

University of Vermont

**UVM ScholarWorks**

---

Graduate College Dissertations and Theses

Dissertations and Theses

---

2021

## **Children's Conflict Appraisals, Temperamental Negative Affectivity, Affect and Arousal in the Context of Interparental Conflict.**

Phuong Nguyen  
*University of Vermont*

Follow this and additional works at: <https://scholarworks.uvm.edu/graddis>



Part of the [Clinical Psychology Commons](#)

---

### **Recommended Citation**

Nguyen, Phuong, "Children's Conflict Appraisals, Temperamental Negative Affectivity, Affect and Arousal in the Context of Interparental Conflict." (2021). *Graduate College Dissertations and Theses*. 1353.  
<https://scholarworks.uvm.edu/graddis/1353>

This Thesis is brought to you for free and open access by the Dissertations and Theses at UVM ScholarWorks. It has been accepted for inclusion in Graduate College Dissertations and Theses by an authorized administrator of UVM ScholarWorks. For more information, please contact [scholarworks@uvm.edu](mailto:scholarworks@uvm.edu).

CHILDREN'S CONFLICT APPRAISALS, TEMPERAMENTAL NEGATIVE  
AFFECTIVITY, AFFECT AND AROUSAL IN THE CONTEXT OF  
INTERPARENTAL CONFLICT.

A Thesis Presented

by

Phuong "Kelly" Nguyen

to

The Faculty of the Graduate College

of

The University of Vermont

In Partial Fulfillment of the Requirements  
for the Degree of Master of Arts  
Specializing in Psychology

May, 2021

Defense Date: December 8, 2020  
Thesis Examination Committee:

Alice Schermerhorn, Ph.D., Advisor  
Lawrence Shelton, Ph.D., Chairperson  
Betsy Hoza, Ph.D.  
Cynthia J. Forehand, Ph.D., Dean of the Graduate College

## ABSTRACT

Children's affect and physiological arousal when exposed to interparental conflict have been identified as prominent mechanisms connecting their experience of parental discord and adjustment outcomes (Buehler et al., 2007; Davies et al., 2007). However, how children feel emotionally and physiologically can vary greatly depending on their intrapersonal attributes, such as a temperamental tendency toward negative affect or perceptions of the conflict (Hentges et al., 2015; Weldon et al., 2019). Furthermore, conflict perceptions and temperament can work in conjunction to influence children's affect and physiology when observing marital conflict (Grych & Fincham, 1990). More specifically, high levels of negative conflict perceptions can interact with high levels of temperamental negative affectivity to predict especially high negative emotions and physiological arousal. The current study tested this hypothesis by inviting 115 married couples to discuss an area of difficulty in their relationship while their child (aged 9-11) was present. Right after the conversation, children reported their current emotional and perceived physiological states. In addition, in an earlier lab visit, mothers reported their child's temperamental tendency toward anger, fear, or sadness; children reported their perceptions of the interparental conflict (i.e., perceived threat, self-blame, triangulation). The results showed that temperamental fearfulness and sadness moderated some of the relationships between children's conflict perceptions and their affect and physiology. Specifically, higher levels of perceived threat and self-blame predicted greater negative affect more strongly as temperamental fearfulness increased. In addition, higher levels of triangulation predicted greater perceived arousal more strongly as temperamental sadness decreased. These findings suggested that temperament can act as a filter through which children's appraisals of their parents' conflict translate into emotions and physiology when exposed to an interparental dispute. Fearful children, because of their hypersensitivity to threat, may be particularly prone to the negative impact of marital discord. Additionally, high-sad children may already be so aroused from watching the parental argument that they are less impacted by the arousing effect of triangulation. These findings offer valuable information regarding the interplay between various factors that link children's exposure to interparental conflict and their subsequent emotional and physiological states.

## **ACKNOWLEDGEMENTS**

I would like to thank my advisor, Dr. Alice Schermerhorn, for her support and unending patience for me in the completion of this project. I would also like to thank Dr. Shelton and Dr. Hoza for their kindness and valuable feedback.

## TABLE OF CONTENTS

ACKNOWLEDGEMENTS .....	ii
LIST OF TABLES .....	iv
LIST OF FIGURES .....	v
CHAPTER 1: INTRODUCTION .....	1
1.1. Interparental Conflict, Emotions and Physiological Arousal, and Child Adjustment .....	1
1.2. Conflict Appraisals Predict Emotions and Physiological Arousal .....	4
1.3. Temperamental Negative Affectivity Predicts Emotions and Physiological Arousal .....	5
1.4. Conflict Appraisals x Temperamental Negative Affectivity Predict Emotions and Physiological Arousal .....	7
1.5. The Current Study .....	9
CHAPTER 2: METHOD .....	11
2.1. Participants .....	11
2.2. Procedure .....	12
2.3. Measures .....	13
2.3.1. Conflict Appraisals .....	13
2.3.2. Negative Affectivity Temperament Traits .....	14
2.3.3. Emotional State .....	14
2.3.4. Perceived Physiological Arousal .....	15
2.4. Data Analyses .....	15
CHAPTER 3: RESULTS .....	17
3.1. Preliminary Analyses .....	17
3.2. Primary Analyses .....	19
CHAPTER 4: DISCUSSION.....	25
REFERENCES .....	31

## LIST OF TABLES

Table	Page
Table 1: Means, Standard Deviations, and Intercorrelations between Variables .....	18
Table 2: Threat and Temperamental Fearfulness Predicting Negative Affect .....	19
Table 3: Self-blame and Temperamental Fearfulness Predicting Negative Affect.....	20
Table 4: Triangulation and Temperamental Sadness Predicting Perceived Arousal .....	21
Table 5: First-order Effects of Self-blame and Triangulation on Negative Affect.....	23
Table 6: First-order Effects of Self-blame, Triangulation, and Fearfulness on Perceived Arousal.....	24

## LIST OF FIGURES

Figure	Page
Figure 1: Interaction Effect of Threat and Temperamental Fearfulness on Negative Affect .....	20
Figure 2: Interaction Effect of Self-blame and Temperamental Fearfulness on Negative Affect .....	21
Figure 3: Interaction Effect of Triangulation and Temperamental Sadness on Perceived Arousal.....	22

## **CHAPTER 1: INTRODUCTION**

Exposure to interparental conflict is linked to various psychosocial and academic problems in children (Cummings et al., 2012; Davies et al., 2007; Harold et al., 2004). To further understand these associations, recent works have been focusing on identifying the underlying processes (Davies et al., 2007; El-Sheikh, 2005; Fosco & Grych, 2008). Among several factors examined, children's emotions and physiological arousal when exposed to parental arguments emerge as potential mediating mechanisms (Buehler et al., 2007; Davies et al., 2007). However, these factors (i.e., emotions and physiological arousal) can look different across children depending on their intrapersonal attributes such as temperamental negative affectivity or perceptions of the conflict (Hentges et al., 2015; Weldon et al., 2019). Furthermore, temperament-related negative emotionality and conflict appraisals may interact to influence affective state and physiological arousal. Therefore, the current study aims to clarify these processes.

### **1.1. Interparental Conflict, Emotions and Physiological Arousal, and Child Adjustment**

There is ample evidence to support that exposure to marital disharmony influences children's immediate emotions and physiological arousal, which in turn affect their long-term functioning. For instance, several studies reveal that emotional displays such as sadness, fearfulness, and affective dysregulation mediate the relation between interparental conflict and internalizing problems (Cummings et al., 2003; Davies et al., 2012; Buehler et al., 2007). Sadness, anger, and lack of fear are also associated with



externalizing problems and cognitive difficulties in other studies, with some gender differences in these associations (Rhoades, 2008; El-Sheikh, 2005; Thompson et al., 2020). In contrast, positive emotions are linked to decreased behavioral problems, indicating that differential affective responses can have implications for a wide range of adjustment outcomes (Cummings et al., 2003). Lastly, emotional responses appear to be more strongly correlated with internalizing than with externalizing problems (Rhoades, 2008).

