

# UVM ScholarWorks

## Parenting Style and Relational Aggression: The Moderating Role of Physiological Reactivity

Item Type	thesis;article
Authors	Lent, Maria
Download date	2026-06-11 10:57:22
Link to Item	<a href="https://hdl.handle.net/20.500.14849/3099">https://hdl.handle.net/20.500.14849/3099</a>

PARENTING STYLE AND RELATIONAL AGGRESSION:  
THE MODERATING ROLE OF PHYSIOLOGICAL REACTIVITY

A Thesis Presented

by

Maria C. Lent

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

January, 2020

Defense Date: October 22, 2019  
Thesis Examination Committee:

Dianna “Annie” Murray-Close, Ph.D., Advisor  
Patricia Prelock, Ph.D., Chairperson  
Rex Forehand, Ph.D.  
Cynthia J. Forehand, Ph.D., Dean of the Graduate College

## ABSTRACT

Low levels of physiological arousal in response to stress (e.g., low skin conductance level reactivity; SCLR) have long been conceptualized as a marker of fearlessness and a risk factor for physical aggression (e.g., hitting). Less is known, however, about how individual differences in children's SCLR and early caregiving experiences interact to produce aggressive behavior. Preliminary evidence suggests that children with low SCLR may be at an increased risk of aggression in the context of highly negative or low positive parenting. Additionally, although most early parenting socialization research has focused on physical aggression, mounting evidence implicates parenting style in the development of relational aggression (i.e., inflicting harm by damaging one's relationships). In a community sample of 236 pre-adolescent children, we examined children's SCLR, assessed during a standard laboratory interview, as a moderator of the link between parents' self-reported positive (i.e., authoritative) and negative (i.e., permissive, authoritarian, psychologically controlling) parenting styles and children's relational aggression, reported by teachers. Results indicated that increased levels of negative parenting predicted increased relational aggression; however, only permissive parenting marginally interacted with SCLR ( $p = .076$ ), such that higher levels of permissive parenting predicted increased relational aggression for children with low, but not high, SCLR. No significant main effects or interactions were found with positive parenting. Overall, the results from the present study suggest that decreasing rates of negative parenting may be key to decreasing children's relational aggression, and that behavioral monitoring and limit-setting with follow-through may be especially important facets of parenting for children with low physiological reactivity.

## ACKNOWLEDGEMENTS

I would like to briefly thank everyone who has helped me on my journey to graduate school and the completion of my thesis. First, I want to offer my immense gratitude and thanks to my mentor, Annie Murray-Close. Her support, guidance, and demands for specificity have been indispensable. I am so grateful to have had her as a role model and have grown enormously as a writer and consumer of scientific literature under her supervision. Looking forward to the rest of my graduate career, I can only imagine what I will be able to accomplish with her continued support! I would also like to thank the other members of my thesis committee, Drs. Rex Forehand and Patricia Prelock, for their guidance and assistance with my thesis.

Additionally, many thanks go to the members of the 2019 Developmental Cluster. Your advice, encouragement, and hard-hitting questions strengthened this thesis and my thinking about related issues.

Finally, I am appreciative of everyone who helped me get to where I am today. For my family who gave me the drive and opportunity to pursue a graduate degree and continue to celebrate my accomplishments. For my friends who offered laughter, chocolate, and countless game nights. For my former colleagues at the Center for Child & Family Health who allowed me the space to take the first steps toward a graduate career. I will never be able to fully articulate how grateful I am to be surrounded by such a wonderful village of support. Thank you all!

# TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS .....	ii
LIST OF TABLES .....	v
LIST OF FIGURES .....	vi
CHAPTER 1: INTRODUCTION .....	1
1.1 Relational Aggression .....	2
1.2 Parenting and Relational Aggression .....	5
1.2.1 Permissive Parenting .....	6
1.2.2 Authoritarian Parenting .....	8
1.2.3 Authoritative Parenting .....	9
1.2.4 Psychologically Controlling Parenting .....	10
1.3 Temperamental Vulnerability for Relational Aggression .....	13
1.4 Present Study .....	22
CHAPTER 2: METHOD .....	26
2.1 Participants .....	26
2.2 Measures .....	27
2.2.1 Baumrind's (1971) Parenting Styles, Parent Report .....	27
2.2.2 Parents' Psychological Control, Parent Report .....	28
2.2.3 Child's Relational Aggression, Teacher Report .....	29
2.2.4 Child's Physiological Reactivity to Social Stress .....	29
2.3 Procedure .....	30
2.4 Data Analytic Plan .....	31
CHAPTER 3: RESULTS .....	32
3.1 Preliminary Analyses .....	32

3.2 Primary Analyses .....	33
3.3 Robustness Analyses.....	34
CHAPTER 4: DISCUSSION.....	36
4.1 Strengths, Limitations, and Future Directions .....	42
4.2 Conclusions and Clinical Implications .....	45

## LIST OF TABLES

Table	Page
Table 1: Descriptive statistics and correlations of study variables.....	47
Table 2: Regression model for permissive parenting predicting relational aggression: Moderating role of skin conductance level reactivity.....	48
Table 3: Regression model for authoritarian parenting predicting relational aggression: Moderating role of skin conductance level reactivity.....	49
Table 4: Regression model for psychologically controlling parenting predicting relational aggression: Moderating role of skin conductance level reactivity.....	50
Table 5: Regression model for authoritative parenting predicting relational aggression: Moderating role of skin conductance level reactivity.....	51

## LIST OF FIGURES

Figure	Page
Figure 1: Association between permissive parenting and relational aggression moderated by SCLR .....	52

## CHAPTER 1: INTRODUCTION

Relational aggression, defined as harming or threatening harm to someone's relationships or feelings of acceptance (Crick & Grotpeter, 1995), is often a precursor to later life psychopathology (Murray-Close, Nelson, Ostrov, Casas, & Crick, 2016). In fact, children who are relationally aggressive have more adjustment problems than their nonaggressive peers (Crick & Grotpeter, 1996). For boys and girls, relational aggression is associated with internalizing and externalizing problems (Crick & Zahn-Waxler, 2003; Fite, Stoppelbein, Greening, & Preddy, 2011; Keenan, Coyne & Lahey, 2008), peer rejection and victimization (Crick & Grotpeter, 1995; Crick, Casas, & Mosher, 1997; Ostrov, 2008), and long-term trajectories of risky behavior and substance use (Kamper & Ostov, 2013; Spieker et al., 2012). Thus, it is critical to understand the processes that increase the risk of relational aggression in children.

Children's early socialization experiences, including parenting and family life, are an important context in which social interaction patterns develop (Hart, DeWolf, & Burts, 1993; Hart, Olsen, Robinson, & Mandelco, 1997; Ladd, 1992; Maccoby & Martin, 1983). Indeed, the physical aggression literature indicates that interaction patterns established in the home, whether positive or negative, transfer to peer relationships outside of the home (e.g., Baumrind, 1967; Coie & Dodge, 1998; Patterson, 1982; Snyder, Schrepferman, Bullard, McEachern, & Patterson, 2012). Although there has been relatively little research focused on how family factors affect the development of relational aggression (Reed, Goldstein, Sheffield Morris, & Keyes, 2008), preliminary evidence suggests an association with parenting style (Kawabata, Alink, Tseng, van Ijzendoorn, & Crick, 2011; Kuppens, Laurent, Heyvaert, & Onghena,

2013). Even so, there remains some debate over the relative contributions of parenting and individual child characteristics to the development of aggressive behavior, and several theoretical models suggest that, based on child characteristics, some children may be more susceptible to parental influence and the caregiving environment than others (Rutter, 1985; Seifer, 2000).

One child factor that may affect susceptibility to parenting is fearlessness (i.e., the absence of typical levels of fear). Children who experience low levels of fear may be at greater risk of learning aggressive behavior in the context of negative parenting (e.g., over- or under-reliance on behavioral control, low warmth) due to parental modeling of aggression (Bandura, 1973; Gershoff, 2002) and insufficient internal or external motivation to learn appropriate behavior (Colder, Lochman, & Wells, 1997; Hoffman, 1983; Kochanska, 1993, 1994; Larzelere & Merenda, 1994; Lepper, 1981; Maccoby, 1983). However, these same children may be more attuned to the rewarding aspects of warm parent-child relationships, and thus more open to socialization of appropriate behavior in the context of supportive parenting (Kochanska, Brock, Chen, Aksan, & Anderson, 2015; Putnam, Sanson, & Rothbart, 2002). The present study explored the association between parenting style and relational aggression, and whether this association was moderated by children's temperamental fearlessness as indexed by low physiological arousal.

### **1.1 Relational Aggression**

Researchers have long been interested in uncovering who is most likely to engage in aggressive behaviors, the specific manifestations of these behaviors, and the consequences of acting aggressively. Early empirical research focused on physical

aggression, where harm is inflicted via physical force or the threat of physical force, including actions such as hitting, kicking, or punching (Crick & Grotpeter, 1995). These early studies documented higher rates of aggression in boys than girls (e.g., Keenan & Shaw, 1997; Maccoby & Jacklin, 1974). Exclusively focusing on physical aggression, however, likely underestimated the amount of aggressive behavior exhibited by girls (Björkqvist, & Niemelä, 1992; Crick & Dodge, 1994; Murray-Close, Holterman, Breslend, & Sullivan, 2017; Robins, 1986).

Over the past two decades, aggression researchers have increasingly included measures of nonphysical forms of aggression (i.e., indirect, social, and relational aggression) in empirical studies. Although distinct, indirect, social, and relational aggression are overlapping constructs. Indirect aggression is the broadest construct, including any behavior in which the aggressor inflicts harm in such a way that the intent is unclear and he or she can remain anonymous (Björkqvist, Lagerspetz, & Kaukiainen, 1992); these actions often, but not always, target relationships. In contrast, relational aggression exclusively consists of behaviors that target one's relationships and feelings of acceptance, for example, purposeful exclusion and malicious rumor spreading (Crick & Grotpeter, 1995). Social aggression encompasses relational aggression but places a greater emphasis on the role of nonverbal behavior, such as eye rolling (Galen & Underwood, 1997). The present study will refer to "relational aggression" almost exclusively as this was the form of aggression measured.

In early relational aggression research, theorists suggested that relationally aggressive behaviors were more characteristic of girls than boys (Crick & Grotpeter, 1995). Supporting this supposition, when researchers assess relational alongside

physical forms of aggression, the prevalence rates of aggressive behavior in girls is far more similar to that of boys than originally believed (Crick & Grotpeter, 1995). These findings suggest that nonphysical forms of aggression may better characterize aggressive behavior in girls. However, relational aggression is also a relatively common behavior among boys. In fact, a meta-analysis by Card, Stucky, Sawalani, and Little (2008) revealed that although boys display higher rates of physical aggression than girls, boys and girls demonstrate almost equal rates of relational aggression. Because girls exhibit relatively low levels of physical aggression, and both boys and girls engage in relational aggression, studies of relational aggression are critical in promoting an understanding of aggressive behavior in girls *as well as* boys.

Moreover, the research into relational aggression has revealed that it is conceptually and empirically distinct from physical aggression. For instance, factor analytic studies demonstrate that although relational aggression is related to physical aggression, it is an empirically distinct construct (e.g., Crick & Grotpeter, 1995). Additionally, and perhaps most relevant to clinical and developmental psychologists, relational aggression has unique predictive validity for negative outcomes (e.g., self-, peer- and teacher-reports of peer rejection; Crick et al., 2006; Crick & Grotpeter, 1995), underscoring the need for research regarding its specific risk factors.

Parent-child relationships offer rich socialization experiences for young children and are a context in which positive and negative interaction patterns can arise (Hart et al., 1993; Hart et al., 1997; Ladd, 1992; Maccoby & Martin, 1983). Furthermore, as relational aggression targets the manipulation of intimate relationships, early social interactions, including parent-child interactions, may provide a salient context within

which children learn this behavior. It is therefore critical to continue research focusing on the associations between parenting and relational aggression.

## **1.2 Parenting and Relational Aggression**

There are several reasons to expect that parenting behaviors may influence the development of relational aggression in childhood. For one, the home environment is a learning context in which children's prototypical social interaction patterns develop (Casas et al., 2006; Collins & Laursen, 1999; Hartup & Rubin 1986). Early parent-child interactions assist children in building internal working models of how relationships and the social world function (Bowlby, 1969), including how to react to and what to expect from others. Indeed, dysfunctional parenting practices are one of the most central and consistently found family influences on the development and maintenance of children's conduct problems (Kimonis, Frick, & McMahon, 2014). Parenting behaviors may similarly play a significant role in the development of relational aggression.

Within some of the early research on parenting, Baumrind (1967, 1971) classified common parenting practices into three distinct parenting styles: permissive, authoritarian, and authoritative. She did so by rating parents' inclusion of warmth (e.g., responsiveness, positive affect) and control (e.g., limit-setting) in their parenting. Permissive parents are high in warmth but low in control, authoritarian parents are low in warmth but high in control, and authoritative parents are high in both warmth and control (Baumrind, 1971). Baumrind (1971) found that children given both high warmth and high control were more willing to be socialized by their parents and more likely to develop expected competencies and independent behavior; however, a lack of

either warmth or control interfered with children's internalization of parental messages, goals, and values. Thus, permissive and authoritarian parenting are generally regarded as negative parenting styles, whereas authoritative parenting is regarded as positive.

Follow-up research on the short- and long-term outcomes of the different parenting styles supports Baumrind's (1971) theory. For example, authoritative parenting has been found to predict adaptive skills such as emotion regulation, whereas authoritarian parenting is associated with maladaptive behaviors such as aggression (Baumrind, 1973; Chen, Dong, & Zhou, 1997; Coie & Dodge, 1998; Hart, DeWolf, Wozniak, & Burts, 1992). Thus far, most empirical research examining the influence of parenting on the development of aggression has focused on physical aggression (Berkowitz, 1993; Brook, Zheng, Whiteman, & Brook, 2001; Patterson, Reid, & Dishion, 1992; Tremblay, 2000). Yet, in the past two decades, researchers have shifted towards investigating the impact of parenting on relational aggression (e.g., Albrecht, Galambos, & Jansson, 2007; Doyle, 2010; Lindsey, Chambers, Frabutt, & Mackinnon-Lewis, 2009; Werner, Senich, & Przepyszny, 2006). The following sections address the theoretical reasons why Baumrind's (1971) parenting styles may increase risk for aggression, broadly, as well as current evidence linking these parenting styles with relational aggression, specifically.

