

An Investigation of the Associations Among Adverse Childhood Experiences, Coping,
Psychopathology, and Parental Communication in Adolescents

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Abstract

Adverse Childhood Experiences (ACEs) predispose adolescents to a variety of physical and mental health problems and place them at an increased risk of experiencing additional major stressors later in life (Anda et al., 2006; Felitti et al., 1998). Coping strategies have been shown to help reduce the negative effects of stress on adolescents' physical and mental health (Compas et al., 2017). Further, affectively positive parental communication with adolescents has been shown to support and improve adolescents' coping skills as well as reduce internalizing and externalizing problems (Anderson et al., 2020; Eisenberg, Fabes, & Murphy, 1996; Thompson & Meyer, 2007; Watson et al., 2014, 2020). Using data from parent and child reports and video recorded adolescent-caregiver interactions, the present study explored the relationships between adolescent ACE exposure, primary and secondary control coping, anxious/depressed symptoms, aggressive behaviors, affectively positive, and hostile/intrusive parental communication. ACE exposure predicted higher levels of psychological symptoms and lower levels of coping. Higher levels of coping were associated with lower levels of psychological symptoms, and both types of coping accounted for significant variance in the development of psychological symptoms. The indirect pathway between ACE exposure and psychological symptoms through both types of coping also proved significant. Affectively positive parenting accounted for significant variance in the development of anxious/depressed symptoms and approached significance in the development of aggressive behaviors but was not found to moderate the indirect effect of coping on the relationship between ACE exposure and psychological symptoms. The findings of this study underscore the importance of coping in the prevention of psychopathology and highlight parental communication as a variable for further exploration in the development and prevention of psychopathology in adolescents with a history of ACE exposure.

An Investigation of the Associations Among Adverse Childhood Experiences, Coping, Psychopathology, and Parental Communication in Adolescents

Adverse Childhood Experiences (ACEs) are negative events experienced early in life, including physical, sexual, and emotional abuse; physical and emotional neglect; exposure to natural disaster; medical trauma; parental death; and parental impairment/household dysfunction attributable to mental illness, substance use, or incarceration (Felitti et al., 1998). ACEs are common, and currently approximately 60% of adults in the U.S. report experiencing at least one ACE during childhood (Centers for Disease Control and Prevention, 2021). Further, ACEs tend to co-occur, such that 59.7% of adolescents who report experiencing one ACE report experiencing two or more (McLaughlin et al., 2012). The prevalence of ACEs is concerning, as ACEs have a dose-response relationship with negative mental and physical health outcomes in adolescence and adulthood, meaning that the more ACEs to which one has been exposed, the more likely they are to experience negative effects later in life (Felitti et al., 1998; Henry et al., 2021). The prevalence and powerful impact of ACEs on later physical and mental health is a major public health concern that warrants further research. It is important to examine the potential pathways through which ACEs lead to the development of psychopathology, as well as explore potential protective factors that may help individuals achieve positive outcomes despite their ACE exposure.

Adolescents between 10 and 15 years old with ACE exposure during childhood are a population of particular interest, as adolescence is a time of transitions in social, emotional, and biological development during which individuals are more sensitive to the negative effects of stress (Spear, 2009). Symptoms of internalizing and externalizing problems often emerge for the first time during adolescence due to this increased susceptibility to stress, and these can often be

the first signs of the negative consequences of exposure to ACEs (Kessler et al., 2007; Merikangas et al., 2010). Adolescents with ACE exposure are also at an increased risk of experiencing additional stressful life events in adolescence and adulthood and may experience heightened stress reactivity in response to these stressors that manifests itself in behavioral psychological symptoms due to their history of stress and trauma in childhood (Merikangas et al., 2010). As adolescence is often the time symptoms start to emerge for individuals with ACE exposure, it is important to analyze the pathways behind adolescents' heightened stress response as well as potential protective factors that may lessen the effects of this heightened stress response during this transitional developmental period. Researching the emergence of differences in responses to stress and psychological symptoms during adolescence is essential if we are to understand and eventually prevent the development of psychopathology in adolescents with histories of ACE exposure.

Coping

Coping is defined by Compas et al. (2001) as conscious and volitional efforts to regulate emotion, cognition, behavior, physiology, or the environment in response to stressful events or circumstances. The use of certain coping strategies has been shown to be associated with lower levels of symptoms of psychopathology in adolescents across different populations, ranging from those with depressed parents to those coping with their own cancer diagnoses (Compas et al., 2017). Therefore, coping is an important potential protective factor to analyze when thinking about preventing negative physical and mental health outcomes in adolescents who have experienced early adversity.

