2020

Is Your Child Even Listening to You?: Relationship between Socialization of Coping and Coping Behavior, Moderated by Physiological Stress Reactivity

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Undergraduate Honor’s Thesis

Acknowledgements

I would like to acknowledge everyone who assisted me in completing my Senior Honors Thesis. First, I would like to thank Dr. Murray-Close for all her hard work and dedication to my independent research and academic success. She has been an integral part of my academic career at UVM. Under her guidance, I have excelled at reaching my academic goals and gained a lifelong role model. Being a part of the Social Development Laboratory team has broadened my knowledge in many areas of my life, from academics to reflecting on my own wellbeing and future. My involvement has created lasting connections with colleagues that I hope will surpass my time at UVM. Specifically, a huge thank you to graduate students, Alexandra Sullivan and Maria Lent, for their constant support and mentorship. I am grateful for the opportunity that the University of Vermont has given me in supporting the production and presentation of my research through the SURF Award and Travel Award. Lastly, I want to thank my family for their continuous love and encouragement to achieve my goals.

Abstract

This study investigated whether primary engagement, secondary engagement, and disengagement parent coping suggestions were related to children's coping behavior following peer stress, and whether physiological reactivity, indexed by skin conductance level reactivity (SCL-R; a measure of sympathetic nervous system activity) and respiratory sinus arrhythmia reactivity (RSA-R; a measure of parasympathetic nervous system activity), moderated this association. Participants were 99 children (M = 10.76 years, 51% male) and one of their parents (84% mothers). Parents reported the extent to which they suggested, and the extent that their child employed, each coping strategy. Physiological reactivity was measured while children recounted a recent peer-based stressor. Regression analyses indicated that parental suggestions were positively related to children's use of coping strategies. Furthermore, consistent with differential susceptibility theory, children with greater SCL-R were more responsive to parent socialization of primary engagement coping. However, for secondary engagement coping, children with RSA augmentation showed particularly low levels of secondary engagement coping when parents rarely encouraged these coping responses, consistent with a diathesis-stress model. Findings suggest different moderation effects between SCL-R and RSA-R based on the type of coping strategy and provide important insights regarding how parenting may be influenced by the child's physiology.

Is Your Child Even Listening to You?: Relationship between Socialization of Coping and Coping Behavior, Moderated by Physiological Stress Reactivity

Although high quality peer relationships function to promote adaptive development (e.g., Kingery, et al., 2011), peer interactions can serve as a significant source of stress. For instance, peer victimization affects about a third of children every month, with about 11% of children experiencing severe abuse from peers (Vaillancourt et al., 2008). Recent work has shown that peer victimization can lead to increased risk of mental health concerns among victims (Abaied & Rudolph, 2010; Brendgen et al., 2017; Haltigan & Vaillancourt, 2014), particularly among individuals with maladaptive coping strategies (Hampel et al., 2009). Peer victimization is especially prominent during middle childhood and adolescence (Griffin & Gross, 2004). Thus, it is important to understand the coping strategies children employ to deal with peer stress (Abaied & Rudolph, 2010; Brendgen et al., 2017; Haltigan & Vaillancourt, 2014). In childhood, parents often provide support and guidance to their children when they experience stress; however, an important research question is whether children actually enact the coping behaviors their parents advise. In the present study, I investigated the extent to which children engage in the coping behaviors that their parents suggest when faced with peer stress. Further, as several factors, including child physiology, may affect children's coping behaviors, I also investigated whether patterns of physiological reactivity moderated the relationship between parental coping suggestions and child enactment of these suggestions.

Parental Socialization of Coping

Parents play an important role in shaping how children cope with peer stress (Abaied & Rudolph, 2010). In fact, Abaied and colleagues (2010) identified the significance of mothers' socialization of coping, defined as providing youth with guidance on ways to cope, for children's

adjustment. Specifically, parents might encourage children to use coping strategies that are adaptive or maladaptive in dealing with stressors. According to recent research, engagement strategies are often considered adaptive coping responses in dealing with peer stress, whereas disengagement strategies are maladaptive responses (Hasselle et al., 2019; Rudolph et al., 2011). Engagement coping involves coping behaviors that are directed at the source of stress or stress-related cognitions, whereas disengagement coping involves coping behaviors that are directed away from the source of stress (Abaied & Rudolph, 2010). Engagement strategies are further subdivided into primary and secondary engagement coping strategies based on whether the effortful coping behavior is directed toward the stressor or self, respectively. For example, primary coping strategies attempt to change the *stressor*, such as trying to fix the problem. Secondary coping strategies, on the other hand, require personally reframing the stressor via cognitive techniques (i.e. addressing the *self*), such as drawing something positive from the problem. Disengagement strategies reflect efforts to distance oneself from the stressor, such as avoiding others that make them feel upset. In this study, I will be investigating primary engagement, secondary engagement, and disengagement coping in relation to parental suggestions and child behavior.