### **1.2.1 Permissive Parenting**

Parents who utilize permissive strategies tend to be responsive to their children's needs but handle discipline inconsistently, often not following through with threats of punishment. They may also provide relatively little supervision or monitoring of their children's behavior. According to social learning theory (Bandura, 1973),

which posits that childhood aggression is the product of modeling and reinforcement, parental failure to provide sufficient behavioral control (i.e., inconsistent or absent discipline) in response to aggressive behavior may ultimately increase the frequency of aggressive conduct. Indeed, increased rates of physical aggression and antisocial behavior are found in children whose parents exhibit the low control and monitoring characteristic of permissive parenting (Patterson, 1982; Rubin, Stewart, & Chen, 1995). Permissive parents also tend to set few demands on their children; for instance, instead of assisting their children in the development of self-regulation, they expect children to develop this skill on their own. This unrealistic demand may contribute to children's difficulty in controlling negative emotions or regulating aggressive impulses when experiencing social difficulties (Kawabata et al., 2011).

Research has also consistently demonstrated a positive association between permissive parenting and relational aggression. In a sample of preschool children, parent-rated relational aggression positively correlated with maternal permissiveness for both boys and girls (Casas et al., 2006), and within a school-age sample, permissive parenting was associated with increased rates of relational aggression among girls (but not boys; Sandstrom, 2007). Among adolescents, lack of parental monitoring has also been associated with the use of relational aggression (Stocker, 2000). Taken together, these results indicate that there are both theoretical and empirical reasons to expect that the inconsistency and low control of permissive parenting may lead to the development of relational aggression.

### **1.2.2 Authoritarian Parenting**

Parents who utilize authoritarian strategies tend to value obedience and set strict rules for their children to follow with little explanation given. When their demands are not met, authoritarian parents frequently turn to punitive discipline strategies. By utilizing harsher discipline techniques, authoritarian parents model aggression in their interactions with their children, inadvertently teaching them that aggression is an appropriate technique for dealing with interpersonal conflict (Morris, Silk, Steinberg, Myers, & Robinson, 2007). Consistent with social learning theory, children later reenact these learned patterns in their interactions with peers; for example, parent-child relationships that include physical coercion are likely to foster peer relationships that include physical aggression (Casas et al., 2006). Authoritarian parenting may also negatively impact the quality of the parent-child relationship, and, as a result, increase children's risk for aggressive behavior. Social control theory (Hirschi, 1969) suggests that children learn socially acceptable behavior through their attachment to their caregivers. That is, affectionate bonds between parents and children provide a context which encourages children to learn appropriate behavior; however, more negative parenting practices (e.g., low warmth and harsh discipline) can disrupt the parent-child relationship, resulting in the child failing to internalize parental messages of acceptable behavior. Consequently, the child is more likely to display poor self-control and externalizing problems such as aggression.

Consistent with both social learning theory and social control theory, low warmth and harsh parenting have been identified as risk factors for children's physical aggression (Huesmann, Dubow, Eron & Boxer, 2006; Ladd & Pettit, 2002; Rothbaum

& Weisz, 1994; Serbin & Karp, 2004; Tremblay, 1995). Similarly, several studies have found that authoritarian parenting (Casas et al., 2006) and parental coercion or hostility (Hart, Nelson, Robinson, Olsen, & McNeilly-Choque, 1998; Vaillancourt, Miller, Fagbemi, Cote, & Tremblay, 2007) correlate with relational/social aggression, though some findings are mixed (e.g., Russell, Hart, Robinson, & Olsen, 2003; Underwood, Beron, Gentsch, Galperin, & Risser, 2008). A comprehensive meta-analytic study conducted by Kawabata and colleagues (2011) suggested that overall, increased levels of harsh parenting are relatively strongly related to higher levels of children's relational aggression. Thus, the modeling of harsh tactics and aggression typical of authoritarian parenting, and the resultant negative impact on the parent-child relationship, appear related to the development of relational aggression.

### **1.2.3 Authoritative Parenting**

Parents who utilize authoritative strategies maintain firm control over their children and set clear standards of conduct, but they are also warm and explain the reasoning behind the rules. Conceptually, the authoritative parenting style was derived from childrearing research that sought to uncover a parenting style that would promote self-reliance, self-control, and friendliness (Baumrind, 1967), competencies likely to translate into better peer interactions and decrease the need for aggressive tactics. Authoritative parenting is believed to promote these positive outcomes by providing children with models of effective problem solving and doing so within a warm relationship; theory suggests that adult modeling and instruction are likely to be most effective when children have a relationship with their parent in which they feel respected, valued, supported, and understood (Murray, Rosanbalm, Christopoulos, &

Meyer, 2019). In support, authoritative parenting has been associated with fewer physically aggressive acts and better peer relationships, including more prosocial behavior and positive interactions (e.g., Baumrind, 1973; Chen et al., 1997; Collins & Steinberg, 2006; Harrist, Pettit, Dodge, & Bates, 1994; Mize & Pettit, 1997; Pettit, Bates, & Dodge, 1997).

Researchers have also examined the relation between positive parenting and the development of relational aggression. As with the other parenting styles discussed, mixed evidence abounds; some studies have generated weak or null findings (e.g., Casas et al., 2006; Russell et al., 2003) and others have found that authoritative parenting and/or positive affect are associated with lower rates of relational aggression (Brown, Arnold, Dobbs, & Doctoroff, 2007; Crick et al., 1999). However, meta-analytic findings demonstrate robust relations between positive parenting and decreased relational aggression (Kawabata et al., 2011). These findings suggest that the sensitivity, responsiveness, and consistent control characteristic of authoritative parent-child interactions may decrease the risk of relational aggression among their children.

#### **1.2.4 Psychologically Controlling Parenting**

As empirical evidence of the benefits of authoritative parenting arose, some researchers began to “unpack” the authoritative construct to understand how each component independently contributed to positive outcomes (Steinberg, Elmen, & Mounst, 1989). This unpacking suggested that there are conceptually and empirically distinct aspects of control, each of which may have different implications for children’s development and adjustment (Barber, Olsen, & Shagle, 1994). Authoritative parents provide behavioral control (i.e., structure, guidelines, limits), but avoid power assertion

via psychological control, which is control that intrudes on the normative psychological and emotional development of the child (i.e., invalidating and constraining emotional and psychological experiences and expression; Barber, 1996). More specifically, psychologically controlling parenting includes frequent manipulation and/or exploitation of the parent-child relationship as a disciplinary tool through tactics such as love-withdrawal (e.g., avoiding looking at one's child when he/she has disappointed the parent) and guilt induction (e.g., telling one's child he/she is not as good as the parent was growing up). Furthermore, these parents tend to utilize more negative, affect-laden expressions and criticisms to induce shame in their children and convey disappointment. They may also use excessive control strategies, such as possessiveness or overprotectiveness.

Researchers have also conceptually distinguished psychological control from authoritarian parenting. Although both parenting styles share an emphasis on control, they use different methods to ensure child compliance. Parents using authoritarian control simply demand obedience and obtain it by force if necessary, whereas parents using psychological control attain obedience via manipulation of the child's thoughts and feelings (Rudy, Awong, & Lambert, 2008). Authoritarian parenting can also include an element of hostility (e.g., punitiveness, strictness, punishment, the use of fear to control) that may be lacking in psychological control's more covert style of control (Rudy et al., 2008). Given the distinctions between psychological and behavioral control and psychologically controlling and authoritarian parenting, psychological control is often conceptualized as a separate parenting construct rather than one that is subsumed by the "traditional" parenting styles (Fauber, Forehand,

Thomas, & Wierson, 1990; Gray & Steinberg, 1999; Steinberg, Mounts, Lamboro, & Dornbusch, 1991).

Psychological control has been repeatedly linked to physical aggression in preschool (Hart et al, 1998, 2000; Olsen et al., 2002) and school-age samples (Grotzinger, 1997; Nelson & Crick, 2002), and to delinquency among adolescents (Barber, 1996). Psychological control has also been found to hinder the development of effective coping strategies to deal with frustration and peer difficulties (Nelson, Hart, Yang, Olsen, & Jin, 2006). Moreover, when compared to behavioral control, psychological control has also been found to differentially relate to peer interaction difficulties (Nelson & Crick, 2002).

Psychologically controlling parenting may, therefore, have important implications for the development of relational aggression. Psychological control and relational aggression are conceptually similar, employing some of the same strategies (e.g., relationship manipulation) to achieve different goals (i.e., harm for relational aggression, control for psychological control; Reed et al., 2008). Consistent with social learning theory, children who observe their parents using psychologically controlling strategies may come to believe that interpersonal manipulations are viable strategies for achieving their goals. Supporting this theory, the majority of studies examining the association between relational aggression and psychological control have found a positive relationship across preschool (Casas et al., 2006; Nelson et al., 2006), school-aged (Nelson & Crick, 2002; Kuppens, Grietens, Onghena, & Michiels, 2009), and emerging adult samples (Clarke, Dahlen, & Nicholson, 2015; Little & Seay, 2014). Recent meta-analyses, however, debate the importance of paternal versus maternal use

of psychological control, which may explain why some previous studies (e.g., Reed et al., 2008) have found no link between psychological control and relational aggression. Specifically, Kawabata and colleagues (2011) found that only paternal psychological control was related to child relational aggression. However, in a more recent meta-analysis, Kuppens and colleagues (2013) found that both maternal and paternal use were associated with relational aggression.

Overall, then, there is mounting evidence that the use of negative parenting styles (i.e., permissive, authoritarian, and psychologically controlling) may be positively associated with children's engagement in relational aggression, whereas the use of positive parenting (i.e., authoritative) may be negatively associated with children's use of relational aggression. These findings underscore the possibility that there are many parenting practices that foster the development of relational aggression. Indeed, the association between parenting and relational aggression likely reflects equifinality, where multiple parenting styles (e.g., high permissive, high authoritarian, high psychologically controlling, low authoritative) lead to the same outcome (i.e., use of relational aggression). The present study investigated this idea by assessing four different parenting styles. We examined broad parenting styles rather than specific parenting practices (e.g., praising one's child for being good, ignoring misbehavior, arguing with one's child), as overall style is thought to be more influential on child behavior than individual parenting practices (Darling & Steinberg, 1993).

### **1.3 Temperamental Vulnerability for Relational Aggression**

Although a large body of research demonstrates a robust association between parenting and child relational aggression, there are a number of mixed findings, and

associations are often modest in size (Kawabata et al., 2011; Kuppens et al., 2013). Parenting may, therefore, be more strongly associated with relational aggression among some children than others; that is, there may be important factors that moderate the relation between parenting and relational aggression. Indeed, central to explorations of risk, resilience, and maladaptation is statistical moderation, with researchers searching for factors that change the strength of associations between psychosocial stressors (e.g., poor parenting) and outcomes (e.g., relational aggression) to better conceptualize developmental trajectories (Luthar, Cicchetti, & Becker, 2000; Masten, 2001). Consequently, models of parental influence on child outcomes are likely to be enhanced by considering the role of child characteristics (Kiff, Lengua, & Zalewski, 2011).

In the literature, there are several theoretical perspectives detailing whether and to what degree individual differences interact with social experiences to predict outcomes for children. Of interest to the present study are the diathesis-stress (Monroe & Simons, 1991) and the differential susceptibility models (Belsky, 1997; see also the related biological sensitivity to context theory, Boyce & Ellis, 2005). The *diathesis-stress model* proposes that some individuals possess a vulnerability factor that makes them especially susceptible to negative environments. Poor environments interact with the vulnerability factor, also called a latent diathesis, increasing risk for maladaptation. Warm, enriching environments offset the risk of the vulnerability factor, placing vulnerable children on similar developmental trajectories as their non-vulnerable peers. In contrast, the *differential susceptibility model* proposes that factors that are often conceptualized as vulnerabilities are better defined as plasticity factors: harsh, coercive environments amplify the risk of maladaptation for children with the plasticity factor,

but optimal environments increase the probability of positive adaptation. That is, children without the plasticity factor are thought to be less affected by their environment, whether adverse or beneficial, and children with the plasticity factor are more susceptible “for better” and “for worse” (Belsky, Bakermans-Kranenburg, & van IJzendoorn, 2007).

Aspects of child temperament have long been characterized as vulnerability factors that increase the strength of the relation between negative parenting behaviors and children’s adjustment difficulties. Temperament reflects individual differences in reactivity and self-regulation grounded in biologically-based and physiological differences across children (Rothbart & Bates, 2006). Both temperament and parenting have been found to uniquely and simultaneously contribute to child behavioral and emotional adjustment (Kiff et al., 2011), and some research suggests that responsiveness to parenting may vary depending on individual differences in aspects of temperament such as emotionality and self-regulation (Belsky, 2005; Wachs, 1991). In fact, the temperament x parenting interaction (Rothbart & Bates, 2006) is one of the most commonly cited pieces of evidence for the interaction between personal characteristics and environmental factors (Belsky & Pluess, 2009). For example, childhood-onset conduct problems have been conceptualized as resulting from the interplay between risky temperament (e.g., impulsivity) and a problematic socializing environment (e.g., ineffective parenting; Kimonis et al., 2014). However, a growing body of research from the differential susceptibility perspective is exploring previously identified diatheses, such as child temperament, as unrecognized plasticity factors (e.g., Belsky & Pluess, 2009).

Individual differences in temperamental fearlessness, defined as boldness and deficits in responsiveness to cues of punishment and the emotions of others, have been the focus of considerable developmental research (Baker, Baibazarova, Ktistaki, Shelton, & Van Goozen, 2012). In the aggression literature specifically, fearlessness is argued to serve as an important risk factor for the development of aggression (Frick & White, 2008) and as a moderator of the association between parenting and child aggression. Developmental psychologists have proposed that children require a “sufficient amount” of pressure to internalize parental messages (Gershoff, 2002). Optimal pressure and socialization are achieved through the interaction between temperament and parenting (Frick & Morris, 2004), with certain types and amounts of socialization appearing to be more effective for children with certain temperaments (Fowles & Kochanska, 2000). Among those most at risk for ineffective socialization are fearless children (Colder et al., 1997).