With regard to physiological arousal, high skin conductance reactivity in response to marital conflict is related to increased internalizing problems in boys and increased internalizing, externalizing, and cognitive problems in girls (El-Sheikh, 2005). On the other end of the spectrum, low skin conductance reactivity is linked to elevated externalizing problems among boys (El-Sheikh et al., 2007). Another index of physiology and a marker of the parasympathetic nervous system, vagal tone reflects the body's capacity to preserve homeostasis and flexibly react to the environment. Vagal reactivity (changes in vagal tone in challenging situations) has been found to predict social functioning among boys coming from high-conflict households. Specifically, while vagal augmentation (i.e., increases in vagal tone) increases the risk for externalizing problems (El-Sheikh et al., 2011), vagal suppression (i.e., decreases in vagal tone) is associated with reduced conduct problems (El-Sheikh et al., 2001). Finally, cortisol reactivity can serve as an intervening factor linking marital discord and a trajectory of increasing externalizing problems (Davies et al., 2007).

Thus far, there has been substantial evidence for the contribution of *objective measures of physiological activity* (e.g., skin conductance, vagal tone) to the link between interparental conflict and child adjustment. In contrast, research on the potential role of *perceived physiological arousal* in this link is relatively scant. *Perceived physiological arousal* is an individual's subjective report of their bodily sensations. This index does not always correlate well with objective indicators (Evans et al., 2013, Gramer et al., 2012; Anderson & Hope, 2009). Although objective measures have been useful in studying physiological activity and social functioning, there is evidence showing that subjective reports offer unique information about functioning that is also worth investigating . For example, one study found that although social-phobic and non-anxious adolescents exhibited the same level of autonomic response when performing an anxiety-inducing task, the former group reported much higher perceived somatic arousal compared to the latter (Anderson & Hope, 2009). This finding suggests that subjective physiological reactivity, rather than objective arousal, differentiates between non-anxious and clinically anxious individuals. Another study found that self-reported physiological reactivity, but not observed reactivity, mediated the link between trait anxiety and negative self-evaluation of performance. This result points to the unique role of interoceptive awareness in understanding anxiety and the cognitive processes associated with it (Gramer et al., 2012). Thus, because subjective physiological reports appear to capture important information that is not reflected in objective indicators, we chose to investigate self-reports of bodily arousal in this study. However, given the dearth of findings related to perceived physiological activity in the interparental conflict literature, the following

sections will also draw evidence from objective measures when reporting somatic arousal associated with exposure to marital conflict.

## **1.2. Conflict Appraisals Predict Emotions and Physiological Arousal**

While it is clear that children's emotions and physiological arousal following interparental conflict are important predictors of child functioning, little is known about why children differ in their emotional and physiological responses. One likely precursor is their appraisals of the conflict. Grych and Fincham (1990) posited that such appraisals (e.g., of the threat, intensity, causality, and coping efficacy related to their parents' arguments) play a crucial role in determining children's emotional state following the dispute. Crockenberg and Forgays (1996) found support for this proposition after assessing children's responses to a simulated conflict between their parents. Specifically, youths who perceived their parents as arguing were much more likely to exhibit negative emotions than those who only viewed their parents as talking. Furthermore, their reactions did not seem to be the result of objective conflict properties. Thus, the authors interpreted this finding to suggest that it was children's interpretations of the conflict, rather than the actual reality of the disagreement, that influenced their emotions about the dispute. In addition to affective state, physiological activity is also influenced by conflict appraisals. High levels of negative appraisals (threat perception, self-blame, frequency, and intensity) have been associated with increased cortisol reactivity (Koss et al., 2013), elevated heart rates (El-Sheikh & Harger, 2001), and increased perceived somatic arousal (Weldon et al., 2019) following exposure to a marital conflict episode. Taken together, there is evidence to suggest that children's perceptions of parents' conflict correlate with their emotions and physiological arousal regarding the dispute. More negative

perceptions seem to predict more distressed feelings and greater changes in physiology. Furthermore, these perceptions may be an even stronger prognosticator of children's emotional and physiological states than the objective reality of the event.

### **1.3. Temperamental Negative Affectivity Predicts Emotions and Physiological Arousal**

Children's temperament can also affect their emotions and physiology when exposed to conflicts between parents. Defined as individual differences in reactivity and regulation that are biologically based and relatively stable over time, temperament is proposed to be a template that guides emotional and behavioral responses to most situations (Rothbart & Bates, 2006). Negative affectivity is an aspect of temperament characterized by a tendency to experience negative emotions such as anger, fear, sadness, irritability, and difficulty calming down. During stressful events, children with this trait are more likely to show high levels of emotional and behavioral dysregulation, as well as physiological arousal, which put them at increased risk for adjustment problems (Davies et al., 2016a; Davies et al., 2016b; Donzella et al., 2000; Sugimura & Rudolph, 2012).

In the context of interparental conflict, temperament traits related to negative affectivity have been linked to emotional responses in some studies. For example, Hentges et al. (2015) found that while temperamentally irritable children showed elevated fearfulness as levels of conflict increased, non-irritable children were relatively stable in their affective responses at all levels of conflict. Schudlich et al. (2011) examined whether infants displayed varying levels of emotion during an interparental dispute depending on the degree of their temperamental reactivity (i.e., tendency to react with high fear and distress and difficulty calming down). The authors reported that low-

reactive infants demonstrated affect dysregulation only when the conflict was substantially destructive or depressing, as coded by the researchers. In contrast, highly reactive infants consistently displayed emotional dysregulation regardless of the levels of negativity in the conflict.

Davies and colleagues (2013) proposed that children's emotional and behavioral responses to interparental conflict can be categorized into four distinctive profiles depending on their form and function. Of most interest to this study are the mobilizing and demobilizing profiles. In the mobilizing pattern, the objective is to actively defend oneself and secure limited resources in the face of adversity. Therefore, in the context of marital conflict, mobilizing children exhibit emotional distress as a strategy to secure parents' sympathy and attention, which are likely to be diminished when parents are preoccupied with the dispute. The goal of the demobilizing profile, on the other hand, is to avoid becoming the target of interparental hostility. As a result, demobilizing children adopt a "lay-low" strategy by showing non-salient emotions such as sadness or anhedonia. The authors of the theory further hypothesized that the development of these distinct profiles can be traced back to children's temperament. Indeed, in a later study, they found that the mobilizing pattern was predicted by temperament traits involving a high approach tendency (e.g., willingness to approach unfamiliar people), activity level, positive affect, frustration proneness, and low levels of effortful control. These traits may reflect an underlying temperamental sensitivity to both rewards and aversive experience. Somewhat contrary to the mobilizing profile, the demobilizing profile was predicted by temperament traits involving low approach tendency, activity level, and positive affect

(and was not related to frustration proneness or effortful control)(Davies, Hentges et al., 2016).

Although there appears to be no research on temperamental negative affectivity predicting aspects of physiology in the face of interparental discord, one study reported the influence of other temperament dimensions. Specifically, Davies et al. (2011) found that children characterized by a Dove temperament profile (i.e., vigilant, submissive, and behaviorally inhibited) showed greater cortisol reactivity as levels of interparental conflict increased. In contrast, children with a Hawk temperament (i.e., bold, aggressive, and dominating when faced with challenges) showed a trend toward diminished cortisol reactivity with the escalation of marital conflict. In the context of other forms of psychosocial stress (beyond interparental conflict exposure), temperamental shyness has been found to predict elevated heart rates and perceived physiological arousal (Schmidt et al., 1999; Evans et al., 2013). These studies indicate that children's emotions and physiological arousal related to interparental conflict can vary greatly as a function of their temperament. More specifically, temperamental negative affectivity and related traits may predispose children to have disproportionately high levels of physical arousal and negative emotion.