The type of strategy children employ has important implications for their mental and social health outcomes (Hasselle et al., 2019; Rudolph et al., 2011). Thus, parents that provide adaptive coping suggestions, such as primary and secondary engagement strategies, may help their children successfully navigate challenging stressors, ultimately promoting more positive adjustment. In fact, Abaied et al. (2010) documented longitudinal associations between socialization of coping and child adjustment depending on the frequency of stressors, and for some analyses, child gender. Findings showed the protective effects of engagement socialization

and risk of disengagement socialization for child adjustment. However, as Abaied and colleagues (2010) note, children may or may not enact the coping behaviors that their parents suggest. This raises important questions about the factors that might facilitate children's implementation of coping suggestions. Recent work has shown that environmental factors, such as the family context, the quality of the parent-child relationship, and the attachment relationship can influence a child's enactment of parental coping suggestions (Abaied & Rudolph, 2010; Kliewer et al., 1996, 2006). In fact, Abaied & Rudolph (2011) looked at the association between maternal socialization of coping and child reported coping, moderated by child exposure to stress. Results indicated that maternal socialization of coping predicted child coping responses, such that mothers who suggested disengagement coping had children who engaged in maladaptive responses, whereas socialization of engagement coping protected children from these maladaptive responses. Most importantly, these effects were found only when exposure to peer stress was high. Additionally, Compas and colleagues (2001) proposed that future research is needed on how individual differences in stress reactivity may interact with parental socialization of coping to predict subsequent coping behavior. Although it is important to note which coping strategies are the most adaptive for parents to suggest, the current study investigated the relationship between these coping suggestions and child engagement in coping behaviors, and whether these associations varied based on children's physiological reactivity to peer stress.

Differential Susceptibility Theory

One potential factor that might influence whether children adopt the coping strategies that their parents suggest is their physiological reactivity to peer stress. In fact, the theory of *differential susceptibility* indicates that some youth are more sensitive than their peers to the effects of their environmental context (Belsky & Pluess, 2009; Boyce & Ellis, 2005). In contrast

to traditional diathesis-stress models, in which some youth are especially sensitive to negative environments, differential susceptibility theory suggests that some individuals are not only more vulnerable to the negative effects of adversity, but disproportionately susceptible to the beneficial effects of an enriching environment (Belsky & Pluess, 2009; Boyce & Ellis, 2005). Theorists argue that differential susceptibility describes an evolutionary advantageous factor, as it results in offspring with varying degrees of developmental plasticity. As an analogy, some youth were argued to be similar to "dandelions," indicating that they appeared fairly well-adjusted in a variety of environments (Boyce & Ellis, 2005). These "dandelions" exhibit low plasticity, meaning that the environment affects them less than their peers. Thus, these dandelions are likely to do reasonably well even in less advantaged contexts (i.e., they are resilient). In contrast, some youth were argued to be similar to "orchids," indicating that they exhibited the best developmental outcomes in enriching environments (i.e., even better than their dandelion peers), but struggled in less supportive environments. These youth were argued to exhibit high levels of plasticity, for better or for worse. Thus, misguided parenting may be less deleterious for some children (i.e., dandelions), whereas other children (i.e., orchids) may benefit *more* from effective parenting (Belsky & Pluess, 2009). Additionally, stress reactivity may act as a differential susceptibility factor (Belsky & Pluess, 2009).

Many researchers claim that children who are highly physiologically reactive to stress exhibit the most developmental plasticity (Belsky & Pluess, 2009; Boyce & Ellis, 2005). From this theoretical framework, stress reactivity may serve as an indicator of heightened plasticity to parental socialization of coping. In fact, developmental theory argues that external factors, such as parental guidance, and internal factors, such as physiological reactivity, impact children's success in effectively coping with stressful experiences (Compas et al., 2001; Skinner &

Zimmer-Gembeck, 2006; Stanger et al., 2018). Thus, children with distinct patterns of stress reactivity may be more susceptible to parental socialization of coping and thus be especially likely to enact the strategies that their parents suggest.

One potential indicator of heightened plasticity is skin conductance level reactivity (SCL-R; a measure of sweat gland activity), which is an index of the "fight or flight" stress response (Murray-Close, 2013). In fact, recent work indicates that SCL-R moderates the relationship between parent socialization of coping strategies and behavioral outcomes (Stanger et al., 2018). Specifically, Stanger and colleagues (2018) found that only children with high SCL-R showed decreases in externalizing problems over time when parents socialized greater disengagement strategies, whereas low SCL-R children had minimal change over time regardless of the level of disengagement coping parents suggested (Stanger et al., 2018). In other words, children whose sweat glands were more reactive were more likely to show decreases in behaviors, such as acting out, when their parents encouraged them to step back from the situation. Findings indicated that youth look to parents for coping suggestions, and that parental coping suggestions have significant associations with behavior, specifically among children with high SCL-R (Stanger et al., 2018). Children with high SCL-R may be more responsive to environmental input. Thus, in the context of socialization of coping, children with high SCL-R may be more responsive to the guidance parents provide. Thus, in the present study, I expected that SCL-R would moderate the association between socialization of coping and children's enactment of their parents' coping suggestions. Specifically, I expected that children with high SCL-R would rely more heavily on parents' coping suggestions and engage in the suggested coping behaviors more than low SCL-R children.

A second potential physiological indicator of heightened plasticity is respiratory sinus arrhythmia reactivity (RSA-R; a measure of heart rate variability associated with respiration), which serves as an index of parasympathetic "rest and digest" processes. In the context of challenging stimuli, RSA withdrawal indicates an individual's ability to flexibly adapt to stressful environmental changes. When responding to a challenging stimuli, parasympathetic activity, commonly known as the 'vagal brake', is typically withdrawn to allow the mobilization of resources, such as increased heart rate (Beauchaine, 2001; Gentzler et al., 2009; Khurshid et al., 2019). This withdrawal may be indicative of an individual's ability to respond to external stressors, such that greater withdrawal during stressors reflects a more flexible physiological response that facilitates adaptive responses to emotional challenges (Gentzler et al., 2009).