Fearless children may fail to respond to typical efforts of parental socialization and discipline (e.g., Briggs-Gowan et al., 2014; Dadds & Salmon, 2003; Frick & Viding, 2009). Indeed, research has demonstrated that fearless children experience less physiological arousal following aversive events (e.g., punishment; Frick, Ray, Thornton, & Kahn, 2014; Matthys, van Goozen, Snoek, & van Engeland, 2004; Raine, 2002). Due to their lower physiological arousal, fearless children may not connect their inappropriate behavior with feelings of psychological distress (e.g., guilt), reducing the effectiveness of punishment (Erath, El-Sheikh, & Cummings, 2009; Hoffman, 1983; Raine, 2002) and decreasing the likelihood they will inhibit such behavior in the future (Baker et al., 2012). Moreover, increasing the intensity of parental discipline tactics is

likely to be counterproductive (Kochanska et al, 2015); in relatively fearless children, low levels of arousal in the face of coercive interactions may leave more cognitive resources available to observe and learn from parents' aggression (Erath et al., 2009). That is, rather than optimizing the conditions for socialization against aggressive behavior, harsh parenting may create conditions conducive for learning aggressive behavior among fearless children (Hoffman, 1983). High levels of authoritarian and psychologically controlling parenting may therefore increase the risk of aggressive behavior in fearless children by optimizing the learning conditions for aggressive behavior (i.e., providing models of aggression without fostering the inhibitions against aggression that would typically develop through punishment).

Contexts of low behavioral control may also increase the risk of aggression for fearless children. As fearless children are unlikely to inhibit their own aggressive behaviors, especially when the aggressive act achieves something they find rewarding (Newman & Wallace, 1993), these children require parents to do so. In the context of lax parental control, however, aggressive behaviors are unlikely to be punished. As suggested by social learning theory, the lack of punishment acts as a reinforcer, not only increasing the likelihood of the aggressive behavior happening again but also increasing the difficulty of later learning from punishment (Colder et al., 1997). Additionally, by not providing motivation to engage in socially acceptable ways (i.e., behavioral control), parents may inadvertently increase their children's motivation to use aggressive behavior (Rothbaum & Weisz, 1994). Over time, poor monitoring and control may interact with child aggression to promote coercive parent-child exchanges, increasingly offering children opportunities to witness and learn from parental

aggression (Colder et al., 1997). High levels of permissive parenting are therefore likely to provide a reinforcing environment for children's aggressive behavior, which may be especially problematic among children who exhibit temperamental risk, such as fearlessness, for engaging in such conduct.

Instead of punishment, fearless children may be more attuned to the rewarding aspects of positive parenting, and thus more open to socialization of parental and societal norms, values, and expectations in the context of supportive parenting (Putnam et al., 2002). Warm parent-child relationships may protect fearless children from the development of aggressive behaviors by capitalizing on the positive emotions in the parent-child relationship (Baker et al., 2012; Cornell & Frick, 2007; Kochanska, 1997; Kochanska, Aksan, & Joy, 2007; Kochanska & Murray, 2000; Maccoby, 1983). Utilizing positive mechanisms for behavioral change, including a focus on rewards, may increase fearless children's willingness to embrace parental standards of conduct (Kochanska et al., 2015). Thus, fearless children may be especially likely to benefit from authoritative parenting.

Although there are multiple ways to operationalize fearlessness, the biological basis of temperament lends itself well to the use of physiological indicators (Baker et al., 2012). The autonomic nervous system (ANS) is comprised of the sympathetic nervous system (SNS), which controls the fight-or-flight response to stress, as well as the parasympathetic nervous system, which coordinates the body's rest and restorative functions (i.e., "rest and digest"). A large body of research suggests that low levels of ANS arousal at rest and in response to stress, reflected in cardiovascular indices such as heart rate and blood pressure, are related to aggression (Frick & Morris, 2004; Ortiz &

Raine, 2004; Raine, 1996). Furthermore, these low levels of arousal are often interpreted as reflecting temperamental fearlessness (Frick & Morris, 2004). In recent years, there has been increasing interest in investigating the unique role of the SNS branch of the ANS in aggressive behavior. In contrast to measures such as heart rate and blood pressure, electrodermal activity (EDA) is considered a relatively “pure” measure of SNS activity (Dawson, Schell, & Fillion, 2007) and thus provides important insight into the role of this system in aggressive behavior. Skin conductance level is a measurement of EDA that reflects the ease with which electrical current passes across the skin due to fluctuations in sweat gland activity. Whereas resting skin conductance depicts individuals’ baseline arousal level, skin conductance level reactivity (SCLR) reflects changes in skin conductance arousal in response to stress. Low resting skin conductance and low SCLR have both been conceptualized as markers of fearlessness, failure of avoidance learning, and insensitivity to punishment (Beauchaine, 2001; Gao, Raine, Venables, Dawson, & Mednick, 2010; Ortiz & Raine, 2004; Raine, 2002; Sheppes, Catran, & Meiran, 2009; Wegner & Gold, 1995), suggesting that skin conductance may serve as an important physiological indicator of temperamental fearlessness.

A growing body of evidence suggests that individual differences in physiology, including ANS reactivity, have an important impact on how the family environment influences adjustment (for reviews, see El-Sheikh & Erath, 2011; Obradović, 2012). For instance, parenting may interact with SCLR in the prediction of aggression, externalizing, and antisocial behavior, such that low SCLR is a diathesis factor in the context of negative parenting. That is, the negative effects of adverse parenting

experiences may be evident among children with low SCLR but not high SCLR. For example, Erath et al. (2009) found concurrent associations between parent-reported harsh parenting and externalizing behavior problems for boys with low SCLR. In a follow-up study two years later, Erath, El-Sheikh, Hinnant, and Cummings (2011) found that the combination of harsh parenting and low SCLR was associated with stable, elevated externalizing behaviors over time. In both studies, less consistent patterns were found for girls, but the researchers suggested that high SCLR may have been protective in the context of harsh parenting (Erath et al., 2009; Erath et al., 2011). Additionally, in a longitudinal study of a community sample of children followed from infancy until age 10, Kochanska and colleagues (2015) reported that SCLR moderated the association between parental power assertion and externalizing behavior problems, such that children with low SCLR and highly power assertive mothers had increased parent-reported externalizing behavior problems.

In contrast to studies of negative parenting, research is just beginning to investigate how low physiological arousal interacts with *positive* parenting in the development of aggression. Preliminary findings suggest that low SCLR may be a plasticity factor in the context of positive parenting. For example, within the same longitudinal study described above, Kochanska and colleagues (2015) found that SCLR moderated the association between parental responsiveness and externalizing behaviors, such that in comparison to children with high SCLR, children with low SCLR were reported to have increased levels of externalizing problems when fathers were low in responsiveness but decreased levels when fathers were highly responsive. In a separate study, which examined the moderating effect of SCLR on the relation between

parenting and conscience development, Fowles and Kochanska (2000) found that for children with low SCLR, but not high SCLR, attachment security at age 2 predicted positive conscience development at age 4, including choosing more prosocial/moral outcomes (e.g., compliance with a rule, guilt/empathy) and fewer antisocial ones (e.g., satisfaction in another's distress, anger/aggression) to hypothetical moral dilemmas.

Interestingly, the most appropriate theoretical model (i.e., diathesis-stress or differential susceptibility) regarding interactions between SCLR and parenting in the prediction of aggression may depend upon whether positive or negative parenting is being examined. With respect to negative parenting, the majority of extant research suggests that low physiological reactivity to stress functions as a diathesis rather than a plasticity factor. In contrast, but consistent with differential susceptibility theory, the limited research to date indicates that, as compared to their peers, children with low physiological reactivity may do relatively better (e.g., display less relational aggression) in the context of high levels of positive parenting and relatively worse (e.g., display more relational aggression) when positive parenting is low. The difference in outcome patterns is likely due to the fact that the absence of adversity is not the same as the presence of enriching experiences (Belsky & Pluess, 2009), and an unsupportive environment can occur in the absence of overtly negative parenting. That is, low levels of negative parenting are not necessarily indicative of a positive environment, but low levels of positive parenting, even without the presence of overtly negative parenting behaviors, are likely indicative of an unsupportive environment. Thus, negative parenting at any level and low levels of positive parenting may put children at risk for poorer developmental trajectories, but only high levels of positive parenting may put

children on track for optimal development. It is therefore critical for researchers to evaluate multiple theoretical models (i.e., diathesis-stress and differential susceptibility) in studies that assess both negative and positive parenting styles. Fortunately, the present study was well positioned to do so. Based on the preliminary literature base, we expected that interactions between SCLR and parenting in the prediction of relational aggression would mirror findings within the broader literature on externalizing behavior: overall, we anticipated that children with low SCLR would be more sensitive than peers to both positive and negative parenting. In the context of negative parenting, we expected children with low SCLR to show an outcome pattern consistent with diathesis-stress, whereas in the context of positive parenting, we expected them to show a pattern consistent with differential susceptibility.

#### **1.4 Present Study**

The present study examined whether temperamental fearlessness, indexed by low SCLR, acted as a vulnerability or plasticity factor for child use of relational aggression in the context of positive and negative parenting experiences. This question was explored in a sample of typically developing, pre-adolescent children, an age when rates of relational aggression peak (Vitaro, Brenden, & Barker, 2006) and exceed those of physical aggression (McQuade et al., 2019). As children approach adolescence, they are increasingly driven by the need for acceptance by peers and the desire to develop mutually satisfying relationships (Crick et al., 1999). As peer relationships become more important, more harm can be inflicted by targeting the victim's close relationships, and thus higher rates of peer-based relational aggression are seen during this developmental stage. An additional benefit of the pre-adolescent age range is that

parenting may be most impactful during early to middle childhood (Bradley & Corwyn, 2013); over time, externalizing behavior tends to become more stable and less susceptible to parental influence.

Additionally, the present study separately assessed positive and negative parenting styles. Parenting researchers no longer conceptualize positive and negative parenting as two ends of the same continuum; rather, they are viewed as distinct dimensions (e.g., Pettit et al., 1997). Moreover, positive and negative parenting are known to have differential effects on children's social behavior (Alink, Cicchetti, Kim, & Rogosch, 2009; Romano, Tremblay, Boulerice, & Swisher, 2005; Steinberg, Lamborn, Darling, Mounts, & Dornbusch, 1994). Previous parenting research, however, has overly focused on the impact of the negative aspects of parenting (Kochanska, Kim, Boldt, & Yoon, 2013), making this study's inclusion of positive parenting a valuable one. Furthermore, to be consistent with recent meta-analyses on the relation between parenting and relational aggression (e.g., Kawabata et al., 2011), rather than exploring a single, negative parenting composite, the present study explored the possibility of equifinality in the development of relational aggression by examining relations between each negative parenting style and this important developmental outcome.

A physiological indicator of fearlessness was assessed based on children's SCLR in response to a semi-structured interview focusing on real life experiences in which the child recounts a recent interpersonal conflict. Reactivity measures were used in the present study as meta-analytic studies examining associations between heart rate and aggression indicate that effect sizes are larger for studies assessing reactivity rather

than arousal at rest (Ortiz & Raine, 2004). Additionally, a negatively valenced stressor was selected based on previous research indicating that changes in ANS arousal to negatively valenced stressors may be a particularly strong indicator of physiological vulnerabilities to aggression (Murray-Close, Breslend, & Holterman, 2018; Ortiz & Raine, 2004). Furthermore, previous research also supports the conceptualization of low SCLR as an indicator of fearlessness in the context of negatively valenced stressors (Fowles & Kochanska, 2000; Ortiz & Raine, 2004). It has likewise been suggested (e.g., Murray-Close, 2013; Obradović, Bush, & Boyce, 2011) that children's physiological reactivity varies across distinct types of stressors, and thus, researchers should match the stressor type with the outcome of interest (but see Murray-Close et al., 2014). In the context of relational aggression, relational disputes (e.g., provocations that are relational in nature, such as being excluded) have been found to be more provocative for relationally aggressive children than instrumental (e.g., property damage) disputes (Crick, 1995; Crick, Grotpeter, & Bigbee, 2002). This result is unsurprising given that physical and relational aggression have different goals (Crick & Grotpeter, 1995): physical aggression damages victims' physical well-being and is most impactful in situations where physical dominance is highly valued, whereas relational aggression disrupts social interactions and is most impactful in situations where close relationships are highly valued. Thus, the present study utilized a social stressor during tests of physiological reactivity as it is highly related to the outcome of interest.

In sum, the goal of the present study was to investigate the moderating effect of temperamental fearlessness, as indexed by low SCLR, on the relation between positive and negative parenting styles and children's relational aggression with their peers. We

expected that positive parenting, as indexed by high levels of authoritative parenting, would predict lower rates of relational aggression. Conversely, negative parenting, as indexed by high levels of permissive, authoritarian, and psychologically controlling parenting, was expected to predict higher rates of relational aggression. We also anticipated that SCLR would significantly moderate the effects of parenting on relational aggression. In accordance with a differential susceptibility model, it was predicted that children with physiological indicators of temperamental fearlessness (i.e., low SCLR) would be more sensitive to positive parenting, such that the association between positive parenting and relational aggression would be stronger for youth with high fearlessness. We expected that in the context of high positive parenting, children with low SCLR would exhibit the lowest levels of relational aggression, but in the context of low positive parenting, children with low SCLR would exhibit the highest levels of relational aggression. Additionally, in accordance with a diathesis-stress model, we predicted that children with low SCLR would be more sensitive to negative parenting, such that in the context of high negative parenting, they would exhibit the highest levels of relational aggression, but in the context of low negative parenting, they would exhibit rates of relational aggression comparable to their high SCLR peers.

## CHAPTER 2: METHOD

### 2.1 Participants

Data from two hundred and thirty-six children (127 girls), recruited from a large Midwestern city, were utilized for the present study. Participants ranged in age from 8.53 to 12.44 years old ( $M = 10.15$ ,  $SD = .69$ ). Eighty-nine percent of the participants were Caucasian, 2.1% Asian, 1.7% African American, and 4.6% other racial groups. Six children (2.5%) were missing demographic information regarding their race. In the majority of cases, parents accompanied their children on laboratory visits and completed study measures; however, a small percentage of families (< 20%) completed study procedures at home. Of the parent participants, 203 (86%) were mothers and 30 (12.7%) were fathers or step-fathers. Parent level of education was broken down as follows: 2.1% had a high school diploma or GED, 24.2% a 2-year college or associate's degree, 47.5% a 4-year college degree, and 24.6% a graduate degree. The majority of the sample was married (93.6%) with smaller percentages self-reporting as living with a partner (2.1%), single (1.7%), or divorced (1.7%). Median yearly income was \$80,001 or more (59.3%); 17.4% had incomes between \$60,001 and \$80,000, 14.4% between \$40,001 and \$60,000, and 9.3% under \$40,000.

As described in Murray-Close et al. (2014), families with children in fourth to sixth grade were recruited through visits to local schools and through a university participant pool. To recruit from local schools, a group of undergraduate research assistants visited schools to explain the purpose and procedure of the study and to distribute consent forms. Students were asked to bring blank consent forms home to their parents and return completed ones to their teachers. Eighteen percent of students

approached through the local schools returned a completed consent form. A second group of research assistants called families from the participant pool waitlist and invited eligible families to participate. To be eligible, families were required to live within a 2-hour drive of the university laboratory and children could not have developmental delays that would interfere with study procedures. Fifty-one percent of families contacted from the participant pool agreed to participate. Additionally, teachers of all child participants were contacted and asked to complete a study questionnaire. The return rate for the teacher-rated measure was 79.2%.