#### **1.4. Conflict Appraisals x Temperamental Negative Affectivity Predict Emotions and Physiological Arousal**

Thus far, studies have shown evidence for the independent effects of negative affectivity temperament traits and conflict appraisals on children's emotions and physiological arousal related to interparental disharmony. However, it remains unclear whether these two predictors (i.e., temperamental negative affectivity and appraisals)

interact with each other to influence children's affective and physiological state. Grych and Fincham (1990) proposed in their cognitive contextual framework that temperament (which includes negative affectivity) is one of several variables influencing the cognitive processing of marital conflict, which subsequently determines children's emotional displays. According to Grych and Fincham's conceptualization, when witnessing an argument between parents, children first evaluate whether the conflict episode is threatening to them, the result of which affects how they feel. This initial processing step and its associated emotions then influence the second processing step, which involves making attributions about the causes of the conflict and who is responsible for the conflict, as well as evaluating their own ability to cope with the situation. This step, in turn, feeds back to influence children's affective state. Both the initial and later cognitive processing steps are affected by temperament (including negative affectivity). Thus, this model provides support for the reciprocal exchange between temperamental negative affectivity and cognition in organizing children's emotions after observing interparental conflict. Consistent with this framework, one study shows that fearfulness, a negative affectivity-related trait, affects how children perceive and interpret socially challenging situations, as well as their subsequent emotional state (Davies et al., 2018). Specifically, after hearing stories about situations involving peer exchanges and imagining themselves as the protagonist, temperamentally fearful children are more likely to perceive the peer's actions as hostile and to have higher levels of lingering negative emotion than those who are less fearful. Other studies have also reported the synergistic effect of temperamental negative emotionality and stress appraisal style (i.e., tendency to perceive a stressful event as threatening or unmanageable) on emotional and behavioral dysregulation

(Thompson et al., 2014; Lengua & Long, 2002). Although Grych and Fincham's (1990) framework did not specify a role for physiology, we believe that the effects of temperamental negative affectivity and conflict appraisals can also extend to physiological arousal. The reason for this assumption stems from our understanding that temperament can act as a template that guides children's responses to stimuli. Thus, through the filter of temperament, the same conflict appraisal can lead to a variety of emotional and physiological displays.

### **1.5. The Current Study**

To summarize, theoretical work has provided a conceptual basis for the combined effect of temperamental negative affectivity and conflict appraisals on children's affect and physiology in the context of interparental conflict. However, to our knowledge, there have been no studies specifically testing this argument and most evidence supporting it has been tangential (Davies et al., 2018; Thompson et al., 2014). The current study aims to fill in this gap in the literature by examining the interaction between negative affectivity temperament traits (i.e., tendency to express anger, fearfulness, sadness) and conflict appraisals in predicting children's affect and perceived physiological arousal following interparental discord. As discussed earlier, we chose to examine self-reports of physiological arousal because they may provide information about children's functioning that cannot be captured by objective indicators.

Our hypotheses are as follows. First, because previous studies have documented the independent adverse impacts of negative conflict appraisals and temperamental negative affectivity on children's feelings after witnessing interparental discord



(Crockenberg & Forgay, 1996; Hentges et al., 2015), we hypothesized that together, their ramifications would be especially high. That is, children who have negative perceptions of their parents' conflict who are also prone to anger, fearfulness, or sadness would exhibit elevated negative affect following parental arguments compared to peers with lower levels of negative conflict appraisals, temperamental negative emotionality, or both. Second, Weldon et al. (2019) found that negative conflict appraisals were associated with elevated perceived physiological arousal. This relationship may be magnified by temperamental negative emotionality. Therefore, we predicted that children who have both negative conflict perceptions and a predisposition to experience anger, fearfulness, or sadness would have particularly high levels of perceived physiological arousal after observing interparental conflicts in comparison to peers who appraise parents' conflicts less negatively and/or are less temperamentally inclined toward negative affect.

## CHAPTER 2: METHOD

### 2.1. Participants

This project was part of a larger study examining family relationships and children's various outcomes. Participants were families living in the northeastern United States who met the requirement of having two married parents currently living with their biological child. In addition, the child had to be between 9 and 11 years of age and be able to read at a 4th-grade level or higher. The families were recruited through letters sent via postal mail, advertisements in newspapers and magazines, as well as flyers and recruitment booths in public places. Each family was compensated for their participation in the study.

The initial sample consisted of 119 families. However, 4 families were excluded due to not adhering to the instructions for the interparental discussion task. Specifically, when parents were instructed to engage in an interparental discussion of a topic of conflict in front of the child, two families instead had a non-conflict conversation. In another 2 families, parents involved the child in the discussion or talked about child-related matters, which was against the protocol.

The final sample consisted of 115 families. The gender makeup of children was 62 males, 52 females, and 1 gender-neutral child. Their mean age was 10.55 years ( $SD = 0.86$ ). The majority of them were reported by mothers as Caucasian (90.4%), 7% as having mixed race, 1% as American Indian/Alaska Natives, and 1% as Asian. Of the sample, 3.5% were Hispanic/Latinx. Annual family income ranged from less than \$10,000 to more than \$80,000 a year, with 60.9% of families earning more than \$80,000,

19.1% earning between \$65,000-\$80,000, 12.2% earning between \$40,000-\$65,000, and 6.1% earning less than \$40,000.

## **2.2. Procedure**

The following procedure describes only the parts of a larger protocol that are relevant to this paper. The procedure for the whole study was approved by the Institutional Review Board (IRB). Informed consent/assent was obtained from parents and 11-year-old children at the beginning of the visit. Because our IRB stipulates that children younger than 11 years of age cannot give assent, participants fitting this description in our study were given a description of the procedure and encouraged to ask questions. The study consisted of two lab visits. During the first visit, mothers completed questionnaires about demographic information and children's temperament. Children completed a questionnaire evaluating their perceptions of their parents' conflicts. In the second visit, parents were asked to discuss a topic of interparental disagreement that was not sex-related or child-related in front of their child. The topic was chosen from a list of 33 items that are often sources of conflict for couples and was identified by both parents as an important issue in their relationship. Parents were then instructed to discuss the matter for 10 minutes, talking as they normally do at home. As for the children, before the discussion started, they were invited to sit on the other side of the room from their parents. They were then informed by the researcher that their parents would have a conversation with each other like they typically do at home and were asked to act as they normally would on those occasions. During the conversation, children were free to move around the room or play with age-appropriate toys and games that were located nearby.

After the discussion ended, they were escorted to a different room and asked to complete a set of questionnaires assessing their current affect and perceived physiological arousal. Children also reported these measures at two other time points during that same visit. However, since the purpose of this study was to examine children's affect and arousal immediately after the interparental conflict discussion, only data from this time point were analyzed for this study.

## **2.3. Measures**

### **2.3.1. Conflict Appraisals**

The Children's Perception of Interparental Conflict Scale (CPIC; Grych et al., 1992) is a 48-item scale that evaluates children's cognitive representations of their parents' arguments. Three subscales of this measure were examined in this study, namely Threat, Self-blame, and Triangulation into parents' conflict. The Threat subscale includes items such as "When my parents argue I worry about what will happen to me." The Self-blame subscale comprises statements such as "It's usually my fault when my parents argue." The Triangulation subscale contains sentences such as "I feel caught in the middle when my parents argue." Children indicated whether the statements were 0 (*false*), 1 (*sort of or sometimes true*), or 2 (*true*). Each subscale was scored by summing all contributing items. Higher scores meant higher levels of threat, self-blame, or triangulation. The measure has demonstrated good psychometric properties (Grych et al., 1992). In this sample, Cronbach's  $\alpha$ s for Threat, Self-blame, and Triangulation were .80, .70, and .66, respectively.

### **2.3.2. Negative Affectivity Temperament Traits**

The Temperament in Middle Childhood Questionnaire (TMCQ; Simonds & Rothbart, 2004) is a 157-item scale assessing children's emotional reactivity and regulation style. Mothers completed the questionnaire by indicating how accurately each statement describes their child on a scale from 1 (*almost always untrue*) to 5 (*almost always true*). The subscales examined in this study were Anger (e.g., "My child gets angry when called in from play before s/he is ready to quit"), Fearfulness (e.g., "My child is afraid of fire"), and Sadness (e.g., "My child tends to become sad if plans don't work out"). Each subscale was scored by taking the average of all contributing items. Higher scores corresponded to higher levels of anger, fearfulness, or sadness. These subscales have demonstrated acceptable reliability in a previous study, ranging from .70 to .83 (Simonds & Rothbart, 2004). Similarly, Cronbach's  $\alpha$ s in this sample were .84, .75, .82 for Anger, Fearfulness, and Sadness, respectively.