Although previous findings are mixed, some studies have shown RSA reactivity influences the relationship between parenting and child behavior (Diamond & Cribbet, 2013; Dyer et al., 2016; Williams & Woodruff-Borden, 2015). For example, Dyer and colleagues (2016) found that the association between authoritarian parenting and externalizing behavior depended on RSA reactivity; however, the direction of effects varied for boys versus girls. The authors suggest that the pattern for boys was consistent with a differential susceptibility model, where RSA augmentation appeared to serve as an index of plasticity and supported the conceptualization that high RSA reactivity is indicative to high sensitivity to one's environment (Dyer et al., 2016; Eisenberg et al., 2012). Children who exhibit RSA augmentation may have greater difficulty self-regulating and coping with peer stress than children who display a more adaptive pattern of RSA withdrawal; thus, those with RSA augmentation may benefit most from parental socialization of coping support, but also be more at risk in the absence of such support. In other words, in line with the differential susceptibility theory, I expected that parental

suggestions would more strongly influence children that exhibit high SCL-R and RSA augmentation.

Hypotheses

In the coping literature, both primary (e.g., trying to fix the problem) and secondary (e.g., trying to see something positive in the problem) engagement strategies are thought to reflect adaptive responses to stress, whereas disengagement (e.g., avoiding the problem) strategies may increase risk for psychopathology (Compas et al., 2001). However, an important question is the degree to which children adopt the coping suggestions that their parents recommend. Thus, the first goal of this study was to investigate whether the suggestions that parents provided regarding how to cope with peer stressors were related to children's enactment of coping responses. I hypothesized that, overall, children would rely on parents to help them develop coping strategies, such that parental coping suggestions (i.e., primary engagement, secondary engagement, and disengagement, respectively) would be positively related to children's enactment of these coping behaviors. In addition, in recent years, the question of whether some children are more susceptible to environmental influences has captured the interest of theorists and researchers in developmental psychology. In particular, the theory of *differential susceptibility* indicates that some youth are more sensitive to the effects of their environmental context (Belsky & Pluess, 2009; Boyce & Ellis, 2005). One potential indicator of this heightened plasticity is children's physiological stress reactivity (Belsky & Pluess, 2009), including SCL-R and RSA-R. Under this theoretical framework, I hypothesized that children who exhibited high SCL-R and RSA augmentation would be more strongly influenced by parental suggestions. In contexts promoting adaptive coping (e.g., primary and secondary engagement coping suggestions), I expected that these highly reactive youth would engage in these adaptive coping behaviors. However, I also

expected that these highly reactive children would be more likely to enact maladaptive disengagement suggestions as well. In other words, I hypothesized that these children would be more easily influenced by parent suggestions, for better or for worse.

Method

Participants

Participants were recruited from a small northeastern city to take part in the Peer Relationship Interview Project conducted by primary investigator Dr. Murray-Close. Participants were recruited from a sample of families participating in a related study (N = 58) as well as through community advertisements (N = 41). Participants included 99 children ages 8 to 12 years (M_{age} = 10.76, SD = 0.92; 51% male; 94% Caucasian/non-Hispanic) and their caregiver (84% mothers).

Procedure

All procedures were completed in the Social Development Laboratory. Prior to study activities, parent and child participants completed consent and child assent forms. Following consent/assent, child participants were escorted to an individual interview room with their parents, and the research assistant assisted the child with attaching physiological sensors on their hands, ribcage, and sternum. Participants then completed a series of stressor tasks, including the semi-structured interview used in the present study. Prior to the stress tasks, parents were escorted back to a separate room by a second research assistant to complete self-report measures. Following study procedures, participants were thanked and compensated for their time.

Measures

Parent Coping Suggestions. Parents completed a 24-item self-report measure of the coping strategies that they suggested to their children when their children encountered peer stress

(Socialization of Coping; Abaied, 2010). The measure includes the following three subscales: primary engagement coping suggestions (7 items; e.g., "When my child has problems with peers, I encourage my child to deal with the problem head on rather than ignoring it"; $\alpha = .72$), secondary engagement coping suggestions (8 items; e.g., "When my child has problems with peers, I encourage my child to look for something in good in what is happening"; $\alpha = .84$), and disengagement coping suggestions (9 items, e.g., "When my child has problems with peers, I encourage my child to try to stop him or herself from thinking about the problem"; $\alpha = .91$; Abaied & Rudolph, 2010). Parents were asked to rate each item from 1, "Not at all", to 5, "Very much." Items were averaged across subscales.