## **2.2 Measures**

### **2.2.1 Baumrind's (1971) Parenting Styles, Parent Report**

The Parenting Styles and Dimensions Questionnaire – Short Form (PDSQ-SF; Robinson, Mandleco, Olson, & Hart, 2001) was used to measure parents' level of permissive, authoritarian, and authoritative parenting. This 32-item self-report scale was derived from a 62-item questionnaire by the same authors, capturing Baumrind's (1971) three original parenting styles. It includes subscales measuring each specific style: 15 items measure authoritative parenting (e.g., “encourages child to talk about the child's troubles,” “emphasizes the reasons for the rules,” “allows child to give input into family rules”), 12 items measure authoritarian parenting (e.g., “spanks when child is disobedient,” “yells or shouts when child misbehaves,” “uses threats as punishment with little or no justification”), and 5 items measure permissive parenting (e.g., “spoils child,” “threatens child with punishment more often than actually giving it,” “finds it difficult to discipline child”). For ethical reasons, the 4 authoritarian subscale items measuring physical coercion were dropped from the present study, reducing the scale to

8 items. Each item on the PDSQ-SF is rated on a 5-point Likert scale (*1 = never, 5 = always*) identifying how often the parent employs the described parenting behavior. To calculate the parent's authoritative, authoritarian, and permissive parenting scores, items within each subscale are averaged; each item is associated with a single subscale. As we were interested in the overall pattern of parenting rather than specific practices, the three parenting style subscales were used for analyses. Acceptable internal consistency was found within the present sample for each parenting style subscale (authoritative  $\alpha = .83$ , authoritarian  $\alpha = .68$ , permissive  $\alpha = .63$ ).

### **2.2.2 Parents' Psychological Control, Parent Report**

Parental psychological control was measured via a 37-item self-report questionnaire assessing how often parents use psychological control tactics with their children (Olsen et al., 2002). The questionnaire was developed as an adaptation of Barber's (1996) Psychological Control Scale – Youth Self Report, in which adolescents reported on their parents' use of psychological control tactics. The original 16 items were reworded for parents and applicability to younger children. Additionally, 17 new items were developed by early childhood experts to tap parenting behaviors more appropriate for younger children. Example items include: "I tell our child how he/she should behave," "I act disappointed when our child misbehaves," and "I don't pay attention when our child is talking to us." Each item is rated on a 5-point Likert scale (*1 = never, 5 = always*) identifying how often the parent employs the described parenting behavior. To calculate the parent's psychological control score, all items are averaged. Within the present sample, good internal consistency was found ( $\alpha = .86$ ).

### **2.2.3 Child's Relational Aggression, Teacher Report**

A teacher-rating measure, the Children's Social Behavior Scale – Teacher Report, was used to assess relational aggression (Crick, 1996). The instrument was designed for use with third through sixth graders and includes 5 items assessing relational aggression (e.g., “this student spreads rumors or gossips about some peers”). Each item is rated on a 5-point Likert scale ( $1 = \textit{never}$ ,  $5 = \textit{always}$ ) identifying how often the student exhibits aggressive behavior. The 5 items are averaged together to produce a relational aggression score. Mean scores demonstrated good internal consistency in the present sample ( $\alpha = .87$ ).

### **2.2.4 Child's Physiological Reactivity to Social Stress**

Children's physiological reactivity was assessed with a semi-structured interview, the Social Competence Interview (SCI), which was adapted from Ewart and Koldner's (1991, 1993) original procedure. The modified SCI allows for the assessment of reactivity to instrumental *and* relational stressors. Each type of stressor was presented separately (i.e., Interview A and Interview B), and the interviews were counterbalanced across participants. In Interview A, the child was given a deck of five cards, each of which contained an example of an instrumental peer provocation situation (e.g., having a possession taken or ruined, getting knocked down or bumped). The child was asked to think of a time when he or she had experienced the listed stressor and then asked to choose the situation that had happened to him or her the most. The most frequent stressor was queried and described in detail using standard imagery techniques. Interview B followed the same procedure as Interview A but included five relational peer provocation situations (e.g., getting left out or ignored,

someone talking behind your back, a friend playing with someone else). Physiological reactivity to Interview B was used for analyses in the present study.

SCLR was assessed with two Ag/AgCL skin conductance electrodes attached to the distal phalanges of the first and second fingers of the child's nondominant hand. The electrodes were attached via double-sided adhesive collars to limit gel to a 1-cm diameter circle. Data were collected using James Long Company hardware and software. A 16-channel James Long Company A/D converter was used to digitize the signals.

Participants were given an accommodation period of approximately 5 minutes before the SCI began. Each SCI consisted of an initial 6-minute resting baseline, followed by one of the interviews, which lasted approximately 12 minutes, and then a 6-minute recovery period. Skin conductance levels were measured continuously, and physiological changes during the interviews were used to calculate SCLR to the relational stressor. Specifically, second-by-second skin conductance scores were averaged across baseline and interview sessions. The average baseline value was then subtracted from the average interview value, a common methodology for investigations of ANS reactivity (e.g., Shoulberg, Sijtsema, & Murray-Close, 2011).

### **2.3 Procedure**

The University of Minnesota Institutional Review Board approved all study procedures. Parents of all children gave informed written consent for their child to participate, and children gave written assent. Participants and their participating parent were invited into the lab where they completed a 2-hour assessment interview, including the SCI with the child and a series of paper questionnaires for both the child

and the parent. In less than 20% of cases, research assistants traveled to the homes of participants to complete the interviews. Families were compensated \$50 for mileage and attending the laboratory interview. Participants' teachers completed the relational aggression measure and were compensated \$10 for each completed survey.

#### **2.4 Data Analytic Plan**

Primary regression analyses were conducted separately by parenting style using Mplus version 8.2 with maximum likelihood estimation with robust standard errors to accommodate missing data and variable skew (see Table 1 for details regarding skew). In each model, relational aggression was regressed onto one parenting style (i.e., permissive, authoritarian, psychologically controlling, and authoritative, respectively), SCLR, and the two-way interaction between these variables. Demographic variables (i.e., parent education, child age, race, and gender) were tested as possible covariates by examining correlations between them and other variables included in the models. Child race was found to significantly correlate with relational aggression and marginally correlate with authoritarian and psychologically controlling parenting and, thus, was included as a covariate in the final models. None of the other demographic variables were included as covariates as they were not significantly related to key study variables. Predictors were mean-centered prior to analyses, and significant interactions were decomposed using simple slopes at  $\pm 1$  SD from the mean on the moderator variable. To determine if use of missing data procedures or inclusion of fathers influenced the results, robustness tests were conducted to see if significant results remained when models were rerun excluding: 1) participants missing data on key study variables; and 2) non-mother data.

## CHAPTER 3: RESULTS

### 3.1 Preliminary Analyses

Table 1 displays the descriptive statistics and correlations between study variables. On average, parents reported enacting a permissive, authoritarian, or psychologically controlling parenting style “once in a while” and an authoritative parenting style “very often.” Likewise, the mean of teacher-reported relational aggression was 1.5, indicating that children within the sample generally exhibited low levels of relational aggression. We also found a significant increase ( $t[113] = -11.26, p < .001$ ) in skin conductance level from baseline ( $M = 11.04, SD = 6.79$ ) to the reexperiencing portion of the SCI ( $M = 13.18, SD = 7.39$ ), suggesting that the typical response to the social stressor was increased skin conductance level.

Examination of correlations between demographic variables (i.e., parent education, child age, non-Caucasian status, and gender) and study variables indicated that non-Caucasian children were significantly higher in teacher-reported relational aggression relative to Caucasian children (1 = Caucasian; 2 = non-Caucasian). Therefore, as mentioned above, race was included as a covariate in all primary analyses. Additionally, examination of correlations between key study variables revealed significant positive associations ( $ps < .001$ ) between all types of negative parenting. Permissive parenting, but no other negative parenting style, was also negatively correlated with authoritative parenting ( $p = .037$ ).

Missing data analyses generally revealed no differences between participants with complete data and those without. The 49 participants whose teachers declined to complete the relevant rating scale did not significantly differ from children with teacher

data on key study variables. Likewise, the 122 participants with missing SCLR data (due to equipment malfunction, experimenter error, or the child declining to participate in the SCI) did not significantly differ from children with SCLR data on key study variables. However, the 7 participants who were missing data on authoritarian, authoritative and psychologically controlling parenting and the 8 participants who were missing data on permissive parenting were more likely to be non-Caucasian than children with complete data,  $\chi^2s(1) = 4.38 - 5.91, ps = .015 - .036$ .

### **3.2 Primary Analyses**

The first three models regressed relational aggression onto negative parenting (i.e., permissive, authoritarian, and psychologically controlling, respectively), SCLR, and the two-way interaction between negative parenting and SCLR. Race was included as a covariate in each model.

In the first model, permissive parenting served as the indicator of negative parenting. Results, presented in Table 2, indicated that permissive parenting significantly predicted relational aggression, such that higher rates of permissive parenting predicted higher rates of relational aggression. However, this effect was qualified by a two-way interaction between permissive parenting and SCLR that approached conventional levels of statistical significance ( $p = .076$ ). Follow-up simple slope analyses, depicted in Figure 1, indicated that permissive parenting was positively associated with relational aggression among children with low SCLR ( $b = .42, p = .008$ ), but not children with high SCLR ( $b = .21, p = .108$ ). No cross-over effects were present, suggesting a pattern consistent with diathesis-stress rather than differential susceptibility models.

In the second model, authoritarian parenting served as the indicator of negative parenting; findings indicated that authoritarian parenting marginally ( $p = .055$ ) predicted relational aggression, such that an increased rate of authoritarian parenting was associated with an increased rate of relational aggression. No significant interaction between SCLR and authoritarian parenting was found (see Table 3).

In the third model, psychologically controlling parenting served as the indicator of negative parenting. The results, presented in Table 4, indicated that psychologically controlling parenting positively predicted relational aggression, such that an increased rate of psychologically controlling parenting was associated with an increased rate of relational aggression. No significant interaction between SCLR and psychologically controlling parenting was found.

In the final model, relational aggression was regressed onto authoritative parenting (i.e., positive parenting), SCLR, and the two-way interaction between these variables. Race was again included as a covariate. The results, presented in Table 5, indicated that authoritative parenting did not predict relational aggression. Additionally, no significant interaction between SCLR and authoritative parenting was found.

### **3.3 Robustness Analyses**

To assess the potential influence of missing data on findings, primary models were re-analyzed using listwise deletion including only participants with complete data on model variables. These models indicated that race was no longer a significant predictor of relational aggression, but all other significant effects remained. Therefore, missing data was regarded as not unduly influential. Similarly, robustness tests by caregiver type revealed that all significant effects remained when analyzing only

participants with mother-reported parenting style data. Thus, final results are based on analyses including all participants, regardless of whether parenting data was gathered from mother or father, and with statistical techniques to accommodate missing data.

## CHAPTER 4: DISCUSSION

The present study sought to examine whether children's temperamental fearlessness, reflected in low ANS reactivity to social stress, acted as a vulnerability or plasticity factor for their use of relational aggression in the context of positive and negative parenting experiences. This work builds upon a pre-existing literature base which states that the home environment is an important socialization context for young children's development of appropriate social interaction skills (Casas et al., 2006; Collins & Laursen, 1999; Hartup & Rubin 1986). Despite a growing body of evidence suggesting that individual differences in temperament and physiology may have an important impact on how the family environment influences adjustment (Belsky, 2005; El-Sheikh & Erath, 2011; Kiff et al., 2011; Obradović, 2012), few studies have examined the possibility that parenting may be more strongly associated with relational aggression among some children than others. The present study directly examined how differences in ANS physiology may impact the association between positive and negative parenting styles and children's relational aggression.

Contrary to hypotheses, positive parenting (i.e., authoritative) was not associated with relational aggression. This finding was surprising, given meta-analytic evidence that positive parenting is related to lower levels of child relational aggression (Kawabata et al., 2011). However, some individual studies in this area have found weak or null associations between positive parenting and relational aggression (e.g., Casas et al., 2006; Russell et al., 2003), perhaps due to methodological differences across studies. Within the present study, lack of support for a main effect of authoritative parenting on relational aggression may be due to a lack of variability in parent ratings

of their positive parenting; overall, parents rated themselves as commonly using a positive parenting style with their children. Therefore, there may have been a ceiling effect within our community-based sample, such that there was limited variance in positive parenting from which to predict relational aggression. Additionally, positive parenting captures a number of distinct facets of parenting (Kawabata et al., 2011), and some of these facets may be more strongly related to relational aggression than others. As parental modeling is likely to be a driving mechanism behind children's behavior, aspects of positive parenting that provide models easily applicable to problem solving and peer relationships may be especially likely to reduce children's reliance on relational aggression. The warmth/positive affect component of authoritative parenting may help children build models of positive relationships by providing children with examples of competent interpersonal interactions and conflict resolution skills, and thus reducing the need for relational aggression (Brown et al., 2007). Moreover, related theory indicates that adult instruction and modeling is most effective when the child has a positive relationship with a parent, such that he or she feels supported and understood (Murray et al., 2019). Relative to parental warmth and support, democratic participation and reasoning, which involve child inclusion in the rules within the home, may be less likely to directly provide children with positive models of interpersonal interactions or foster the prerequisite supportive parent-child relationship. Thus, these aspects of authoritative parenting may be relatively less important to the development of relational aggression. In the present study, warmth and support were assessed with fewer items than reasoning and democratic participation, which may be driving the non-significant main effect.

Also contrary to hypotheses, there was not a significant interaction between authoritative parenting and SCLR in the prediction of relational aggression, suggesting that SCLR did not serve as a plasticity factor in the context of positive parenting. Extant research has suggested that warmth in the parent-child relationship may be key in protecting fearless children from the development of aggressive behaviors (Baker et al., 2012; Cornell & Frick, 2007; Kochanska, 1997; Kochanska & Murray, 2000; Kochanska et al., 2007; Maccoby, 1983), making the present findings surprising. However, the current measure of authoritative parenting may have failed to detect significant moderation due to an insufficient focus on warmth in the measure of authoritative parenting (i.e., only five of the 15 items focused on this component of authoritative parenting). Future research may seek to more specifically explore warmth and sensitivity to directly investigate whether a significant interaction effect emerges from those facets of positive parenting.