### **2.3.3. Emotional State**

The Positive and Negative Affect Schedule for Children (PANAS-C; Laurent et al., 1999) is a 27-item self-report measure that assesses children's emotional states over the past two weeks. The subscale examined in this study was Negative Affect. To fit with the purpose of our study, the instructions were modified so that children were asked to report their emotions in the current moment (i.e., "Indicate how much you feel this way right now"). Children reported how much they identified with emotions such as sadness or anger on a 5-point Likert scale ranging from 1 (*very slightly or not at all*) to 5 (*extremely*). The score was obtained by summing all items making up the Negative Affect

subscale. Higher scores reflected higher levels of negative affect. Cronbach's  $\alpha$  in our sample was .92.

#### **2.3.4. Perceived Physiological Arousal**

The Physiological Hyperarousal Scale for Children (PH-C; Laurent et al., 2004) is an 18-item self-report of children's perceived physiological arousal. The measure was originally developed to assess bodily arousal over the past two weeks. However, in order to fit with the purpose of the study, we changed the instructions so that children were asked to report their physiological arousal during that moment (i.e., "Please circle the number that best describes how you feel right now"). Items were physiological symptoms such as "Dry mouth", "Sweaty hands/palms", and "Blushing". Children rated how much they identified with the items on a scale from 1 (*Not much or not at all*) to 5 (*A lot*). All items were summed to form an index of physiological arousal, with higher scores indicating higher levels of somatic arousal. In this sample, Cronbach's  $\alpha$  was .82.

### **2.4. Data Analyses**

Multiple regressions were estimated using robust maximum likelihood in Mplus Version 8 (Muthén and Muthén, 2017). This estimator can account for the missing data, as well as the non-normality observed in a few variables (e.g., PANAS, PHC).

In each model, the predictors include one aspect of children's appraisals (i.e., threat, self-blame, triangulation), one temperament trait (i.e., sadness, anger, fearfulness), their interaction term, and child ethnicity; the dependent variable was either negative affect or perceived physiological arousal (a total of 18 models). Child ethnicity was included in the models because it was significantly correlated with negative affect and

physiological arousal in preliminary analyses (see Table 1). Additionally, each model consisted of two steps. In step one, the coefficients for child ethnicity, conflict appraisal, and temperament were freely estimated while the coefficient for the interaction term was set to zero. In step two, all coefficients were freely estimated. These steps allowed for the computation of the  $\Delta\chi^2$  test, which tested for difference in model fit as a function of whether the interaction term was fixed or free to vary (Satorra & Bentler, 2010). This  $\Delta\chi^2$  test is comparable to the test for change in  $R^2$  (Thibodeau, 2015). For ease of interpretation, the independent variables were mean-centered before computing regression coefficients. Models with a significant interaction effect were followed up with simple slope analyses, conducted in Mplus, at high and low levels of the moderator (Aiken & West, 1991) to facilitate interpretation of the interaction effect.

## **CHAPTER 3: RESULTS**

### **3.1. Preliminary Analyses**

Descriptive statistics and bivariate correlations among variables are presented in Table 1. Among the main predictors, only self-blame and triangulation were significantly and positively correlated with children's negative affect and perceived arousal. In addition, child ethnicity was correlated with the outcome variables such that Hispanic/Latinx children were more likely to report negative emotions and perceived arousal than non-Hispanic/Latinx children. Children's negative affect and perceived arousal were also significantly and positively correlated with each other, suggesting that these two states often co-occur. Temperamental fear, anger, and sadness were significantly correlated with one another, suggesting that children with a temperamental disposition toward one form of negative emotion are likely to have temperament-related tendencies to express other forms of negative emotion as well. Lastly, self-blame was positively correlated with threat and temperamental anger and fear.



**Table 1: Means, Standard Deviations, and Intercorrelations between Variables**

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Threat	-												
2. Self-blame	.22*	-											
3. Triangulation	.08	.14	-										
4. Anger	.12	.24*	-.11	-									
5. Fearfulness	.17	.21*	.06	.29**	-								
6. Sadness	.16	.12	-.18	.70**	.38**	-							
7. Neg. Affect	.17	.40**	.30**	.06	.19	-.07	-						
8. Phys. Arousal	.19	.45**	.28**	.06	.19	.01	.69**	-					
9. Gender	.13	.13	.05	-.04	.06	.15	-.13	-.03	-				
10. Race	.16	.15	.14	.04	.17	.08	.06	-.04	.00	-			
11. Ethnicity	.16	.23*	.10	-.02	.11	-.13	.51**	.25*	-.08	.10	-		
12. Age	-.10	.01	.20	-.12	-.18	-.25	-.16	-.10	.08	-.31**	-.02	-	
13. SES	.01	-.10	.02	-.21*	-.14	-.16	-.11	.00	.15	.00	.08	.11	-
<i>M</i>	7.35	1.57	2.95	2.62	2.20	2.42	17.43	21.32	.46	.10	.03	10.55	5.35
<i>SD</i>	4.53	2.05	2.44	.75	.71	.58	5.80	4.99	.50	.30	.18	.86	1.02

*Note.*  $N = 115$ . Anger/ Fearfulness/ Sadness = Temperamental anger/ fearfulness/ sadness; Neg. Affect = Negative affect; Phys. Arousal = Perceived physiological arousal; SES = Socioeconomic status (family income).

\* $p < .05$ ; \*\* $p < .01$

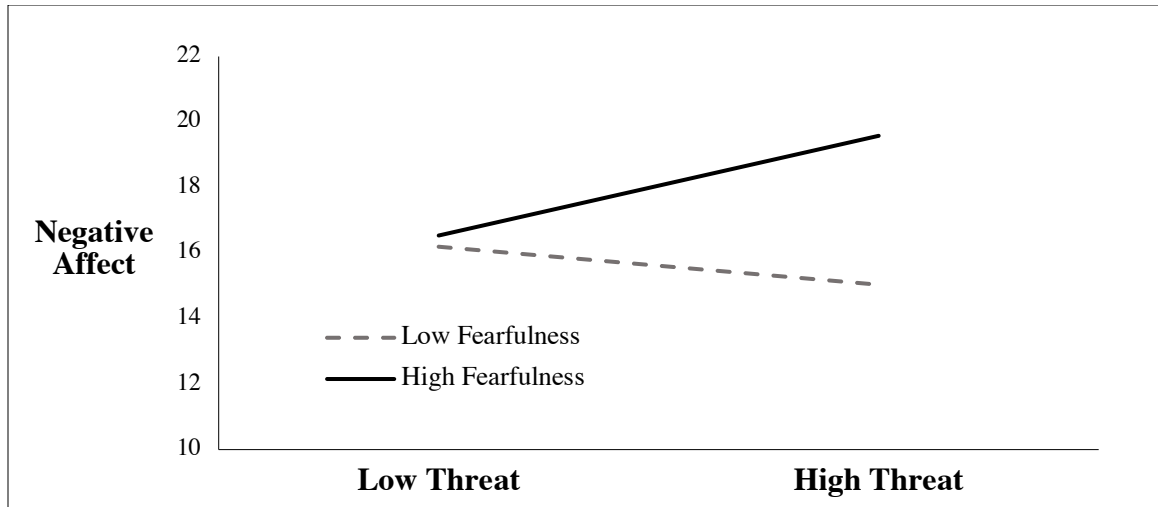
### 3.2. Primary Analyses

Among models predicting negative affect, the threat-fearfulness model revealed a significant interaction effect (Table 2). When probing the interaction at +/- 1 standard deviation around the mean of fearfulness, threat was not significantly associated with negative affect at either value of fearfulness. Therefore, we decided to probe the interaction at +/- 1.5 standard deviations around the mean of fearfulness. At +1.5 standard deviations of fearfulness, threat positively predicted negative affect ( $b = .34$ ;  $p < .05$ ). However, at -1.5 standard deviations of fearfulness, the association between threat and negative affect was non-significant ( $b = -.13$ ;  $p > .05$ ). Thus, for children with little temperamental fearfulness, perceiving threat from parental arguments did not predict more negative emotions. However, for children who are high on fearfulness, perceiving more threat was associated with more negative emotions (Figure 1).