Child Engagement of Coping. Using the Response to Stress Questionnaire – Peer Stress (57-items; Compas et al., 2001), parents provided reports of their child's enactment of coping responses to peer stress, including primary engagement coping (9 items, e.g. "He/she does something to try to fix the stressful parts of problems with other kids"; $\alpha = .82$), secondary engagement coping (12 items, e.g. "He/she tells himself/herself that it doesn't matter, that it isn't a big deal"; $\alpha = .84$), and disengagement coping (9 items, e.g. "When he/she is around other people he/she acts like the problems with other kids never happened"; $\alpha = .69$), as well as involuntary behaviors (Compas et al., 2001). To account for potential response bias and rates of endorsement using the Response to Stress Questionnaire, we used the proportion of each coping style for analyses (see Bettis et al., 2016). The proportion of coping that was primary engagement, secondary engagement, and disengagement were calculated by dividing the subscale scores by the total mean score across the coping measure (i.e., the mean for all subscales including involuntary coping; Bettis et al., 2016).

Physiological Reactivity. Children completed a series of stress tasks to assess physiological stress reactivity. For skin conductance reactivity (SCL-R), two physiological sensors were attached to the child's fingers. For respiratory sinus arrhythmia (RSA-R), heart rate was assessed using an electrocardiogram (EKG) by placing three gel-coated electrodes on the child's ribcage and sternum. Respiration was assessed by placing pneumatic bellows around the child's chest on top of their clothing. Bellows were attached to a pressure transducer to detect changes in respiration. The James Long IBI Analysis system (Caroga Lake, NY) was used to calculate RSA based on EKG and respiration.

During the physiology session, participants completed three stress tasks, counterbalanced in order. This study utilized one of these three stress tasks called the Social Competence Interview (SCI; Ewart & Kolodner, 1991), a semi-structured interview lasting approximately 8-12 minutes that was adapted so that participants recounted a recent peer-based stressor (e.g., being left out; Murray-Close & Crick, 2007). The child was given a deck of five cards, each displaying common relational conflict situations. The child was instructed to choose the card that they experienced most recently and was most stressful. A research assistant asked the child to recount a specific time when they experienced that stressor and helped the child reconstruct the event by probing for specific details using guided imagery and reflective listening (e.g., what happened, where and when it happened, who was there, how the child was feeling when it happened). Participants had a 5-minute accommodation period to adjust to the feeling of the equipment and lab environment. In addition, participants had a 3-minute baseline prior to each stressor task as well as a 3-minute recovery period after each stressor task. Mean baseline arousal prior to the SCI was subtracted from mean arousal during the SCI to yield children's physiological reactivity; thus higher levels of SCL-R indicate increases in "fight or flight"

responses to the SCI and higher levels of RSA-R indicate RSA augmentation (i.e., increases in "rest and digest") to the SCI.

Results

Preliminary Analyses. I ran descriptive analyses to identify mean age, as well as frequencies for gender. Correlational analyses were run between key study variables (Table 1). Correlational analyses indicated that parent primary engagement suggestions were not related to children's primary engagement coping ($r = 0.129$, $p = 0.2$). Parent secondary engagement suggestions were positively related to children's secondary engagement coping ($r = 0.217$, $p = 0.03$). Finally, parent disengagement suggestions were positively related to children's disengagement coping ($r = 0.225$, $p = 0.025$).

Regression Analyses. For primary study analyses, I ran a separate regression for each type of coping and SCL-R and RSA-R, respectively, using the Process *macro* for SPSS (Hayes, 2017). Gender served as a covariate in all regression models because gender was significantly correlated with secondary and disengagement coping suggestions.

In the first set of analyses, primary engagement coping was regressed onto parental primary engagement coping suggestions, physiological reactivity (SCL-R or RSA-R), and the interaction between parental primary engagement coping and physiological reactivity (see Table 2). In the first model, SCL-R served as the index of physiological reactivity. The overall model was not significant ($R^2 = .07$, $F[4, 91] = 1.81$, $p = .13$). However, there was a marginally significant main effect of parent primary engagement suggestions on primary engagement coping behavior ($b = .01$, $p = .09$), such that as primary engagement suggestions increased, children's primary engagement coping behavior also increased. This marginally significant main effect was qualified by a significant interaction between primary engagement suggestions and SCL-R in the

prediction of primary engagement coping (b = .01, p = .04). Simple slope analyses indicated that, in the context of high SCL-R, increases in parent primary engagement coping suggestions were associated with increases in primary engagement coping behavior (b = 03, p = .02; see Figure 1). However, this association was not significant in the context of low SCL-R (b = -.003, p = .80). Findings indicate that the positive association between parent primary engagement suggestions and child primary engagement coping was evident among children with high, but not low, SCL-R. In the second model (Table 2), RSA-R served as the index of physiological reactivity. The overall model was not significant (R^2 = .04, F[4, 86] = .93, p = .45). Further, although primary engagement suggestions were positively associated with child primary engagement coping as a main effect, no other effects were significant.

A parallel set of models were run for secondary engagement coping (see Table 3). The overall model with SCL-R serving as the index of physiological reactivity was marginally significant (R^2 = .09, F[4, 91] = 2.12, p = .08). There was a marginally significant main effect of parent secondary coping suggestions on secondary coping behavior (b = .01, p = .07). However, SCL-R did not predict secondary engagement coping (b = .001, p = .83), nor did it moderate the relationship between secondary engagement coping suggestions and secondary engagement coping behavior (b = .01, p = .16). In the next model with RSA-R serving as the index of physiological reactivity, the overall model was significant (R^2 = .35, F[4, 86] = 3.06, p = .02). There was a marginally significant interaction between secondary engagement suggestions and RSA-R in the prediction of secondary engagement coping (b = .25, p = .07). Simple slope analyses indicated that in the context of high RSA-R (i.e., RSA augmentation), increases in parent secondary engagement coping suggestions were associated with increases in secondary engagement coping behavior (b = .02, p = .03; see Figure 2). In contrast, at lower levels of RSA-

R (i.e., RSA withdrawal), parent secondary coping suggestions were not significantly associated with children's secondary engagement coping behavior (b = .001, p = .90).

