and both emotional reactivity and emotion regulation strategy use is moderated by child perceived control.
- Perceived control over negative life events is related to decreased anxious reactivity and greater use of problem solving and cognitive restructuring as emotion regulation strategies.
- Findings suggest that the effectiveness of cognitive-behavioral interventions may be enhanced by a clearer understanding of the pathways linking these etiological factors to child anxiety.

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