**Table 2: Threat and Temperamental Fearfulness Predicting Negative Affect**

	<b>b</b>	<b>SE (b)</b>	<b>β</b>	<b>95% CI</b>	<b>R<sup>2</sup></b>	<b>ΔR<sup>2</sup></b>
<b>Step 1</b>					.24	
Ethnicity	14.38	8.06	.47	1.11; 27.64		
Threat	.11	.12	.09	-0.09; 0.30		
Fearfulness	.96	.57	.12	0.02; 1.91		
<b>Step 2</b>					.26	.02
Ethnicity	14.14	7.98	.46	1.01; 27.26		
Threat	.10	.12	.09	-0.09; 0.30		
Fearfulness	.14	.60	.07	0.15; 2.13		
Threat x Fearfulness	.22*	.10	.06	0.05; 0.39		

Note. \*  $p < .05$ .



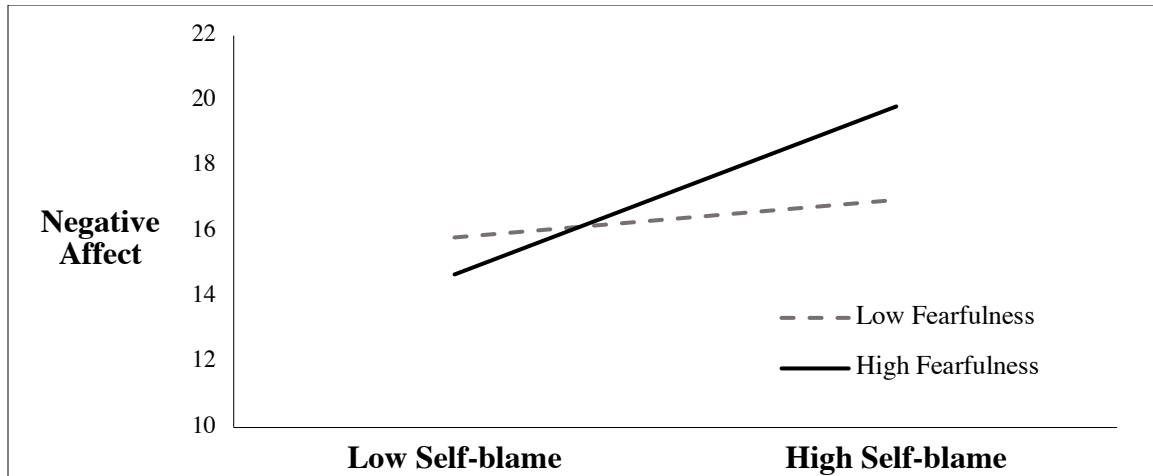
**Figure 1: Interaction Effect of Threat and Temperamental Fearfulness on Negative Affect**

There was also a significant interaction effect of self-blame and fearfulness on negative affect (Table 3). Particularly, self-blame was significantly and positively correlated with negative affect at high levels (+1 *SD*) ( $b = 1.26; p < .01$ ), but not at low levels (-1 *SD*) of fearfulness ( $b = 0.28; p > .05$ ). In other words, self-blaming thoughts concerning interparental conflict predicted more negative emotions among high-fear, but not among low-fear, children (Figure 2).

**Table 3: Self-blame and Temperamental Fearfulness Predicting Negative Affect**

	<b>b</b>	<b>SE(b)</b>	<b>β</b>	<b>95% CI</b>	<b>R<sup>2</sup></b>	<b>ΔR<sup>2</sup></b>
<b>Step 1</b>					.31	
Ethnicity	13.45	8.11	.31	0.12; 26.79		
Self-blame	.85*	.41	.08	0.18; 1.52		
Fearfulness	.60	.51	.45	-0.25; 1.44		
<b>Step 2</b>					.34*	.03*
Ethnicity	12.92	8.12	.43	-0.43; 26.28		
Self-blame	.77	.41	.28	0.95; 1.44		
Fearfulness	.60	.50	.08	-0.21; 1.42		
Self-blame x Fearfulness	.68*	.28	.18	0.22; 1.15		

Note. \*  $p < .05$ .



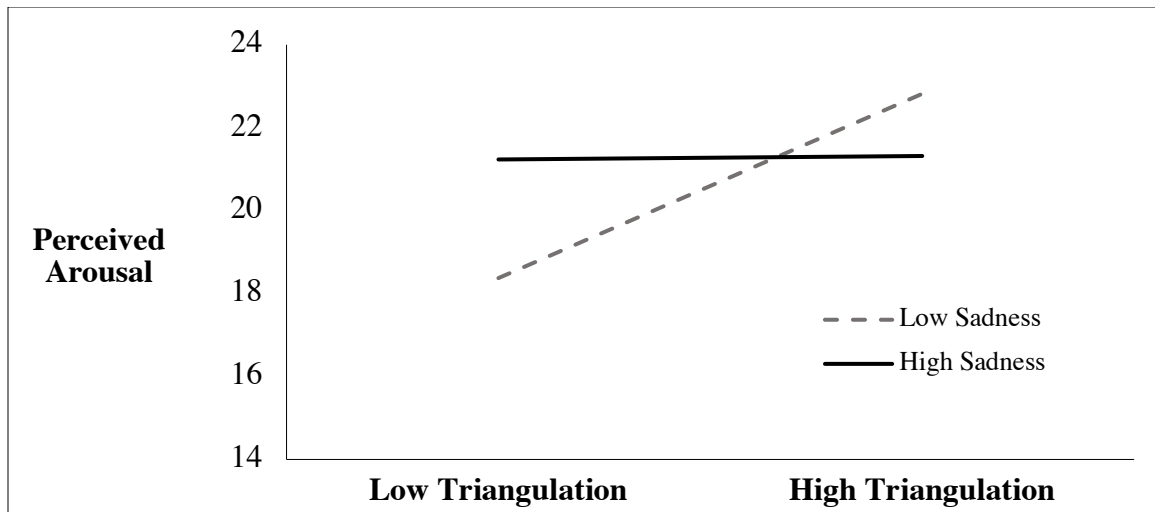
**Figure 2: Interaction Effect of Self-blame and Temperamental Fearfulness on Negative Affect**

In the models predicting perceived arousal, there was a significant interaction effect of triangulation and sadness (Table 4). In this model, triangulation had a significant first-order effect on perceived arousal, with more feelings of triangulation predicting higher levels of arousal. This effect was qualified by an interaction with sadness such that triangulation significantly predicted more arousal at low levels (-1 SD) of sadness ( $b = .91, p < .01$ ), but was unrelated to arousal at high levels (+ 1 SD) of sadness ( $b = .02, p > .05$ ). Put another way, thoughts of being triangulated into parents’ conflict were related to more arousal only among children with low levels of temperamental sadness (Figure 3).

**Table 4: Triangulation and Temperamental Sadness Predicting Perceived Arousal**

	<b>b</b>	<b>SE (b)</b>	<b>β</b>	<b>95% CI</b>	<b>R<sup>2</sup></b>	<b>ΔR<sup>2</sup></b>
<b>Step 1</b>					.13	
Ethnicity	6.23	3.91	.23	-0.20; 12.67		
Triangulation	.56**	.20	.28	0.23; 0.90		
Sadness	.74	.67	.09	-0.36; 1.83		
<b>Step 2</b>					.17	.04
Ethnicity	5.96	3.32	.22	0.50; 11.41		
Triangulation	.46*	.20	.23	0.14; 0.79		
Sadness	.58	.65	.07	-0.49; 1.65		
Triangulation x Sadness	-.76*	.38	-.20	-0.76; -0.14		

Note. \*  $p < .05$ ; \*\*  $p < .01$ .



**Figure 3: Interaction Effect of Triangulation and Temperamental Sadness on Perceived Arousal**

In models without significant interaction effects, there were some significant first-order effects of triangulation, self-blame, and fearfulness (Tables 5 and 6). Specifically, triangulation significantly predicted more negative affect and perceived arousal in all models. Similarly, self-blame predicted more negative affect and perceived arousal in four out of the six models. Fearfulness also predicted higher perceived arousal in two out of the three models. Lastly, ethnicity significantly predicted negative affect in three models, indicating that Hispanic/Latinx children were more likely to have negative feelings after observing an argument between parents.