Finally, a set of analyses were run in which disengagement coping behaviors were regressed on disengagement suggestions, physiological reactivity, and their interaction (see Table 4). In the model with SCL-R serving as the index of physiological reactivity, the overall model was marginally significant (R^2 = .09, F[4, 91] = 2.18, p = .08). The main effect of parent suggestions on coping behavior was significant (b = .01, p = .01). However, SCL-R was not associated with children's disengagement coping (b = .002, p = .37), and the interaction between disengagement coping suggestions and SCL-R in the prediction of disengagement coping was not significant (b = .003, p = .31). In the disengagement coping model in which RSA-R served as the index of physiological reactivity, the overall model was not significant (R^2 = .07, F[4, 86] = 1.59, p = .18). However, disengagement coping suggestions were positively associated with children's disengagement coping (b = .01, p = .02); no other effects in this model were significant.

Discussion

Negative peer interactions, such as peer victimization, can serve as a significant source of stress for children. In fact, recent work shows that peer victimization can lead to heightened risk of mental health concerns (Abaied & Rudolph, 2010; Brendgen et al., 2017; Haltigan & Vaillancourt, 2014). Thus, it is important to consider how children develop coping strategies to deal with peer stress. Although children often look toward parents for guidance on how to deal with these stressors (Abaied & Rudolph, 2010; Abaied, Wagner, & Sanders, 2014; Dyer et al., 2016), an important question is whether children are implementing their parents' coping suggestions. Further, it is important to consider whether child factors, such as stress physiology,

interact with parenting socialization of coping to predict children's behavior. Thus, this study investigated the association between parental socialization of coping and child coping behavior, and whether children's stress responses moderated this association.

In line with differential susceptibility theory (Belsky & Pluess, 2009; Boyce & Ellis, 2005), findings from this study showed that children with greater SCL-R were more likely than their peers to enact parental primary engagement coping suggestions. Specifically, the association between parental primary engagement coping suggestions and children's primary engagement coping was moderated by SCL-R, such that high SCL-R children were most likely to engage in primary engagement coping when parental socialization of these behaviors was high but were least likely to engage in these behaviors when parental socialization was low. In other words, children whose sweat glands were most reactive were highly sensitive to parent suggestions of primary engagement coping. These findings are consistent with differential susceptibility theory, in which higher physiological reactivity, such as SCL-R, may serve as an index of greater plasticity or susceptibility to environmental factors (Belsky & Pluess, 2009). Interestingly, SCL-R did not emerge as a significant moderator in the models for secondary engagement coping or disengagement coping. As an indicator of sympathetic activity, SCL increases in order to provide metabolic resources that help the individual respond to stress (Murray-Close, 2013). These resources may be particularly important in facilitating behavioral responses that directly address the stressor, such as behaving in assertive ways, which are central to primary engagement coping. Thus, it is possible that SCL-R only moderated the relationship in the primary engagement coping model because SCL-R plays a particularly important role in mobilizing resources for active, primary engagement coping. In sum, SCL-R showed

moderation effects consistent with the differential susceptibility model; however, these effects only occurred in the context of primary engagement coping.

In contrast, in the secondary engagement coping model, results, approaching conventional levels of significance, showed that RSA moderated the association between parental secondary engagement suggestions and child secondary engagement coping. Contrary to my hypothesis, these findings were not consistent with a differential susceptibility model because youth exhibiting RSA augmentation did not engage in the highest levels of secondary engagement coping in the context of high parental socialization of these behaviors (i.e., there was not a cross-over interaction in Figure 2). Instead, children that exhibited RSA augmentation to peer stress engaged in particularly low levels of secondary coping when their parents rarely encouraged these coping responses, but, in the context of high parental socialization of secondary engagement coping, exhibited similar levels of these behaviors as their RSA withdrawal peers. In other words, RSA differences in secondary engagement coping between children exhibiting RSA withdrawal and RSA augmentation only appeared to occur at low levels of socialization of secondary engagement coping. This pattern of findings appears consistent with a diathesis-stress model, in which youth that exhibit a diathesis for poor coping (i.e., RSA augmentation) exhibit negative outcomes (i.e., low levels of adaptive coping behavior) in the context of impoverished parenting (i.e., few suggestions for secondary control coping). In fact, some studies have shown that in the presence of adversity, such as high family conflict, RSA withdrawal can serve as a protective factor, whereas in adverse contexts RSA augmentation may serve as a risk factor for maladjustment (El-Sheikh & Erath, 2011; Graziano & Derefinko, 2013; Katz & Gottman, 1995). In other words, consistent with a diathesis-stress model, in the context of negative parenting, RSA augmentation may act as a vulnerability factor.