Consistent with previous literature and hypotheses, negative parenting (i.e., greater permissive, authoritarian, and psychologically controlling parenting, respectively), was associated with increased levels of child relational aggression. In accordance with social learning theory, these negative parenting styles may model poor conflict resolution and goal-achievement strategies that are translated by children into relational aggression. Specifically, parental use of relationship manipulation tactics, as might be seen in psychologically controlling parenting, imparts a message of acceptance of this type of behavior (Reed et al., 2008). Moreover, authoritarian parenting, which employs harsh or coercive tactics, may harm the parent-child relationship, decreasing the likelihood that the child will want to internalize parental

messages of appropriate conduct (Hirschi, 1969; Murray et al., 2019). Permissive parenting, which utilizes inconsistent discipline, may fail to punish aggression, thus negatively reinforcing its reoccurrence (Bandura, 1973). Importantly, our results held even when examining only mothers' parenting styles. This finding is particularly relevant for psychologically controlling parenting, as there has been some debate over the relative importance of maternal versus paternal psychological control for children's mental health, broadly, and relational aggression, specifically (Kawabata et al., 2011; Kuppens et al., 2013). For instance, Kawabata and colleagues' (2011) meta-analysis suggested that paternal, but not maternal, psychologically controlling parenting was associated with children's use of relational aggression. However, our results support the more recent meta-analysis by Kuppens et al. (2013), which reported that increased maternal and paternal psychological control were both related to children's use of relational aggression.

Furthermore, consistent with study hypotheses, results suggested that permissive parenting was positively related to relational aggression among low, but not high, SCLR children. Rather than providing support for differential susceptibility, the marginal interaction depicted in Figure 1 appeared consistent with the diathesis-stress model. Specifically, SCLR appeared to function as a vulnerability factor in the context of high permissive parenting, increasing the risk of relational aggression; however, in the context of low permissive parenting, children with low and high SCLR displayed comparable levels of relational aggression. Had low SCLR children also displayed lower levels of relational aggression than high SCLR children in the context of low permissive parenting (i.e., a cross-over effect), then results would have been more

consistent with a differential-susceptibility model (Roisman et al., 2012) in which low SCLR functioned as a plasticity factor such that low SCLR children were affected by parenting for worse *and* for better. Instead, it appears that low SCLR children are marginally more vulnerable to permissive parenting than their higher SCLR peers.

As low SCLR is often conceptualized as an index of fearlessness (e.g., Ortiz & Raine, 2004), the findings suggest that the lack of monitoring and limit setting characteristic of highly permissive environments may be particularly likely to foster relational aggression among fearless children. Previous research (e.g., Newman & Wallace, 1993) has suggested that fearless children struggle to impose limits on their own behavior and, thus, must rely on their parents for help. When parents are lax in behavioral control or awareness of child behavior, the lack of punishment for relational aggression may serve as a reinforcer, increasing the likelihood that a child will repeat the behavior (Colder et al., 1997); this reinforcement may be especially problematic for fearless children who are unlikely to self-impose limits. Similarly, fearless children may be particularly reliant on parents to explicitly motivate them to engage in socially acceptable ways. Without parental motivation, fearless children may rely on any behavior that gets their immediate needs met, including unacceptable behaviors such as relational aggression (Rothbaum & Weisz, 1994). As no other significant interactions between reactivity and negative parenting styles were found, monitoring children's behavior and imposing limits with follow-through appear to be particularly important parenting factors for reducing relationally aggressive behavior among temperamentally fearless children. However, other parenting factors (e.g., conflict resolution skills, parental history of aggression and antisocial behavior) that were not measured in the

present study may also be important for preventing relational aggression among temperamentally fearless children and should be the subject of future studies.

Interestingly, negative, but not positive, parenting was associated with relational aggression in the present study. These findings are consistent with previous literature which states that low levels of positive parenting are not the same as negative parenting and that low levels of negative parenting are not the same as positive parenting (Petit et al., 2007). Our results provide further evidence that positive and negative parenting are not on a single dimension but rather are separate but related factors; one can, on occasion, display high levels or low levels of both. In fact, of the negative parenting behaviors, only the permissive parenting scale was negatively correlated with authoritative parenting. In practical terms, our results suggest that parenting interventions that hope to reduce relational aggression may benefit from focusing on reducing negative parenting over increasing positive parenting, as, within the present study, low levels of negative parenting rather than high levels of positive parenting were associated with reduced relational aggression.

Finally, the association between child race and relational aggression was unexpected. The reasons for this association are unclear but may be an artifact of observer bias. In fact, some research suggests that race can influence perceptions of emotions and ambiguous behaviors as angry, threatening or hostile (Halberstadt, Castro, Chu, Lozada, & Simis, 2018; Sagar & Schofield, 1990). As we had no a priori hypothesis about race and rates of relational aggression, this finding should be interpreted with extreme caution, and future research may wish to investigate possible reporter biases.

#### 4.1 Strengths, Limitations, and Future Directions

The present study builds on previous literature by examining the interaction between physiological reactivity to a social stressor and parenting style in predicting relational aggression. To the best of our knowledge, this is the first study to examine this type of interaction in the prediction of children's relational aggression, and contributes to a growing literature regarding whether parenting style is associated with relational aggression (e.g., Brown et al., 2007; Casas et al., 2006; Kuppens et al., 2009; Reed et al., 2008; Russell et al., 2003; Underwood et al., 2008). An additional strength of the present study is its use of a stressor that is similar in nature to the outcome variable (i.e., a social stressor for a study on relational aggression). It has been suggested (e.g., Murray-Close, 2013; Obradović, Bush, & Boyce, 2011) that children's physiological reactivity varies across distinct types of stressors. For instance, relational disputes have been found to be more provocative than instrumental disputes for relationally aggressive children (Crick, 1995; Crick et al., 2002). Therefore, the use of a social stressor likely captured differences in reactivity that are relevant for relationally aggressive children, maximizing the likelihood of finding a meaningful interaction between parenting and reactivity for relational aggression. The sample size also gave us confidence that we had sufficient power to detect a small to medium effect size ( $d = .04$ ), which is important in non-experimental studies where interaction effects tend to be small in size (Kiff et al., 2011).

However, there are also several limitations of the current study that should be considered when interpreting the results. First, the data are cross-sectional; thus, directionality of effects cannot be determined. For instance, it is well known that

parenting and child behavior have a bidirectional association (see Patterson & Fisher, 2002). In the context of the present study, negative parenting styles may facilitate increased rates of children's relational aggression, and/or children who are more relationally aggressive may elicit more negative parenting as parents attempt to handle their children's misbehavior. To better test directionality, longitudinal research will be important. It may be especially relevant to begin tracking parenting during infancy or toddlerhood, as that is the age at which children begin to develop their internal working models of how relationships and the social world function, including their understanding of what behavior is socially acceptable (Bowlby, 1969). Moreover, assessing parenting and relational aggression at multiple time points would allow for tracking changes in behavior and parenting over time, allowing for a more rigorous test of this potentially bidirectional relationship. Testing across multiple time points would also allow researchers to investigate whether parenting, broadly, or particular elements, specifically, are more salient at different stages of development. For example, models of positive interaction skills (i.e., authoritative parenting) may be more important when children are younger and first assembling their internal working models of relationships. Prospective longitudinal research is needed to better determine whether children's developmental stage influences how parenting is associated with their behavior.

Second, although using different reporters for each of the variables of interest protected against shared method variance, there are important limitations related to the measures of both parenting and relational aggression. Parents were asked to self-report their own parenting style, which may have led to overly positive reports due to parents'

unrealistic opinions of their parenting (i.e., self-enhancement bias) or the desire to present themselves in a positive light (i.e., social desirability bias). Supplementing parent-reports with child reports or observations of parent-child interactions may be an important direction for future research. Similarly, although teacher reports of relational aggression have been shown to overlap well with other indices (e.g., peer nominations, parent report; Crick et al., 1999), the covert nature of relational aggression may cause teacher reports to underestimate children's use of relational aggression. Peer nominations, which are generally considered the best measure for relational aggression (Crick & Grotpeter, 1995), may be an important additional measurement for future studies.

Third, as the vast majority of parents recruited for the study were mothers, it was not possible to conduct direct comparisons of maternal and parental parenting. Some previous research has shown different patterns of child outcomes when examining maternal versus paternal parenting practices (e.g., Casas et al., 2006; Kochanska et al., 2015). Future studies may wish to recruit a sample with equal proportions of mothers and fathers to allow for comparisons of mother versus father effects. Relatedly, our sample was primarily Caucasian. Given evidence that there are differences in parenting behavior (e.g., use of harsh discipline tactics) based on cultural norms (Rogoff, 2003) and, to some degree, ethnic differences in the extent to which parenting predicts positive or negative child outcomes (e.g., externalizing behaviors; Deater-Deckard & Dodge, 1997), it will be important for future studies to determine if the patterns found in the present study are replicated across a sample of more culturally and racially diverse parents and their children. Moreover, the present sample utilized a

community sample, which may display different patterns of parenting and child behavior than a sample whose children are experiencing clinical-level difficulties. For example, a clinical sample may demonstrate fewer floor effects in negative parenting style and relational aggression patterns and fewer ceiling effects in positive parenting. It will therefore be important to replicate this study with a clinical sample to see if the pattern of results generalizes to a higher-risk population.

Finally, future research examining the interaction between parenting and temperament may wish to assess the functions of relationally aggressive behavior. Temperamental fearlessness has been most strongly tied to proactive aggression, or aggression that is used to attain a goal, whereas hyperactive ANS responses have been linked to reactive aggression (Frick & Morris, 2004). Thus, it is possible that parenting may interact with physiological reactivity differently in predicting proactive and reactive relational aggression. In fact, previous studies have found that low SCLR predicts proactive aggression, whereas high SCLR predicts reactive aggression (Murray-Close et al., 2018; Wagner & Abaied, 2015). It will therefore be important for future research to examine whether differentiating between the functions of aggression provides additional insight into how parenting interacts with child temperament in predicting relationally aggressive behavior.

## **4.2 Conclusions and Clinical Implications**

Despite these limitations, the results underscore the importance of the home environment for children's relationally aggressive behavior. Higher rates of negative parenting were associated with higher rates of relational aggression. Therefore, interventions to help decrease negative parenting styles may have positive benefits for

children's relationally aggressive behavior. Helping parents learn to be less permissive, authoritarian, and psychologically controlling may improve children's behavior by providing them with fewer models of manipulative behavior and fostering a parent-child relationship where the child is more willing to listen to parents' conduct expectations. Parent management training, a common therapeutic tool for managing children's disruptive and aggressive behavior, would likely serve this purpose.

For temperamentally fearless children specifically, setting clear behavioral expectations and boundaries with consequence follow-through for behaviors that exceed the limits may be key to preventing relational aggression. As these children are unlikely to inhibit their own relational aggression, they may be especially likely to benefit from consistent monitoring, reinforcement for socially acceptable behavior, and consequences for unacceptable behavior. It is likely that these boundaries will need to be enforced both in the home and in other environments where children commonly interact with peers (i.e., school). By structuring the environment to provide fewer models and reinforcers for relational aggression, parents may be able to decrease children's engagement in this problematic behavior.

**Table 1: Descriptive statistics and correlations of study variables**

	Mean	SD	Min-Max	Skew	2	3	4	5	6	7	8	9	10
1. Relational aggression	1.53	.64	1.00-4.80	1.95	.17*	.19**	.20**	-.02	-.09	-.05	.24**	.10	-.14+
2. Permissive parenting	1.90	.44	1.00-3.80	.94	–	.34**	.36**	-.14*	.21*	.08	.05	.02	-.03
3. Authoritarian parenting	1.88	.72	1.00-3.00	.36		–	.59**	-.11	.07	-.08	.12+	.10	-.06
4. Psych control parenting	1.80	.28	1.14-2.70	.54			–	-.11	.05	.04	.12+	.11+	-.03
5. Authoritative parenting	4.04	.40	2.67-5.00	-.25				–	.00	-.08	-.05	-.03	.07
47 6. SCLR	2.14	2.03	-1.06-14.44	2.88					–	.02	.01	.01	.01
7. Gender	1.54	–	1.00-2.00	–						–	-.04	-.03	.09
8. Race	1.09	–	1.00-2.00	–							–	.00	-.01
9. Age	10.14	.68	8.53-12.44	1.05								–	-.05
10. Parental education	3.96	–	2-5	–									–

*Note.* SCLR = Skin conductance level reactivity; psych control parenting = psychologically controlling parenting; gender is coded: 1 = boys, 2 = girls; race is coded: 1 = Caucasian, 2 = non-Caucasian; Parent Education is coded: 1 = grade school or some high school, 2 = high school graduate or equivalent; 3 = associates degree, technical degree, or partial college, 4 = 4-year college degree, 5 = graduate degree; + $p < .10$ , \* $p < .05$ , \*\* $p < .01$

**Table 2: Regression model for permissive parenting predicting relational aggression: Moderating role of skin conductance level reactivity**

	<i>b</i>	<i>SE</i>	<i>t</i>
Covariate:			
Race	.51**	.19	2.71
Main Effects:			
Permissive Parenting	.31*	.13	2.37
SCLR	-.03	.02	-1.38
Interaction:			
Permissive X SCLR	-.05 <sup>+</sup>	.03	-1.78

<sup>+</sup>*p* < .10, \**p* < .05, \*\**p* < .01

**Table 3: Regression model for authoritarian parenting predicting relational aggression:  
Moderating role of skin conductance level reactivity**

	<i>b</i>	<i>SE</i>	<i>t</i>
Covariate:			
Race	.44*	.20	2.22
Main Effects:			
Authoritarian Parenting	.30 <sup>+</sup>	.16	1.92
SCLR	-.03	.02	-1.64
Interaction:			
Authoritarian X SCLR	.04	.06	.62

+ $p < .10$ , \* $p < .05$

**Table 4: Regression model for psychologically controlling parenting predicting relational aggression: Moderating role of skin conductance level reactivity**