**Table 5: First-order Effects of Self-blame and Triangulation on Negative Affect**

	<b>b</b>	<b>SE (b)</b>	<b>β</b>	<b>95% CI</b>
Self-blame x Anger Model				
Ethnicity	14.14	8.36	.46	0.40; 27.89
Self-blame	.76*	.29	.28	0.28; 1.24
Anger	-.19	.34	-.03	-0.76; .38
Interaction	.42	.37	.15	-0.19; 1.03
Self-blame x Sadness Model				
Ethnicity	13.70	8.08	.45	0.40; 27.00
Self-blame	.88*	.39	.32	0.24; 1.53
Sadness	-.30	.60	-.03	-1.28; 0.68
Interaction	.23	.44	.05	-0.49; 0.95
Triangulation x Anger Model				
Ethnicity	15.01*	7.36	.48	2.90; 27.11
Triangulation	.72*	.30	.31	0.22; 1.21
Anger	.71	.55	.09	-0.20; 1.62
Interaction	.21	.35	.07	-0.36; 0.78
Triangulation x Fearfulness Model				
Ethnicity	13.52*	6.61	.45	2.65; 24.39
Triangulation	.64*	.25	.28	0.22; 1.05
Fearfulness	1.17	.77	.15	-0.10; 2.44
Interaction	.72	.47	.21	-0.04; 1.49
Triangulation x Sadness Model				
Ethnicity	14.79*	6.94	.48	3.78; 26.21
Triangulation	.59*	.23	.25	0.21; 0.97
Sadness	.34	.62	.04	-0.68; 1.36
Interaction	-.62	.61	-.14	-1.62; 0.38

Note. \*  $p < .05$

**Table 6: First-order Effects of Self-blame, Triangulation, and Fearfulness on Perceived Arousal**

	<b>b</b>	<b>SE (b)</b>	<b>β</b>	<b>95% CI</b>
<b>Self-blame x Anger Model</b>				
Ethnicity	4.89	4.88	.18	-3.13; 12.91
Self-blame	.89**	.33	.37	0.34; 1.44
Anger	-.35	.51	-.05	-1.19; 0.49
Interaction	.37	.48	.15	-0.41; 1.16
<b>Self-blame x Sadness Model</b>				
Ethnicity	4.54	4.87	.17	-3.47; 12.55
Self-blame	1.00*	.48	.42	0.22; 1.78
Sadness	.01	.71	.002	-1.16; 1.18
Interaction	-.14	.45	-.04	-0.87; 0.60
<b>Triangulation x Anger Model</b>				
Ethnicity	5.98	3.90	.22	-0.44; 12.39
Triangulation	.54*	.25	.27	0.12; 0.95
Anger	.62	.74	.09	-0.59; 1.83
Interaction	-.08	.36	-.03	-0.68; 0.52
<b>Triangulation x Fearfulness Model</b>				
Ethnicity	5.06	3.45	.19	-0.62; 10.74
Triangulation	.51*	.21	.26	0.17; 0.86
Fearfulness	1.14*	.54	.17	0.25; 2.02
Interaction	.34	.28	.11	-0.12; 0.80
<b>Threat x Fearfulness Model</b>				
Ethnicity	5.21	4.34	.19	-1.93; 12.35
Threat	.15	.14	.14	-0.07; 0.38
Fearfulness	1.19*	.51	.17	0.35; 2.03
Interaction	.18	.13	.11	-0.04; 0.40

*Note.* \*  $p < .05$ ; \*\*  $p < .01$ .

## CHAPTER 4: DISCUSSION

In this study, we examined the interactions between children's conflict perceptions and temperament predicting their affect and perceived arousal after witnessing an interparental conflict. The results partially supported our hypotheses. Specifically, confirming our prediction, the relationship between perceived threat and negative affect was stronger among relatively fearful children than among less fearful children. Similarly, self-blame was more strongly correlated with negative affect in relatively high-fear children than less fearful ones. Contrary to our prediction, the association between triangulation and perceived arousal was weaker among children high in sadness compared to those lower in sadness. These results suggest that perceptions of interparental conflict can have different implications for children's affective and physiological processes depending on their temperament.

Regarding first-order effects, both self-blame and triangulation significantly predicted more negative affect and perceived arousal. These results are consistent with the existing literature concerning the critical role of children's conflict perceptions in affective and physiological states in response to interparental discord (Crockenberg & Forgays, 1996; El-Sheikh & Harger, 2001; Weldon et al., 2019). For example, Crockenberg and Forgays (1996) found that children who perceived their parents as arguing during a parental exchange tended to have more negative emotions compared to those who thought that their parents were just talking. In addition, El-Sheikh and Harger (2001) reported that children with high levels, but not those with low levels, of self-blame or perceived threat experienced heightened cardiovascular reactivity in the face of marital conflict. Thus, our results further corroborate the proposition put forth by the cognitive



contextual framework (Grych and Fincham, 1990) that negative interpretations of the interparental relationship (e.g., self-blame or triangulation) relate to children's internal states in the context of interparental disputes. Additionally, temperamental fearfulness predicted heightened perceived arousal. This finding is not surprising given the well-documented connection between fearfulness and tendency to be aroused (Davies et al., 2011; Fox et al., 2005; Kagan et al., 1987). For example, Davies et al. (2011) found that children who were behaviorally inhibited (i.e., fearful) showed a pattern of increasing cortisol reactivity in the context of interparental conflict. For fearful children, witnessing interparental conflict may trigger their sensitive threat detection system. As a result, they may show an exaggerated physiological response.

Concerning the main findings of the study, we found that threat did not predict negative affect after watching parents' arguments among low-fear children. However, for highly fearful children, perceiving threat from the interparental dispute predicted more negative emotions. This result may indicate that not all children are equally affected by their threat appraisal from interparental disputes. It seems that low-fear children can regulate their emotions fairly well despite sensing imminent threat. High-fear children, in contrast, are often less efficient at self-regulating (Hanish et al., 2004; Nozadi et al., 2015). Thus, their moods may be more easily changed when perceiving threat. In a similar vein, self-blame predicted more negative affect only among highly fearful children. Assuming blame for parents' conflict can be detrimental to children's emotional well-being (Rhoades, 2008). For fearful children who are sensitive to such uncomfortable thoughts (Kochanska et al., 2002), this negative impact may be even more amplified. These findings fit in well with past research regarding the moderating role of

temperament in the link between marital conflict and behavioral problems (Pauli-Pott & Beckmann, 2007; Schudlich et al., 2011). For example, infants who are high, but not those who are low, in temperamental negative emotionality developed more severe behavioral problems in the presence of high interparental discord (Pauli-Pott & Beckmann, 2007). Furthermore, hypervigilant children have been reported to exhibit emotional dysregulation in the face of marital discord (Davies, Hentges et al., 2016). This response, in turn, can lead to emotional and behavioral problems (Davies, Martin et al., 2016). This study complements past findings by revealing that fearful temperament can interact with negative cognitions about the interparental relationship to intensify negative emotional states that emerge from watching parental arguments. Over time, these emotions can solidify into maladaptive patterns and eventually, adjustment problems.

Our findings suggest that not all aspects of temperamental negative affectivity are equal in predicting which children will have a particularly hard time during an interparental conflict. Only fearfulness emerges as a consistent marker of who will be extremely distressed by parental arguments. This begs the question of why fearfulness, but not other temperament traits, can moderate the relationship between conflict appraisals and emotions following a parental dispute. According to the reformulated emotional security theory (Davies & Martin, 2013), children react to interparental arguments with behavioral and affective dysregulation because they sense a threat from the conflict to their security in the family system. Thus, this framework emphasizes the role of threat perception as the organizer of children's responses to interparental dispute. Fearful children who are hypersensitive to threat may be especially quick to identify such risk when observing a contentious exchange between parents. As a result, they may

respond with particularly high levels of negative emotions. Consistent with this explanation, several studies have also documented the prominent role of fearful reactivity over other types of reactivity (e.g., anger) in linking exposure to interparental discord and subsequent psychosocial problems (Hentges et al., 2015; Davies et al., 2012).