In fact, there is reason to believe that RSA augmentation may serve as a diathesis for poor coping behaviors. According to polyvagal theory, RSA activity reflects emotional and behavioral self-regulatory capacities when faced with stressful stimuli (Abaied, Wagner, & Sanders, 2014; Porges, 2001, 2003). Thus, children who exhibit RSA augmentation may have difficulty engaging in the self-regulatory skills necessary for secondary engagement coping, particularly in the absence of scaffolding and support from parents.

It is notable that different indices of physiological reactivity moderated associations in the primary engagement and secondary engagement models. Further, it is interesting that the theoretical models supported (i.e., differential susceptibility versus diathesis-stress) varied across types of coping. Stoltz et al. (2017) argues that the differential susceptibility model may only be applicable under certain conditions; specifically, in their study, whether the model was differential susceptibility or diathesis-stress depended on the developmental timing of participation. My findings suggest that the diathesis-stress model may be most relevant to the context of socialization of secondary engagement coping, whereas differential susceptibility may be most relevant in the context of primary engagement coping.

Additionally, results showed that disengagement suggestions were positively related to children's enactment of disengagement coping strategies. However, this association did not show a significant interaction between socialization of disengagement strategies and physiological reactivity in the prediction of children's enactment of disengagement coping. These findings may indicate that physiological reactivity is less relevant to disengagement strategies. One explanation for these results may be that disengagement coping, such as avoiding the stressor, relies less on allocating physiological resources relative to engagement strategies. However, more research is needed to investigate this possibility, given differences in the findings in this

study and those found in previous work, in which SCLR moderated the relationship between disengagement coping and child behavior (Stranger et al., 2018).

Limitations and Future Directions

Although findings show important results, they should be interpreted in the context of study limitations. First, some of the interaction effects only approached conventional levels of statistical significance. Over the past few decades, discussion of marginally significant effects has been debated in psychological research (Olsson-Collentine et al., 2019; Pritschet et al., 2016). Norms related to reporting marginally significant effects have varied across subdisciplines, although this practice has occurred in top journals in the field of developmental psychology (Pritschet et al., 2016). Nevertheless, marginal effects are a limitation in the current study given issues related to reproducibility and the potential for false positives (Olsson-Collentine et al., 2019). The marginally significant findings in this study should be interpreted with caution, and future investigation of key study hypotheses are needed to confirm the findings.

Further research on larger and more diverse populations is also needed to replicate study findings and provide evidence of the generalizability of the results. A limitation of this study was the relatively small sample size, which may result in underpowered tests of interaction effects and potentially lead to spurious results. In addition, the sample lacked racial and ethnic diversity, and it is not clear whether the pattern of results would generalize to more diverse samples. This study used a cross-sectional design, which raises important questions related to causality from study results (Setia, 2016). It will be important for future research to adopt longitudinal designs to better assess how socialization of coping and stress reactivity interact in predicting changes in coping behaviors over time.

Additionally, this study used parent reports for both socialization of coping and coping engagement by the child. Future research should include teacher or child reports of these measures to reduce the likelihood that significant associations between parental socialization of coping and child behavior are an artifact of using a single reporter. Further, Roisman et al. (2012) showed that the theoretical model that was supported in analyses differed based on reporter, such that some findings were consistent with the differential susceptibility model when teacher reported on key study variables, whereas other findings were consistent with diathesis-stress model when mothers reported these variables. Conducting future research with multiple reporters would allow for an investigation of whether the pattern of findings from this study are replicated when different informants are used.

Lastly, laboratory studies can pose specific limitations on ecological validity, and in the current study, physiological reactivity was elicited through cognitive techniques as opposed to a peer encounter occurring in real time. It is possible that physiological measures, such as SCL-R and RSA-R, may be affected by these different contexts, and future research may benefit from assessing physiological reactivity to peer stressors in real-time to better understand how physiological differences influence the degree to which children enact coping behaviors parents suggest.

Summary and Implications

A critical question for parents of children struggling with peer stressors is the extent to which their children enact the coping suggestions they provide. To my knowledge, this is one of the only studies to have investigated and identified different moderation effects between SCL-R and RSA-R based on the type of coping strategy. These findings provide important insights regarding how internal factors, such as physiological reactivity, interact with how parents

respond to experiences of peer stressors in their children to predict child behavior. Overall, findings suggest that parental coping suggestions may serve as an important resource in children's coping. Furthermore, patterns of physiological stress reactivity may provide important insights regarding which children are more likely than others to implement parenting coping suggestions.

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Table 1. *Correlations and Descriptives*

	Mean	Standard Deviation	1	2	3	4	5	6	7	8	9	10
1. Child's gender	0.490	0.503	-									
2. Child's age	10.47	0.915	-0.105	-								
3. Proportion Primary Control Coping	0.230	0.037	-0.067	0.059	-							
4. Proportion Secondary Control Coping	0.240	0.049	-0.186	0.176	.342**	-						
5. Proportion Disengagement	0.145	0.023	-0.015	0.195	-.519**	-0.143	-					
6. SCL reactivity SCI	1.387	1.344	0.036	-0.099	0.043	0.043	0.103	-				
7. RSA reactivity SCI	-0.022	0.038	-0.073	-0.039	-0.083	-0.134	-0.048	0.039	-			
8. Primary control engagement suggestions	4.334	0.485	-0.056	0.046	0.129	0.006	-0.175	0.040	-0.003	-		
9. Secondary control engagement suggestions	3.205	0.784	-.349**	0.097	-0.119	.217*	-0.012	-0.025	0.020	.504**	-	
10. Disengagement suggestions	2.806	0.873	-.297**	0.039	-.218*	-0.024	.225*	-0.014	0.042	.287**	.708**	-