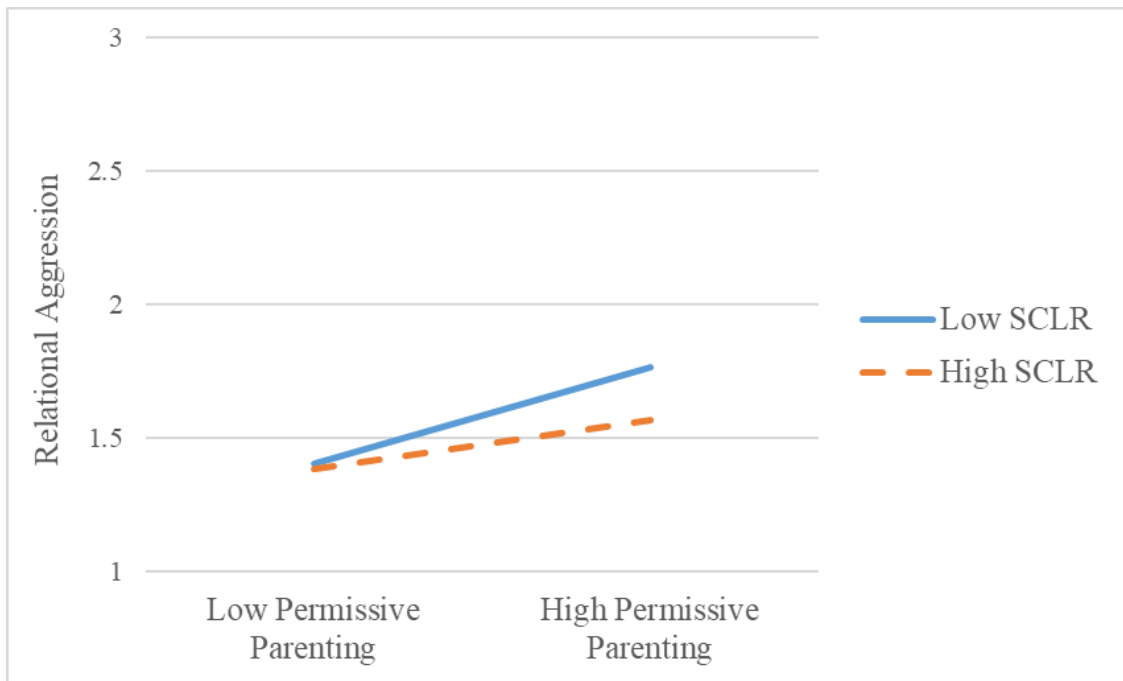
	<i>b</i>	<i>SE</i>	<i>t</i>
Covariate:			
Race	.47*	.21	2.23
Main Effects:			
Psychologically Controlling Parenting	.39*	.18	2.14
SCLR	-.03	.02	-1.41
Interaction:			
Psychological Control X SCLR	-.05	.12	-.41

\* $p < .05$

**Table 5: Regression model for authoritative parenting predicting relational aggression:  
Moderating role of skin conductance level reactivity**

	<i>b</i>	<i>SE</i>	<i>t</i>
Covariate:			
Race	.52*	.21	2.50
Main Effects:			
Authoritative Parenting	-.02	.13	-.12
SCLR	-.02	.02	-1.18
Interaction:			
Authoritative X SCLR	.02	.04	.53

\* $p < .05$



*Figure 1: Association between permissive parenting and relational aggression moderated by SCLR*

## REFERENCES

- Albrecht, A. K., Galambos, N. L., & Jansson, S. (2007). Adolescents' internalizing and aggressive behaviors and perceptions of parents' psychological control: A panel study examining direction of effects. *Journal of Youth and Adolescence*, *36*(5), 673–684. doi: 10.1007/s10964-007-9191-5
- Alink, L. R. A., Cicchetti, D., Kim, J., & Rogosch, F. A. (2009). Mediating and moderating processes in the relation between maltreatment and psychopathology: Mother–child relationship quality and emotion regulation. *Journal of Abnormal Child Psychology*, *37*(6), 831–843. doi: 10.1007/s10802-009-9314-4
- Baker, E., Baibazarova, E., Ktistaki, G., Shelton, K. H., & Van Goozen, S. H. M. (2012). Development of fear and guilt in young children: Stability over time and relations with psychopathology. *Development and Psychology*, *24*(3), 833-845. doi: 10.1017/S0954579412000399
- Bandura, A. (1973). *Aggression: A social learning analysis*. Englewood Cliffs, NJ: Prentice-Hall.
- Barber, B. K. (1996). Parental psychological control: Revisiting a neglected construct. *Child Development*, *67*(6), 3296-3319. doi: 10.1111/j.1467-8624.1996.tb01915.x
- Barber, B. K., Olsen, J. E., & Shagle, S. C. (1994). Associations between parental psychological and behavioral control and youth internalized and externalized behaviors. *Child Development*, *65*(4), 1120-1136. doi: 10.1111/j.1467-8624.1994.tb00807.x
- Baumrind, D. (1967). Child care practices anteceding three patterns of preschool behavior. *Genetic Psychology Monographs*, *75*(1), 43-88.
- Baumrind, D. (1971). Current patterns of parental authority. *Developmental Psychology Monographs*, *4*(1), 1–103. doi: 10.1037/h0030372
- Baumrind, D. (1973). The development of instrumental competence through socialization. In A. Pick (Ed.) *Minnesota symposium on child psychology* (Vol. 7, pp. 3-46). Minneapolis, MN: University of Minnesota Press.
- Beauchaine, T. P. (2001). Vagal tone, development, and Gray's motivational theory: Toward an integrated model of autonomic nervous system functioning in psychopathology. *Development and Psychopathology*, *13*(2), 183–214. doi: 10.1017/S0954579401002012

- Belsky, J. (1997). Theory testing, effect-size evaluation, and differential susceptibility to rearing influence: The case of mothering and attachment. *Child Development*, 68(4), 598–600. doi: 10.1111/j.1467-8624.1997.tb04221.x
- Belsky, J. (2005). Differential susceptibility to rearing influences: An evolutionary hypothesis and some evidence. In B. Ellis & D. Bjorklund (Eds.), *Origins of the social mind: Evolutionary psychology and child development* (pp. 139–163). New York, NY: Guilford.
- Belsky, J., Bakermans-Kranenburg, M. J., & van IJzendoorn, M. H. (2007). For better and for worse: Differential susceptibility to environmental influences. *Current Directions in Psychological Science*, 16(1), 300–304. doi: 10.1111/j.1467-8721.2007.00525.x
- Belsky, J., & Pluess, M. (2009). Beyond diathesis stress: Differential susceptibility to environmental influences. *Psychological Bulletin*, 135(6), 885–908. doi: 10.1037/a0017376
- Berkowitz, L. (1993). *Aggression: Its causes, consequence, and control*. New York, NY: Academic Press.
- Björkqvist, K., Lagerspetz, K. M., & Kaukiainen, A. (1992). Do girls manipulate and boys fight? Developmental trends in regard to direct and indirect aggression. *Aggressive Behavior*, 18(2), 117–127. doi: 10.1002/1098-2337(1992)18:2
- Björkqvist, K., & Niemelä, P. (1992). New trends in the study of female aggression. In K. Björkqvist & P. Niemelä (Eds.), *Of mice and women: Aspects of female aggression* (pp. 3–16). Sand Diego, CA: Academic Press.
- Bowlby, J. (1969). *Attachment* (Attachment and loss series, Vol. 1). New York, NY: Basic Books.
- Boyce, W. T., & Ellis, B. J. (2005). Biological sensitivity to context: I. An evolutionary–developmental theory of the origins and functions of stress reactivity. *Development and Psychopathology*, 17(2), 271–301. doi: 10.1017/S0954579405050145
- Bradley, R. H., & Corwyn, R. (2013). From parent to child to parent...: Paths in and out of problem behavior. *Journal of Abnormal Child Psychology*, 41(4), 515–529. doi: 10.1007/s10802-012-9692-x
- Briggs-Gowan, M. J., Nichols, S. R., Voss, J., Zobel, E., Carter, A. S., McCarthy, et al. ... Wakschlag, L. S. (2014). Punishment insensitivity and impaired reinforcement learning in preschoolers. *Journal of Child Psychology and Psychiatry*, 55(2), 154–161. doi: 10.1111/jcpp.12132

- Brook, J. S., Zheng, L., Whiteman, M., & Brook, D. W. (2001). Aggression in toddlers: Associations with parenting and marital relations. *The Journal of Genetic Psychology, 162*(2), 228–241. doi:10.1080/00221320109597963
- Brown, S. A., Arnold, D. H., Dobbs, J., & Doctoroff, G. L. (2007). Parenting predictors of relational aggression among Puerto Rican and European American school-age children. *Early Childhood Research Quarterly, 22*(1), 147–159. doi: 10.1016/j.ecresq.2006.11.002
- Caspi, A., Sugden, K., Moffitt, T. E., Taylor, A., Craig, I. W., Harrington, H., . . . & Poulton, R. (2003). Influence of life stress on depression: Moderation by a polymorphism in the 5-HTT gene. *Science, 301*(5631), 386–389. doi: 10.1126/science.1083968
- Card, N. A., Stucky, B. D., Sawalani, G. M., & Little, T. D. (2008). Direct and indirect aggression during childhood and adolescence: A meta-analytic review of gender differences, intercorrelations, and relations to maladjustment. *Child Development, 79*(5), 1185–1229. doi: 10.1111/j.1467-8624.2008.01184.x
- Casas, J. F., Weigel, S. M., Crick, N. R., Ostrov, J. M., Woods, K. E., Yeh, E. A. J., & Huddleston-Casas, C. A. (2006). Early parenting and children's relational and physical aggression in the preschool and home contexts. *Journal of Applied Developmental Psychology, 27*(3), 209–227. doi: 10.1016/j.appdev.2006.02.003
- Chen, X., Dong, Q., & Zhou, H. (1997). Authoritative and authoritarian parenting practices and social and school performance in Chinese children. *International Journal of Behavioral Development, 21*(4), 855–873. doi: 10.1080/016502597384703
- Clarke, C. M., Dahlen, E. R., & Nicholson, B. C. (2015). The role of parenting in relational aggression and prosocial behavior among emerging adults. *Journal of Aggression, Maltreatment, & Trauma, 24*(2), 185–202. doi:10.1080/10926771.2015.1002653.
- Coie, J. D., & Dodge, K. A. (1998). Aggression and antisocial behavior. In W. Damon (Series Ed.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Vol. 3: Social, emotional, and personality development* (5<sup>th</sup> ed., pp. 779–862). New York: Wiley.
- Colder, C. R., Lochman, J. E., & Wells, K. C. (1997). The moderating effects of children's fear and activity level on relations between parenting practices and childhood symptomatology. *Journal of Abnormal Child Psychology, 25*(3), 251–263. doi: 10.1023/A:1025704217619

- Collins, W. A., & Laursen, B. (Eds.). (1999). *Minnesota symposia on child psychology: Relationships as developmental contexts* (Vol. 30). Hillsdale, NJ: Erlbaum.
- Collins, W. A., & Steinberg, L. (2006). Adolescent development in interpersonal context. In W. Damon & N. Eisenberg (Eds.). *Handbook of child psychology* (Vol. 4, pp. 1003–1067). New York, NY: Cambridge University Press.
- Cornell, A. H., & Frick, P. J. (2007). The moderating effects of parenting styles in the association between behavioral inhibition and parent-reported guilt and empathy in preschool children. *Journal of Clinical Child and Adolescent Psychology*, 36(3), 305-318. doi: 10.1080/15374410701444181
- Crick, N. R. (1995). Relational aggression: The role of intent attributions, feelings of distress, and provocation type. *Development and Psychopathology*, 7(2), 313–322. doi: 10.1017/S0954579400006520
- Crick, N. R. (1996). The role of overt aggression, relational aggression, and prosocial behavior in the prediction of children's future social adjustment. *Child Development*, 67(5), 2317–2327. doi:10.2307/1131625
- Crick, N. R., Casas, J. F., & Mosher, M. (1997). Relational and overt aggression in preschool. *Developmental Psychology*, 33(4), 579–588. doi: 10.1037/0012-1649.33.4.579
- Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin*, 115(1), 74-101. doi: 10.1037/0033-2909.115.1.74
- Crick, N. R., & Grotpeter, J. K. (1995). Relational aggression, gender, and social-psychological adjustment. *Child Development*, 66(3), 710–722. doi: 10.2307/1131945
- Crick, N. R., & Grotpeter, J. K. (1996). Children's treatment by peers: Victims of relational and overt aggression. *Development and Psychopathology*, 8(2), 367-380. doi: 10.1017/S0954579400007148
- Crick, N. R., Grotpeter, J. K., & Bigbee, M. A. (2002). Relationally and physically aggressive children's intent attributions and feelings of distress for relational and instrumental peer provocations. *Child Development*, 73(4), 1134–1142. doi: 10.1111/1467-8624.00462
- Crick, N. R., Ostrov, J. M., Burr, J. E., Jansen-Yeh, E. A., Cullerton-Sen, C., & Ralston, P. (2006). A longitudinal study of relational and physical aggression in preschool. *Journal of Applied Developmental Psychology*, 27(3), 254–268. doi: 10.1016/j.appdev.2006.02.006

- Crick, N. R., Werner, N. E., Casas, J. F., O'Brien, K. M., Nelson, D. A., Grotpeter, J. K., & Markon, K. (1999). Childhood aggression and gender: A new look at an old problem. In D. Bernstein (Ed.), *Nebraska symposium on motivation* (pp. 75–141). Lincoln, NB: University of Nebraska Press.
- Crick, N. R., & Zahn-Waxler, C. (2003). The development of psychopathology in females and males: Current progress and future challenges. *Development and Psychopathology, 15*(3), 719–742. doi: 10.1017/S095457940300035X
- Dadds, M. R., & Salmon, K. (2003). Punishment insensitivity and parenting: Temperament and learning as interacting risks for antisocial behavior. *Clinical Child and Family Psychology Review, 6*(2), 69–86. doi: 10.1023/A:1023762009877
- Darling, N., & Steinberg, L. (1993). Parenting style as context: An integrative model. *Psychological Bulletin, 113*(3), 487–496. doi: 10.1037/0033-2909.113.3.487
- Dawson, M. E., Schell, A. M., & Filion, D. L. (2007). The electrodermal system. In J. T. Cacioppo, L. G. Tassinary, G. G. Berntson, J. T. Cacioppo, L. G. Tassinary, G. G. Berntson (Eds.), *Handbook of psychophysiology (3rd ed.)* (pp. 159–181). New York, NY, US: Cambridge University Press.
- Deater-Deckard, K., & Dodge, K. A. (1997). Externalizing behavior problems and discipline revisited: Nonlinear effects and variation by culture, context, and gender. *Psychological Inquiry, 8*, 167–175. doi: 10.1207/s15327965pli0803\_1
- Doyle, H. (2010). A longitudinal study of relational aggression among females using hierarchical linear modeling (Unpublished doctoral dissertation). Kent State University.
- El-Sheikh, M., & Erath, S. A. (2011). Family conflict, autonomic nervous system functioning, and child adaptation: State of the science and future directions. *Development and Psychopathology, 23*(2), 703–721. doi: 10.1017/S0954579411000034
- Erath, S. A., El-Sheikh, M., & Cummings, E. M. (2009). Harsh parenting and child externalizing behavior: Skin conductance level reactivity as a moderator. *Child Development, 80*(2), 578–592. doi: 10.1111/j.1467-8624.2009.01280.x
- Erath, S. A., El-Sheikh, M., Hinnant, J. B., & Cummings, E. M. (2011). Skin conductance level reactivity moderates the association between harsh parenting and growth in child externalizing behavior. *Developmental Psychology, 47*(3), 693–706. doi: 10.1037/a0021909