Contrary to our hypothesis, we found that triangulation predicted heightened perceived arousal among children low in sadness, but not among those high in sadness. Further visual examination of the interaction in Figure 3 revealed that high-sad children had relatively elevated arousal compared to the majority of low-sad children. These observations seem to suggest that children who are temperamentally inclined toward sadness are prone to experiencing increased perceived arousal in the face of interparental conflict. This effect might have been so strong that it overrode the arousing effect of triangulation. In other words, perhaps triangulation could not predict any more arousal among high-sad children because these children had already been so aroused due to their temperamental sadness. To provide more evidence for this hypothesis, we conducted the analysis again but with sadness as the independent variable and triangulation as the moderator. In this analysis, sadness significantly predicted more arousal at low levels of triangulation, but was not related to arousal at high levels of triangulation. Combining all of the findings together, it seems that having either high levels of sadness or high levels of triangulation was enough to observe an elevation in perceived arousal. Put differently, contrary to what we had predicted, sadness and triangulation did not have an additive nor multiplicative effect on perceived arousal. Lastly, it should be noted that the reliability of triangulation in this sample was only acceptable ( $\alpha = .66$ ), which in turn could bias

coefficient estimation. Therefore, this result and its interpretation may need further confirmation from future studies.

To some extent, our results lend support to the cognitive contextual framework (Grych and Fincham, 1991), which posits that children's cognitive processing of marital conflict works in conjunction with other contextual factors (e.g., temperament) to predict their emotional reactivity and by extension, physiological arousal. However, there was a distinct difference between our argument and the argument proposed by the authors of the framework. Specifically, Grych and Fincham suggested that temperament affects conflict perceptions, which subsequently influence emotional reactions. In contrast, what we wanted to focus on, and what we found support for, was not so much the causal relationship between temperament and conflict appraisal as the interaction between them and the ensuing results. In our conceptualization, we wanted to explore whether the same cognitive representation of parents' relationship can be translated into different emotional and physiological experiences during exposure to a parental dispute depending on the child's innate reactive tendency. This is potentially important because it may lead to a fuller understanding of various ways that temperament can contribute to the process from interparental conflict exposure to adjustment outcomes.

There are several limitations in this study that merit discussion. First, although our participant sample was representative of the geographical area in which the study was conducted, it was relatively homogenous. Therefore, it would be valuable to have more diverse samples in future studies to see whether the results would apply to other racial/ethnic groups. Second, the results of this paper give us an initial glimpse of children's emotions and perceived arousal at a specific time point (after the argument) in an

interparental dispute. However, it would be even more informative to examine the progression of changes in affect and arousal throughout the conflict exposure. Thus, the next logical step would be to examine whether conflict perceptions and temperament predict changes in emotions and arousal from before to after the argument. Lastly, it may be informative to examine more specific aspects of negative affect in response to marital conflict such as anger, fearfulness, and sadness. Such fine-grained analysis would allow us to map which combination of conflict appraisals and temperament would lead to what kind of emotional response, thereby providing us with a fuller picture of how children differ in how they react to interparental discord.

Despite the limitations, the findings in our study offer valuable evidence to suggest that children's appraisals of interparental conflict may not definitively predict their feelings after watching an interparental argument. Rather, their effects can be amplified or negated depending on temperament. By exploring the interaction between intrapersonal factors such as conflict perceptions and temperament, this study offers a new perspective when examining the process that leads to children's responses to interparental conflict.

## REFERENCES

- Anderson, E. R., & Hope, D. A. (2009). The relationship among social phobia, objective and perceived physiological reactivity, and anxiety sensitivity in an adolescent population. *Journal of Anxiety Disorders*, *23*(1), 18–26.  
<https://doi.org/10.1016/j.janxdis.2008.03.011>
- Buehler, C., Lange, G., & Franck, K. L. (2007). Adolescents' Cognitive and Emotional Responses to Marital Hostility. *Child Development*, *78*(3), 775–789.  
<https://doi.org/10.1111/j.1467-8624.2007.01032.x>
- Crockenberg, S., & Forgays, D. K. (1996). The Role of Emotion in Children's Understanding and Emotional Reactions to Marital Conflict. *Merrill-Palmer Quarterly*, *42*(1), 22–47. JSTOR.
- Cummings, E. M., George, M. R. W., McCoy, K. P., & Davies, P. T. (2012). Interparental Conflict in Kindergarten and Adolescent Adjustment: Prospective Investigation of Emotional Security as an Explanatory Mechanism. *Child Development*, *83*(5), 1703–1715. <https://doi.org/10.1111/j.1467-8624.2012.01807.x>
- Cummings, E. M., Goeke-Morey, M. C., & Papp, L. M. (2003). Children's Responses to Everyday Marital Conflict Tactics in the Home. *Child Development*, *74*(6), 1918–1929. JSTOR.
- Davies, P. T., Cicchetti, D., & Martin, M. J. (2012). Toward greater specificity in identifying associations among interparental aggression, child emotional reactivity to conflict, and child problems. *Child Development*, *83*(5), 1789–1804.  
<https://doi.org/10.1111/j.1467-8624.2012.01804.x>
- Davies, P. T., Coe, J. L., Hentges, R. F., Sturge-Apple, M. L., & Ripple, M. T. (2018). Temperamental Emotionality Attributes as Antecedents of Children's Social Information Processing. *Child Development*. <https://doi.org/10.1111/cdev.13191>
- Davies, P. T., Hentges, R. F., & Sturge-Apple, M. L. (2016). Identifying the Temperamental Roots of Children's Patterns of Security in the Interparental Relationship. *Development and Psychopathology*, *28*(2), 355–370.  
<https://doi.org/10.1017/S0954579415001078>
- Davies, P. T., Sturge-Apple, M. L., Cicchetti, D., & Cummings, E. M. (2007). The role of child adrenocortical functioning in pathways between interparental conflict and child maladjustment. *Developmental Psychology*, *43*(4), 918–930.  
<http://doi.org/10.1037/0012-1649.43.4.918>
- Davies, P. T., & Martin, M. J. (2013). The Reformulation of Emotional Security Theory: The Role of Children's Social Defense in Developmental Psychopathology.

*Development and Psychopathology*, 25(4 0 2), 1435–1454.  
<https://doi.org/10.1017/S0954579413000709>

Davies, P. T., Martin, M. J., Sturge-Apple, M. L., Ripple, M. T., & Cicchetti, D. (2016). The distinctive sequelae of children's coping with interparental conflict: Testing the reformulated emotional security theory. *Developmental Psychology*, 52(10), 1646–1665. <https://doi.org/10.1037/dev0000170>

Davies, P. T., Sturge-Apple, M. L., & Cicchetti, D. (2011). Interparental Aggression and Children's Adrenocortical Reactivity: Testing an Evolutionary Model of Allostatic Load. *Development and Psychopathology*, 23(3), 801–814. <https://doi.org/10.1017/S0954579411000319>

Dieleman, G. C., van der Ende, J., Verhulst, F. C., & Huizink, A. C. (2010). Perceived and physiological arousal during a stress task: Can they differentiate between anxiety and depression? *Psychoneuroendocrinology*, 35(8), 1223–1234. <https://doi.org/10.1016/j.psyneuen.2010.02.012>

Donzella, B., Gunnar, M. R., Krueger, W. K., & Alwin, J. (2000). Cortisol and vagal tone responses to competitive challenge in preschoolers: Associations with temperament. *Developmental Psychobiology*, 37(4), 209–220. [https://doi.org/10.1002/1098-2302\(2000\)37:4<209::AID-DEV1>3.0.CO;2-S](https://doi.org/10.1002/1098-2302(2000)37:4<209::AID-DEV1>3.0.CO;2-S)

El-Sheikh, M. (2005). The role of emotional responses and physiological reactivity in the marital conflict–child functioning link. *Journal of Child Psychology and Psychiatry*, 46(11), 1191–1199. <https://doi.org/10.1111/j.1469-7610.2005.00418.x>