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed)

Table 2: Regression Analyses of Socialization of Primary Engagement Coping Predicting Child Primary Engagement Behavior, Moderated by Physiological Reactivity

Predictors	**Physiology Predictor**	
	Skin Conductance Level Reactivity (SCL-R)	Respiratory Sinus Arrhythmia Reactivity (RSA-R)
Primary Control Engagement	b (SE)	b (SE)
Gender (1 = Boys, 2 = Girls)	-.007 (.007)	-.005 (.007)
Primary Control Socialization of Coping (SOC)	.013† (.007)	.010 (.008)
Phys. Reactivity	.001 (.002)	-.090 (.109)
Primary Control SOC X Phys. Reactivity	.013* (.005)	.005 (.282)

† $p < .10$, * $p < .05$

Table 3: Regression Analyses of Socialization of Secondary Engagement Coping Predicting Child Secondary Engagement Behavior, Moderated by Physiological Reactivity

Predictors	**Physiology Predictor**	
	Skin Conductance Level Reactivity (SCL-R)	Respiratory Sinus Arrhythmia Reactivity (RSA-R)
Secondary Engagement	b (SE)	b (SE)
Gender (1 = Boys, 2 = Girls)	-.010 (.010)	-.013 (.011)
Secondary Control Socialization of Coping (SOC)	.014† (.007)	.012† (.007)
Phys. Reactivity	.001 (.004)	-.150 (.146)
Secondary Control SOC X Phys. Reactivity	.009 (.006)	.242* (.118)

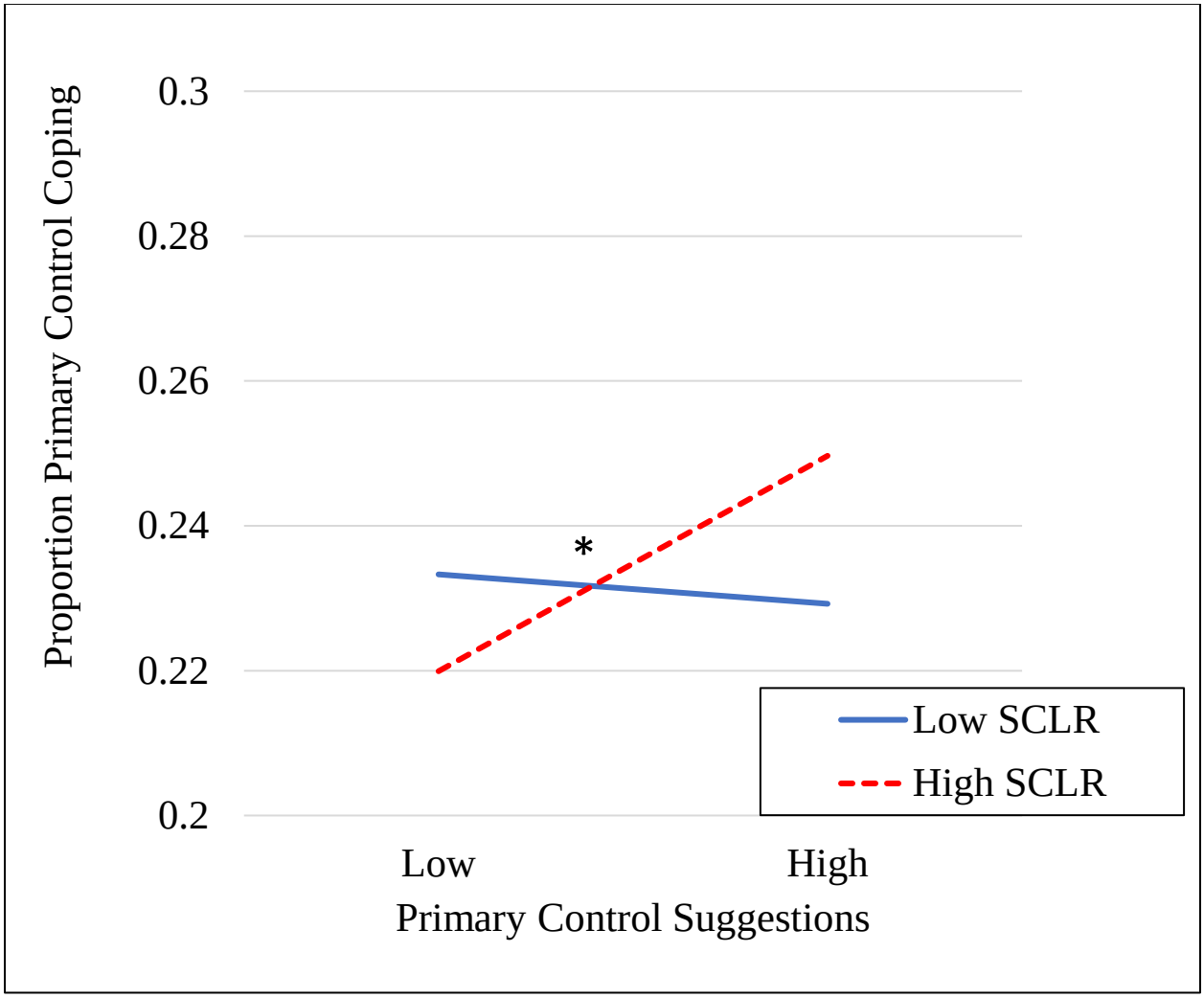
† $p < .10$, * $p < .05$

Table 4: Regression Analyses of Socialization of Disengagement Coping Predicting Child Disengagement Behavior, Moderated by Physiological Reactivity