- Ewart, C. K., & Kolodner, K. B. (1991). Social Competence Interview for assessing physiological reactivity in adolescents. *Psychosomatic Medicine*, 53(3), 289–304. doi: 10.1097/00006842-199105000-00003
- Ewart, C. K., & Kolodner, K. B. (1993). Predicting ambulatory blood pressure during school: Effectiveness of social and nonsocial reactivity tasks in Black and White adolescents. *Psychophysiology*, 30(1), 30–38. doi:10.1111/j.1469-8986.1993.tb03202.x
- Fauber, R., Forehand, R., Thomas, A. M., & Wierson, J. (1990). A mediational model of the impact of marital conflict on adolescent adjustment in intact and divorced families: The role of disrupted parenting. *Child Development*, 61(4), 1112-1123. doi: 10.1111/j.1467-8624.1990.tb02845.x
- Fite, P. J., Stoppelbein, L., Greening, L., & Preddy, T.M. (2011). Associations between relational aggression, depression, and suicidal ideation in a child psychiatric inpatient sample. *Child Psychiatry and Human Development*, 42(6), 666–678. doi: 10.1007/s10578-011-0243-4
- Fowles, D. C., & Kochanska, G. (2000). Temperament as a moderator of pathways to conscience in children: The contribution of electrodermal activity. *Psychophysiology*, 37(6), 788-795. doi: 10.1111/1469-8986.3760788
- Frick, P. J., & Morris, A. S. (2004). Temperament and developmental pathways to conduct problems. *Journal of Clinical Child and Adolescent Psychology*, 33(1), 54-68. doi: 10.1207/S15374424JCCP3301\_6
- Frick, P. J., Ray, J. V., Thornton, L. C., & Kahn, R. E. (2014). Annual research review: A developmental psychopathology approach to understanding callous-unemotional traits in children and adolescents with serious conduct problems. *Journal of Child Psychology and Psychiatry*, 55(6), 532-548. doi: 10.1111/jcpp.12152
- Frick, P. J., & Viding, E. (2009). Antisocial behavior from a developmental psychopathology perspective. *Development and Psychopathology*, 21(4), 1111–1131. doi: 10.1017/S0954579409990071
- Frick, P.J., & White, S.F. (2008). The importance of callous-unemotional traits for the development of aggressive and antisocial behavior. *Journal of Child Psychology and Psychiatry*, 49(4), 359–375. doi: 10.1111/j.1469-7610.2007.01862.x
- Galen, B. R., & Underwood, M. K. (1997). A developmental investigation of social aggression among children. *Developmental Psychology*, 33(4), 589–600. doi: 10.1037/0012-1649.33.4.589

- Gao, Y., Raine, A., Venables, P. H., Dawson, M. E., & Mednick, S. A. (2010). Association of poor childhood fear conditioning and adult crime. *American Journal of Psychiatry*, *167*(1), 56–60. doi: 10.1176/appi.ajp.2009.09040499
- Gershoff, E. T. (2002). Corporal punishment by parents and associated child behaviors and experiences: A meta-analytic and theoretical review. *Psychological Bulletin*, *128*(4), 539-579. doi: 10.1037/0033-2909.128.4.539
- Gray, M. R., & Steinberg, L. (1999). Unpacking authoritative parenting: Reassessing a multidimensional construct. *Journal of Marriage and Family*, *61*(3), 574-587. doi: 10.2307/353561
- Grotpeter, J. K. (1997). Relational aggression, overt aggression, and family relationships. (Unpublished doctoral dissertation). University of Illinois at Urbana-Champaign.
- Halberstadt, A. G., Castro, V. L., Chu, Q., Lozada, F. T., & Sims, C. M. (2018). Preservice teachers' racialized emotion recognition, anger bias, and hostility attributions. *Contemporary Educational Psychology*, *54*, 125-138. doi: 10.1016/j.cedpsych.2018.06.004
- Harrist, A. W., Pettit, G. S., Dodge, F. A., & Bates, J. E. (1994). Dyadic synchrony in mother-child interaction: Relation with children's subsequent kindergarten adjustment. *Family Relations*, *43*(4), 417–424. doi: 10.2307/585373
- Hart, C. H., DeWolf, M. D., & Burts, D. C. (1993). Linkages among preschoolers' playground behavior, outcome expectations, and parental disciplinary strategies. *Early Education and Development*, *3*(4), 265-283. doi: 10.1207/s15566935eed0304\_1
- Hart, C. H., DeWolf, M., Wozniak, P., & Burts, D. C. (1992). Maternal and paternal disciplinary styles: Relations with preschoolers' playground behavioral orientations and peer status. *Child Development*, *63*(4), 879-892. doi: 10.1111/j.1467-8624.1992.tb01668.x
- Hart, C. H., Nelson, D. A., Robinson, C. C., Olsen, S. F., & McNeilly-Choque, M. K. (1998). Overt and relational aggression in Russian nursery-school-age children: Parenting style and marital linkages. *Developmental Psychology*, *34*(4), 687–697.
- Hart, C. H., Nelson, D. A., Robinson, C. C., Olsen, S. F., McNeilly-Choque, M. K., Porter, C. L., & McKee, T. R. (2000). Russian parenting styles and family processes: Linkages with subtypes of victimization and aggression. In K. A. Kerns, J. M. Contreras, & A. M. Neal-Barnett (Eds.), *Family and peers: Linking two social worlds* (pp. 47–84). Westport, CT: Praeger Publishers.

- Hart, C. H., Olsen, S. F., Robinson, C., & Mandleco, B. L. (1997). The development of social and communicative competencies in childhood: Review and a model of personal, familial, and extra familial processes. In B. R. Burleson (Ed.), *Communication yearbook* (Vol. 20, pp. 305-373). Thousand Oaks, CA: Sage.
- Hartup, W. W., & Rubin, Z. (Eds.). (1986). *Relationships and development*. Hillsdale, NJ: Erlbaum.
- Hirschi, T. (1969). *Cause of delinquency*. Berkley, CA: University of California Press.
- Hoffman, M. L. (1983). Affective and cognitive processes in moral internalization. In E. T. Higgins, D. N. Ruble, & W. W. Hartup (Eds.), *Social cognition and social development* (pp. 236-274). New York: Cambridge University Press.
- Huesmann, L. R., Dubow, E. F., Eron, L. D., & Boxer, P. (2006). Middle childhood-family contextual and personal factors as predictors of adult outcomes. In A. C. Huston, & M. N. Ripke (Eds.), *Developmental contexts in middle childhood: Bridges to adolescence and adulthood* (pp. 62–86). New York: Cambridge University Press.
- Kamper, K. E., & Ostrov, J. M. (2013). Relational aggression in middle childhood predicting adolescent social-psychological adjustment: The role of friendship quality. *Journal of Clinical Child and Adolescent Psychology*, 42(6), 855–862. doi: 10.1080/15374416.2013.844595
- Kawabata, Y., Alink, L. R. A., Tseng, W.-L., van Ijzendoorn, M. H., & Crick, N. R. (2011). Maternal and paternal parenting styles associated with relational aggression in children and adolescents: A conceptual analysis and meta-analytic review. *Developmental Review*, 31(4), 240-278. doi: 10.1002/(SICI)1098–2337(1999)25:2
- Keenan, K., Coyne, C., & Lahey, B. B. (2008). Should relational aggression be included in DSM-V? *Journal of the American Academy of Child and Adolescent Psychiatry*, 47(1), 86–93. doi: 10.1097/chi.0b013e31815a56b8
- Keenan, K., & Shaw, D. (1997). Developmental and social influences on young girls' early problem behavior. *Psychological Bulletin*, 121(1), 95-113. doi: 10.1037/0033–2909.121.1.95
- Kiff, C. J., Lengua, L. J., & Zalewski, M. (2011). Nature and nurturing: Parenting in the context of child temperament. *Clinical Child and Family Psychology Review*, 14(1), 251-301. doi: 10.1007/s10567-011-0093-4

- Kimonis, E. R., Frick, P. J., & McMahon, R. J. (2014). Conduct and oppositional defiant disorders. In E. J. Marsh & R. A. Barkley (Eds.) *Child Psychopathology* (3<sup>rd</sup> ed., pp. 145-179). New York, NY: Guilford Press.
- Kochanska, G. (1993). Toward a synthesis of parental socialization and child temperament in early development of conscience. *Child Development*, *64*(2), 325-347. doi: 10.1111/j.1467-8624.1993.tb02913.x
- Kochanska, G. (1994). Beyond cognition: Expanding the search for the early roots of internalization and conscience. *Developmental Psychology*, *30*(1), 20-22. doi: 10.1037/0012-1649.30.1.20
- Kochanska, G. (1997). Multiple pathways to conscience for children with different temperaments: from toddlerhood to age five. *Developmental Psychology*, *33*(2), 228–240. doi: 10.1037/0012-1649.33.2.228
- Kochanska G., Aksan, N., Joy, M. E. (2007). Children’s fearfulness as a moderator of parenting in early socialization: Two longitudinal studies. *Developmental Psychology*, *43*(2), 222-237. doi: 10.1037/0012-1649.43.1.222
- Kochanska, G., Brock, R. L., Chen, K.-H., Aksan, N., & Anderson, S. W. (2015). Paths from mother-child and father-child relationships to externalizing behavior problems in children differing in electrodermal reactivity: A longitudinal study from infancy to age 10. *Journal of Abnormal Child Psychology*, *43*(4), 721-734. doi: 10.1007/s10802-014-9938-x
- Kochanska, G., Kim, S., Boldt, L. J., & Yoon, J. E. (2013). Children’s callous-unemotional traits moderate links between their positive relationships with parents at preschool age and externalizing behavior problems at early school age. *Journal of Child Psychology and Psychiatry*, *54*(11), 1251-1260. doi: 10.1111/jcpp.12084
- Kochanska, G., & Murray, K. T. (2000). Mother–child mutually responsive orientation and conscience development: From toddler to early school age. *Child development*, *71*(2), 417-431. doi: /10.1111/1467-8624.00154
- Kuppens, S., Grietens, H., Onghena, P., & Michiels, D. (2009). Associations between parental control and children’s overt and relational aggression in a sample of Flemish elementary school children. *British Journal of Developmental Psychology*, *27*(3), 607– 623. doi:10.1348/026151008X345591
- Kuppens, S., Laurent, L., Heyvaert, M., & Onghena, P. (2013). Associations between parental psychological control and relational aggression in children and adolescents: A multilevel and sequential meta-analysis. *Developmental Psychology*, *49*(9), 1697-1712. doi: 10.1037/a0030740

- Ladd, G. W. (1992). Themes and theories: Perspectives on processes in family-peer relationships. In R. D. Parke & G. W. Ladd (Eds.), *Family-peer relationships: Models of linkage* (pp. 3-34). Mahwah, NJ: Erlbaum.
- Ladd, G. W., & Pettit, G. S. (2002). Parenting and the development of children's peer relationships. In M. H. Borenstein (Ed.). *Handbook of parenting* (2nd ed., Vol. 5, pp. 377-409). Mahwah, NJ: Erlbaum.
- Larzelere, R. E., & Merenda, J. A. (1994). The effectiveness of parental discipline for toddler misbehavior at different levels of child distress. *Family Relations*, 43(4), 480-488. doi: 10.2307/585381
- Lepper, M. R. (1981). Intrinsic and extrinsic motivation in children: Detrimental effects of superfluous social controls. In W. A. Collins (Ed.) *Minnesota symposia on child psychology: Aspects of the development of competence* (Vol. 14, pp. 155-213). Hillsdale, NJ: Erlbaum.
- Lindsey, E. W., Chambers, J. C., Frabutt, J. M., & Mackinnon-Lewis, C. (2009). Marital conflict and adolescents' peer aggression: The mediating and moderating role of mother-child emotional reciprocity. *Family Relations: Interdisciplinary Journal of Applied Family Studies*, 58(5), 593-606. doi: 10.1111/j.1741-3729.2009.00577.x
- Little, M., & Seay, D. (2014). By-gender risk paths of parental psychological control effects on emerging adult overt and relational aggression. *Journal of Social and Personal Relationships*, 31(8), 1040-1067. doi:10.1177/0265407513517808
- Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development*, 71(3), 543-562. doi: 10.1111/1467-8624.00164
- Maccoby, E. E. (1983). Let's not overattribute to the attribution process: Comments on social cognition and behavior. In E. T. Higgins, D. N. Ruble, & W. W. Hartup (Eds.), *Social cognition and social development* (pp. 356-370). New York: Cambridge University Press.
- Maccoby, E. E., & Jacklin, C. N. (1974). *The psychology of sex differences*. Stanford, CA: Stanford University Press.
- Maccoby, E. E., & Martin, J. A. (1983). Socialization in the context of the family: Parent-child interaction. In P.H. Mussen (Series Ed.) & E. M. Hetherington (Vol. Ed.), *Handbook of child psychology: Vol 4. Socialization, personality and social development* (pp. 1-102). New York: Wiley.

- Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American Psychologist*, 56(3), 227–238. doi: 10.1037//0003-066X.56.3.227
- Matthys, W., van Goozen, S. H. M., Snoek, H., & van Engeland, H. (2004). Response preservation and sensitivity to reward and punishment in boys with oppositional defiant disorder. *European Child & Adolescent Psychiatry*, 13(6), 362–364. doi: 10.1007/s00787-004-0395-x
- McQuade, J., D., Murray-Close, D., Breslend, N., Blada, K., Kim, M., & Marsh, N. (2019). Emotional underarousal and overarousal and engagement in relational aggression: Interactions between relational victimization, physiological reactivity, and emotional sensitivity. *Journal of Abnormal Child Psychology*, 47(10), 1663–1676. doi: 10.1007/s10802-019-00544-3
- Mize, J., & Pettit, G. S. (1997). Mother's social coaching, mother–child relationship style, and children's peer competence: Is the medium the message? *Child Development*, 68(2), 312–332. doi: 10.1111/j.1467-8624.1997.tb01942.x
- Monroe, S. M., & Simons, A. D. (1991). Diathesis-stress theories in the context of life stress research: Implications for the depressive disorders. *Psychological Bulletin*, 110(3), 406–425. doi: 10.1037//0033-2909.110.3.406
- Morris, A. S., Silk, J. S., Steinberg, L., Myers, S. S., & Robinson, L. R. (2007). The role of the family context in the development of emotion regulation. *Social Development*, 16(2), 362–388. doi: 10.1111/j.1467-9507.2007.00389.x
- Murray, D. W., Rosanbalm, K., Christopoulos, C., & Meyer, A. L. (2019). An applied contextual model for promoting self-regulation enactment across development: Implications for prevention, public health and future research. *The Journal of Primary Prevention*, 40(1), 367-403. doi: 10.1007/s10935-019-0056-1
- Murray-Close, D. (2013). Psychophysiology of adolescent peer relations II: Recent advances and future directions. *Journal of Research on Adolescence*, 23(2), 260-273. doi: 10.1111/j.1532-7795.2012.00831.x
- Murray-Close, D., Breslend, N. L., & Holterman, L. A. (2018). Psychophysiology indicators of relational aggression. In S. Coyne & J. M. Ostrov (Eds.), *The Development of Relational Aggression* (pp. 127-151). New York: Oxford University Press.
- Murray-Close, D., Crick, N. R., Tseng, W.-L., Lafko, N., Burrows, C., Pitula, C., & Ralson, P. (2014). Physiological stress reactivity and physical and relational aggression: The moderating roles of victimization, type of stressor, and child gender. *Development and Psychopathology*, 26(3), 589-603. doi: 10.1017/8095457941400025X

- Murray-Close, D., Holterman, L. A., Breslend, N. L., & Sullivan, A. (2017). Psychophysiology of proactive and reactive relational aggression. *Biological Psychology, 130*(1), 77-85. doi: 10.1016/j.biopsycho.2017.10.005
- Murray-Close, D., Nelson, D. A., Ostrov, J. M., Casas, J. F., & Crick, N. R. (2016). Relational aggression: A developmental psychopathology perspective. In D. Cicchetti (Ed.), *Handbook of Developmental Psychopathology, 3rd Edition (Vol. 4)* (pp. 660-722). New Jersey: Wiley.
- Nelson, D. A., & Crick, N. R. (2002). Parental psychological control: Implications for childhood physical and relational aggression. In B. K. Barber (Ed.), *Intrusive parenting: How psychological control affects children and adolescents* (pp. 161-189). Washington, DC: American Psychological Association.
- Nelson, D. A., Hart, C. A., Yang, C., Olsen, J. A., & Jin, S. (2006). Aversive parenting in China: Associations with child physical and relational aggression. *Child Development, 77*(3), 554-572. doi: 10.1111/j.1467-8624.2006.00890.x
- Newman, J. P., & Wallace, J. F. (1993). Diverse pathways to deficient self-regulation: Implications for disinhibitory psychopathology in children. *Clinical Psychology Review, 13*(8), 699-720. doi: 10.1016/S0272-7358(05)80002-9
- Obradović, J. (2012). How can the study of physiological reactivity contribute to our understanding of adversity and resilience processes in development? *Development and Psychopathology, 24*(2), 371-387. doi:10.1017/S0954579412000053
- Obradović, J., Bush, N. R., & Boyce, W. T. (2011). The interactive effect of marital conflict and stress reactivity on externalizing and internalizing symptoms: The role of laboratory stressors. *Development and Psychopathology, 23*(1), 101-114. doi: 10.1017/S0954579410000672
- Olsen, S. F., Yan, C., Hart, C. H., Robinson, C. C., Wu, P., Nelson, D. A., Nelson, L. J., Jin, S., & Wo, J. (2002). Maternal psychological control and preschool children's behavioral outcomes in China, Russia, and the United States. In B. K. Barber (Ed.) *Intrusive parenting: How psychological control affects children and adolescents* (pp. 235-262). Washington, DC: American Psychological Association.
- Ortiz, J., & Raine, A. (2004). Heart rate level and antisocial behavior in children and adolescents: A meta-analysis. *Journal of the American Academy of Child and Adolescent Psychiatry, 43*(2), 154-162. doi: 10.1097/01.chi.0000101373.03068.5c
- Ostrov, J. M. (2008). Forms of aggression and peer victimization during early childhood: A short-term longitudinal study. *Journal of Abnormal Child Psychology, 36*(3), 311-322. doi: 10.1007/s10802-007-9179-3

- Patterson, G. R., (1982). *Coercive family process*. Eugene, OR: Castalia.
- Patterson, G. R., & Fisher, P. A. (2002). Recent developments in our understanding of parenting: Bidirectional effects, causal models, and the search for parsimony. In M. H. Borenstein (Ed.), *Handbook of parenting* (2nd ed., Vol. 5, pp. 377–409). Mahwah, NJ: Erlbaum.
- Patterson, G. R., Reid, J., & Dishion, T. (1992). *Antisocial boys: A social interactional approach*. Eugene, OR: Castalia Publishing Company.
- Pettit, G. S., Bates, J. E., & Dodge, K. A. (1997). Supportive parenting, ecological context, and children's adjustment: A seven-year longitudinal study. *Child Development, 68*(5), 908–923. doi: 10.1111/j.1467-8624.1997.tb01970.x
- Putnam S. P., Sanson A. V., & Rothbart, M. K. (2002). Child temperament and parenting. In M. H. Bornstein (Ed.), *Handbook of parenting: Vol. 1. Children and parenting* (2<sup>nd</sup> ed., pp. 255–277), Mahwah, NJ: Erlbaum.
- Raine, A. (1996). Autonomic nervous system factors underlying disinhibited, antisocial, and violent behavior: Biosocial perspectives and treatment implications. *Annals of the New York Academy of Sciences, 794*(1), 46-59.
- Raine, A. (2002). Biosocial studies of antisocial and violent behavior in children and adults: A review. *Journal of Abnormal Child Psychology, 30*(4), 311–326. doi: 10.1023/A:1015754122318
- Reed, T. J., Goldstein, S. E., Sheffield Morris, A., & Keyes, A. W. (2008). Relational aggression in mothers and children: Links with psychological control and child adjustment. *Sex Roles, 59*(1), 39-48. doi: 10.1007/s11199-008-9423-5
- Robinson, C.C., Mandlco, B., Olsen, S.F., & Hart, C.H. (2001). The parenting styles and dimensions questionnaire. In B.F. Perlmutter, J. Touliatos, & G.W., Holden (Eds.). *Handbook of family measurement techniques: Vol. 3. Instruments and Index* (pp. 319–321). Thousand Oaks, CA: Sage.
- Robins, L. N. (1986). The consequences of conduct disorder in girls. In D. Olweus, J. Block, & M. Radke-Yarrow (Eds.), *Development of antisocial and prosocial behavior: Research, theories, and issues* (pp. 385-409). New York, NY: Academic Press.
- Rogoff, B. (2003). *The cultural nature of human development*. Oxford, England: Oxford University Press.
- Roisman, G. J., Newman, D. A., Fraley, R. C., Haltigan, J. D., Groh, A. M., & Haydon, K. C. (2012). Distinguishing differential susceptibility from diathesis-stress:

Recommendations for evaluating interaction effects. *Development and Psychopathology*, 24(2), 389-409. doi:10.1017/S0954579412000065

- Romano, E., Tremblay, R., Boulerice, B., & Swisher, R. R. (2005). Multilevel correlates of childhood physical aggression and prosocial behavior. *Journal of Abnormal Child Psychology*, 33(5), 565–578. doi: 10.1007/s10802-005-6738-3
- Rothbaum, F., & Weisz, J. R. (1994). Parental caregiving and child externalizing behavior in nonclinical samples: A meta-analysis. *Psychological Bulletin*, 116(1), 55–74. doi: 10.1037/0033-2909.116.1.55
- Rothbart, M. K., & Bates, J. E. (2006). Temperament. In N. Eisenberg, W. Damon, & R. M. Lerner (Eds.), *Handbook of child psychology: Vol. 3, Social, emotional, and personality development* (6th ed., pp. 99–166). Hoboken, NJ: Wiley.
- Rubin, K. H., Stewart, S. L., & Chen, X. (1995). Parents of aggressive and withdrawn children. In M. H. Bornstein (Ed.), *Handbook of parenting: Children and parenting* (Vol. 1, pp. 225–284). Mahwah, NJ: Erlbaum.
- Rudy, D., Awong, T., & Lambert, M. (2008). Parental psychological control and authoritarianism in Chinese-Canadian and European-Canadian cultural groups: Their meanings and implications for university's students' adjustment. *Journal of Comparative Family studies*, 39(4), 471-490. doi: 10.3138/jcfs.39.4.471
- Russell, A., Hart, C. H., Robinson, C. C., & Olsen, S. F. (2003). Children's sociable and aggressive behavior with peers: A comparison of the US and Australian, and contributions of temperament and parenting styles. *International Journal of Behavioral Development*, 27(1), 74–86. doi: 10.1080/01650250244000038
- Rutter, M. (1985). Resilience in the face of adversity: Protective factors and resistance to psychiatric disorder. *The British Journal of Psychiatry*, 147(6), 598-611. doi: 10.1192/bjp.147.6.598
- Sagar, H. A., & Schofield, J. W. (1980). Racial and behavioral cues in Black and White children's perceptions of ambiguously aggressive acts. *Journal of Personality and Social Psychology*, 39(4), 590.
- Sandstrom, M. J. (2007). A link between mothers' disciplinary strategies and children's relational aggression. *British Journal of Developmental Psychology*, 25(3), 399-407. doi: 10.1348/026151006X158753
- Seifer, R. (2000). Temperament and goodness of fit: Implications for developmental psychopathology. In A. J. Sameroff, M. Lewis, & S. M. Miller (Eds.), *Handbook of developmental psychopathology* (2<sup>nd</sup> ed., pp. 257-276). New York: Kluwer Academic/Plenum Publishers.

- Serbin, L. A., & Karp, J. (2004). The intergenerational transfer of psychosocial risk: Mediators of vulnerability and resilience. *Annual Review of Psychology*, *55*(1), 333-363. doi: 10.1146/annurev.psych.54.101601.145228
- Sheppes, G., Catran, E., & Meiran, N. (2009). Reappraisal (but not distraction) is going to make you sweat: Physiological evidence for self-control effort. *International Journal of Psychophysiology*, *71*(2), 91–96. doi:10.1016/j.ijpsycho.2008.06.006
- Shoulberg, E. K., Sijtsema, J. J., & Murray-Close, D. (2011). The association between valuing popularity and relational aggression: The moderating effects of actual popularity and physiological reactivity to exclusion. *Journal of Experimental Child Psychology*, *110*(1), 20–37. doi: 10.1016/j.jecp.2011.03.008
- Snyder, J. J., Schrepferman, L. P., Bullard, L., McEachern, A. D., & Patterson, G. R. (2012). Covert antisocial behavior, peer deviancy training, parenting processes, and sex differences in the development of antisocial behavior during childhood. *Development and Psychopathology*, *24*(3), 1117-1138. doi: 10.1017/S0954579412000570
- Spieker, S. J., Campbell, S. B., Vandergrift, N., Pierce, K. M., Cauffman, E., Susman, E. J., & Roisman, G. I. (2012). Relational aggression in middle childhood: Predictors and adolescent outcomes. *Social Development*, *21*(2), 354–375. doi: 10.1111/j.1467-9507.2011.00631.x
- Steinberg, L., Elmen, J. D., & Mounts, N. S. (1989). Authoritative parenting, psychosocial maturity, and academic success among adolescents. *Child Development*, *60*(6), 1424-1436. doi: 10.2307/1130932
- Steinberg, L. D., Lamborn, S. D., Darling, N., Mounts, N. S., & Dornbusch, S. M. (1994). Over-time changes in adjustment and competence among adolescents from authoritative, authoritarian, indulgent, and neglectful families. *Child Development*, *65*(3), 754–770. doi: 10.1111/j.1467-8624.1994.tb00781.x
- Steinberg, L., Mounts, N. S., Lamborn, S. D., & Dornbusch, S. M. (1991). Authoritative parenting and adolescent adjustment across various ecological niches. *Journal of Research on Adolescence*, *1*(1), 19-36.
- Stocker, C. (2000). Adolescents' relational and physical aggression: Links with family relationships and psychological adjustment. Poster presented at the Eighth Biennial Meeting of the Society for Research on Adolescence (SRA), March, Chicago, IL.
- Tremblay, R. E. (1995). Kindergarten behavioural patterns, parental practices, and early adolescent antisocial behaviour. In J. McCord (Ed.), *Coercion and punishment in*

*long-term perspectives* (pp. 139-153). New York, NY: Cambridge University Press.

- Tremblay, R. E. (2000). The development of aggressive behavior during childhood: What have we learned in the past century? *International Journal of Behavioral Development, 24*(2), 129–141. doi:10.1080/016502500383232
- Underwood, M. K., Beron, K. J., Gentsch, J. K., Galperin, M. B., & Risser, S. D. (2008). Family correlates of children's social and physical aggression with peers: Negative interparental conflict strategies and parenting styles. *International Journal of Behavioral Development, 32*(6), 549–562. doi: 10.1177/0165025408097134
- Vitaro, F., Brendgen, M., & Barker, E. D. (2006). Subtypes of aggressive behaviors: A developmental perspective. *International Journal of Behavioral Development, 30*(1), 12-19. doi:10.1177/0165025406059968
- Wachs, T. D. (1991). Synthesis: Promising research designs, measures, and strategies. In T. D. Wachs & R. Plomin (Eds.), *Conceptualization and measurement of organism-environment interaction* (pp. 162–182). Washington, DC: American Psychological Association.
- Wagner, C. R., & Abaied, J. L. (2015). Relational victimization and proactive versus reactive relational aggression: The moderating effects of respiratory sinus arrhythmia and skin conductance. *Aggressive Behavior, 41*, 566-579. doi:10.1002/ab.21596
- Wegner, D. M., & Gold, D. B. (1995). Fanning old flames: Emotional and cognitive effects of suppressing thoughts of a past relationship. *Journal of Personality and Social Psychology, 68*(5), 782–792. doi: 10.1037/0022-3514.68.5.782
- Werner, N. E., Senich, S., & Przepyszny, K. A. (2006). Mothers' responses to preschoolers' relational and physical aggression. *Journal of Applied Developmental Psychology, 27*(3), 193–208. doi: 10.1016/j.appdev.2006.02.002
- Vaillancourt, T., Miller, J. L., Fagbemi, J., Côté, S., & Tremblay, R. E. (2007). Trajectories and predictors of indirect aggression: Results from a nationally representative longitudinal study of Canadian children aged 2–10. *Aggressive Behavior, 33*(4), 314–326. doi: 10.1002/ab.20202