El-Sheikh, M., Harger, J., & Whitson, S. M. (2001). Exposure to interparental conflict and children's adjustment and physical health: The moderating role of vagal tone. *Child Development*, 72(6), 1617–1636. <https://doi.org/10.1111/1467-8624.00369>

El-Sheikh, M., Hinnant, J. B., & Erath, S. (2011). Developmental Trajectories of Delinquency Symptoms in Childhood: The Role of Marital Conflict and Autonomic Nervous System Activity. *Journal of Abnormal Psychology*, 120(1), 16–32. <https://doi.org/10.1037/a0020626>

El-Sheikh, M., Keller, P. S., & Erath, S. A. (2007). Marital Conflict and Risk for Child Maladjustment over Time: Skin Conductance Level Reactivity as a Vulnerability Factor. *Journal of Abnormal Child Psychology*, 35(5), 715–727. <https://doi.org/10.1007/s10802-007-9127-2>

Evans, B. E., Greaves-Lord, K., Euser, A. S., Tulen, J. H. M., Franken, I. H. A., & Huizink, A. C. (2013). Determinants of Physiological and Perceived Physiological Stress Reactivity in Children and Adolescents. *PLoS One; San Francisco*, 8(4), e61724. <http://doi.org/10.1371/journal.pone.0061724>

- Fosco, G. M., & Grych, J. H. (2008). Emotional, cognitive, and family systems mediators of children's adjustment to interparental conflict. *Journal of Family Psychology*, 22(6), 843–854. <http://doi.org/10.1037/a0013809>
- Gramer, M., Schild, E., & Lurz, E. (2012). Objective and perceived physiological arousal in trait social anxiety and post-event processing of a prepared speaking task. *Personality and Individual Differences*, 53(8), 980–984. <https://doi.org/10.1016/j.paid.2012.07.013>
- Grych, J. H., & Fincham, F. D. (1990). Marital conflict and children's adjustment: A cognitive-contextual framework. *Psychological Bulletin*, 108(2), 267–290. <https://doi.org/10.1037/0033-2909.108.2.267>
- Grych, John H., Seid, M., & Fincham, F. D. (1992). Assessing Marital Conflict from the Child's Perspective: The Children's Perception of Interparental Conflict Scale. *Child Development*, 63(3), 558–572. JSTOR. <https://doi.org/10.2307/1131346>
- Hanish, L. D., Eisenberg, N., Fabes, R. A., Spinrad, T. L., Ryan, P., & Schmidt, S. (2004). The expression and regulation of negative emotions: Risk factors for young children's peer victimization. *Development and Psychopathology*, 16(2), 335–353. <https://doi.org/10.1017/S0954579404044542>
- Harold, G. T., Shelton, K. H., Goetze-Morey, M. C., & Cummings, E. M. (2004). Marital Conflict, Child Emotional Security about Family Relationships and Child Adjustment. *Social Development*, 13(3), 350–376. <https://doi.org/10.1111/j.1467-9507.2004.00272.x>
- Hentges, R. F., Davies, P. T., & Cicchetti, D. (2015). Temperament and Interparental Conflict: The Role of Negative Emotionality in Predicting Child Behavioral Problems. *Child Development*, 86(5), 1333–1350. <https://doi.org/10.1111/cdev.12389>
- Kochanska, G., Gross, J. N., Lin, M.-H., & Nichols, K. E. (2002). Guilt in young children: Development, determinants, and relations with a broader system of standards. *Child Development*, 73(2), 461–482. <https://doi.org/10.1111/1467-8624.00418>
- Koss, K. J., George, M. R. W., Davies, P. T., Cicchetti, D., Cummings, E. M., & Sturge-Apple, M. L. (2013). Patterns of Children's Adrenocortical Reactivity to Interparental Conflict and Associations with Child Adjustment: A Growth Mixture Modeling Approach. *Developmental Psychology*, 49(2). <https://doi.org/10.1037/a0028246>
- Laurent, J., Catanzaro, S. J., Joiner Jr., T. E., Rudolph, K. D., Potter, K. I., Lambert, S., Osborne, L., & Gathright, T. (1999). A measure of positive and negative affect for children: Scale development and preliminary validation. *Psychological Assessment*, 11(3), 326–338. <https://doi.org/10.1037/1040-3590.11.3.326>



- Laurent, J., Catanzaro, S. J., & Joiner, T. E. (2004). Development and preliminary validation of the physiological hyperarousal scale for children. *Psychological Assessment, 16*(4), 373–380. <https://doi.org/10.1037/1040-3590.16.4.373>
- Lengua, L. J., & Long, A. C. (2002). The role of emotionality and self-regulation in the appraisal–coping process: Tests of direct and moderating effects. *Journal of Applied Developmental Psychology, 23*(4), 471–493. [https://doi.org/10.1016/S0193-3973\(02\)00129-6](https://doi.org/10.1016/S0193-3973(02)00129-6)
- Nozadi, S. S., Spinrad, T. L., Eisenberg, N., & Eggum-Wilkens, N. D. (2015). Associations of Anger and Fear to Later Self-Regulation and Problem Behavior Symptoms. *Journal of Applied Developmental Psychology, 38*, 60–69. <https://doi.org/10.1016/j.appdev.2015.04.005>
- Pauli-Pott, U., & Beckmann, D. (2007). On the association of interparental conflict with developing behavioral inhibition and behavior problems in early childhood. *Journal of Family Psychology, 21*(3), 529–532. <http://doi.org/10.1037/0893-3200.21.3.529>
- Rhoades, K. A. (2008). Children’s responses to interparental conflict: A meta-analysis of their associations with child adjustment. *Child Development, 79*(6), 1942–1956. <https://doi.org/10.1111/j.1467-8624.2008.01235.x>
- Rothbart, M. K., & Bates, J. E. (2006). Temperament. In *Handbook of child psychology: Social, emotional, and personality development, Vol. 3, 6th ed* (pp. 99–166). John Wiley & Sons Inc.
- Satorra, A., & Bentler, P. M. (2010). Ensuring Positiveness of the Scaled Difference Chi-square Test Statistic. *Psychometrika, 75*(2), 243–248. <https://doi.org/10.1007/s11336-009-9135-y>
- Schmidt, L. A., Fox, N. A., Schulkin, J., & Gold, P. W. (1999). Behavioral and psychophysiological correlates of self-presentation in temperamentally shy children. *Developmental Psychobiology, 35*(2), 119–135. [https://doi.org/10.1002/\(SICI\)1098-2302\(199909\)35:2<119::AID-DEV5>3.0.CO;2-G](https://doi.org/10.1002/(SICI)1098-2302(199909)35:2<119::AID-DEV5>3.0.CO;2-G)
- Schudlich, T. D. D. R., White, C. R., Fleischhauer, E. A., & Fitzgerald, K. A. (2011). Observed Infant Reactions During Live Interparental Conflict. *Journal of Marriage and Family, 73*(1), 221–235. <https://doi.org/10.1111/j.1741-3737.2010.00800.x>
- Sugimura, N., & Rudolph, K. D. (2012). Temperamental differences in children’s reactions to peer victimization. *Journal of Clinical Child and Adolescent Psychology, 41*(3), 314–328. <https://doi.org/10.1080/15374416.2012.656555>

- Thibodeau, E. (2015, May 29). Re: R-Square [Online forum comment]. *MPlus Discussion*.  
<http://www.statmodel.com/discussion/messages/12/910.html?1490144336>
- Thompson, M. J., Davies, P. T., Hentges, R. F., Sturge-Apple, M. L., & Parry, L. Q. (2020). Understanding how and why effortful control moderates children's vulnerability to interparental conflict. *Developmental Psychology*.  
<https://doi.org/10.1037/dev0000909>
- Thompson, S. F., Zalewski, M., & Lengua, L. J. (2014). Appraisal and coping styles account for the effects of temperament on preadolescent adjustment. *Australian Journal of Psychology*, *66*(2), 122–129. <https://doi.org/10.1111/ajpy.12048>
- Weldon, H. T., Schermerhorn, A. C., & Stickle, T. R. (2019). Children's affective and arousal responses to live interparental conflict: Links with appraisals. *Journal of Family Psychology*, *33*(5), 607–616. <https://doi.org/10.1037/fam0000522>