Predictors	**Physiology Predictor**	
	Skin Conductance Level Reactivity (SCL-R)	Respiratory Sinus Arrhythmia Reactivity (RSA-R)
Disengagement		
Gender (1 = Boys, 2 = Girls)	.003 (.005)	.003 (.005)
Disengagement Socialization of Coping (SOC)	.007* (.003)	.007* (.003)
Phys. Reactivity	.002 (.001)	-.028 (.058)
Disengagement SOC X Phys. Reactivity	.003 (.002)	.050 (.051)

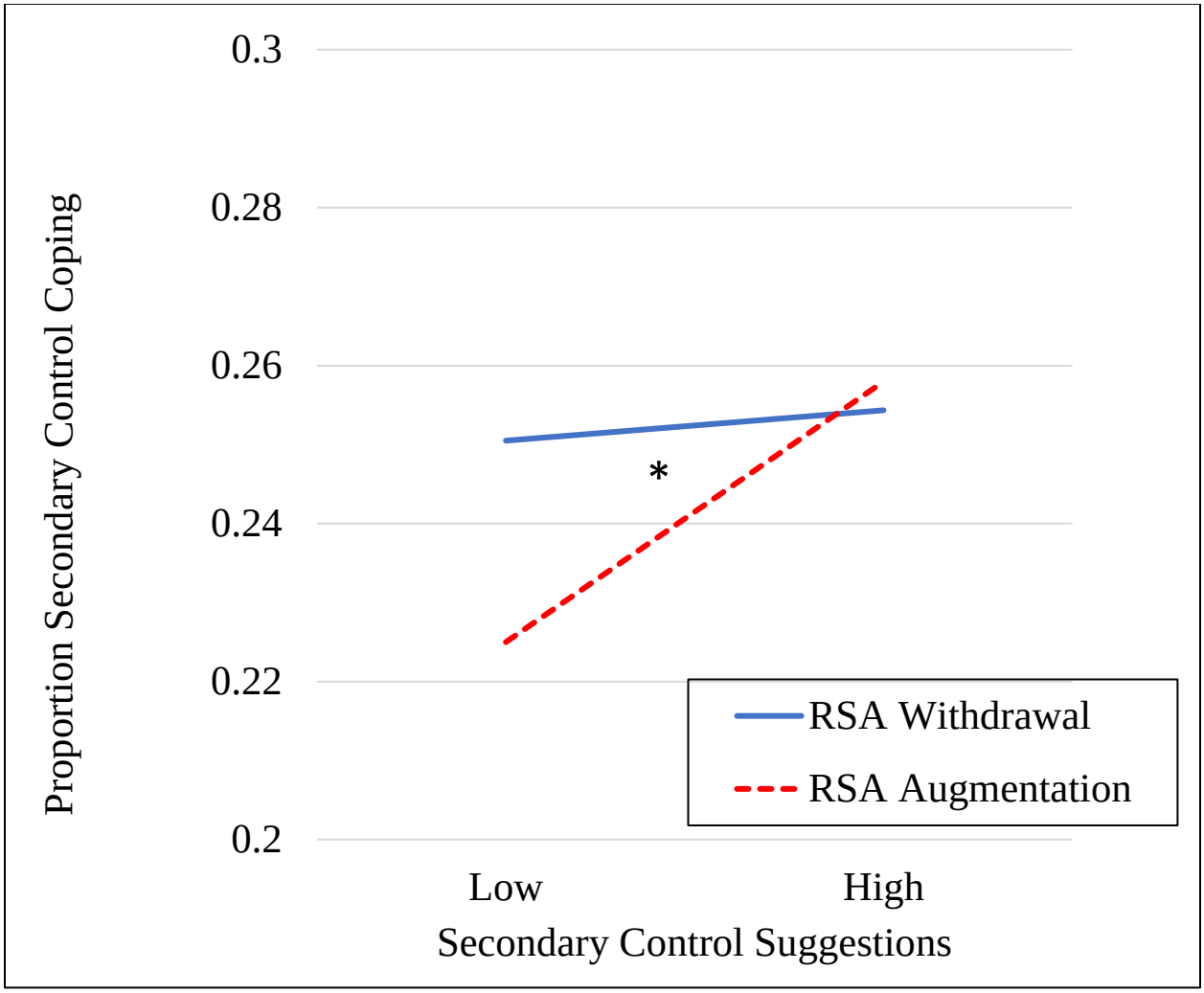
† $p < .10$, * $p < .05$

Figure 1: Primary Engagement Suggestions Predict Coping, Moderated by Skin Conductance Reactivity (SCL-R)



*. Indicated significant slope, p = .001
Note. The axis was truncated for visualization

Figure 2: Secondary Engagement Suggestions Predict Coping, Moderated by Respiratory Sinus Arrhythmia (RSA-R)



*. Indicated significant slope, p = .02
Note. The axis was truncated for visualization