Coping can be broken into three main categories: primary control coping, secondary control coping, and disengagement coping, which are each most effective in response to different

types of stressors (Compas et al., 2001). Primary control coping refers to efforts to act directly on a stressor by changing the source of the stress or one's emotional response to it through means including problem solving, emotional regulation, and emotional expression. This form of coping is most effective in response to stressful situations in which individuals have some degree of agency over the stressor. Secondary control coping refers to efforts to achieve control over the stressor indirectly by adapting to the source of stress through efforts including cognitive reappraisal, acceptance, positive thinking, and distraction. This form of coping is most effective in response to stressful events that are ongoing or out of an individual's control, as it focuses on changing one's response to the stressor rather than the stressor itself. Disengagement coping involves efforts to avoid or suppress the source of stress and emotional responses to it using denial, avoidance, or wishful thinking. This type of coping is the least adaptive and has been positively associated with higher levels of internalizing and externalizing symptoms in a variety of populations, such that greater levels of disengagement coping is associated with more problems (Compas et al., 2001; Compas et al, 2017; Connor-Smith et al., 2000). Due to previous findings that the use of primary and secondary control coping strategies is adaptive in the face of stress and that the use of disengagement coping is maladaptive, the current study focused on the use of primary and secondary control coping strategies.

ACEs and Coping

The present exploration of the role of coping in the population of adolescents who have experienced ACEs provides a better understanding of how ACE exposure impacts coping abilities, as existing research on the topic is ambiguous. There is some evidence that exposure to ACEs may limit the development of coping skills in childhood and adolescence due to the extreme hypervigilance that is often adopted when growing up in a dangerous environment

(Frankenhuis & Del Giudice, 2012). Conversely, other research emphasizes that exposure to ACEs may cause individuals to develop coping skills out of necessity for survival that may aid them in dealing with future stress in adolescence and adulthood (Gruhn & Compas, 2020). It is important to note that the coping strategies most reported by adolescents with maltreatment histories in a meta-analysis by Gruhn and Compas (2020) were avoidance, emotional suppression, and negative emotional expression. While these coping strategies may be beneficial for children in maltreating environments, as directly acting on a stressor could lead to increased risk of abuse, these are forms of disengagement coping that have been associated with negative outcomes in the long-term, such as increased symptoms of psychopathology and difficulties with adaptive coping/emotion regulation (Compas et al., 2017; Eisenberg, Fabes, & Murphy, 1996; Gruhn & Compas, 2020). Thus, there is need for greater understanding of the impact of ACE exposure on coping abilities in adolescents to help improve their outcomes into adulthood.

A possible explanation for the ambiguous findings around ACE exposure and coping skills is that these relationships are likely impacted by a variety of individual and environmental factors, all of which warrant further investigation. The present study focused on the role parental communication plays in this relationship in the hopes of uncovering a pathway through which to help improve psychosocial functioning outcomes for adolescents with ACEs.

Parent/Caregiver Communication

The family is an important context of development that becomes increasingly relevant as a predictor of both risk and resilience in the development of psychopathology in children (Drotar, 1997). Adolescents who can engage in positive communication with their caregivers tend to have better mental health and adjustment outcomes overall, even in the face of extreme stressors (Thompson & Meyer, 2007). Previous research has highlighted that these outcomes are

likely due at least in part to the impact of parenting on adolescent coping (e.g., Anderson et al., 2021; Watson et al., 2014, 2021). Parenting that is characterized by warmth and support has been associated with increased use of adaptive coping skills in response to stressors, while hostile and intrusive parenting has been shown to impede the development of coping skills in adolescents (Watson et al., 2014). This is likely because warm and supportive parents tend to engage children in conversations about emotions and the challenges they are facing and provide them with support and solutions, which leads to the development of effective coping strategies (Thompson & Meyer, 2007). Conversely, hostile and intrusive parents may send the message that emotions should be suppressed or ignored. This may lead adolescents to engage in disengagement coping, which is associated with negative psychosocial outcomes (Eisenberg, Fabes, & Murphy, 1996).

In addition to learning coping strategies through affectively positive parenting, there is evidence that affectively positive parenting may also reduce psychological symptoms. In a mediation analysis of the effects of a family behavioral intervention for families with depressed parents, observed affectively positive parenting and adolescents' use of secondary control coping were found to mediate the relationship between adolescent externalizing problems and depressive symptoms at baseline and 12 months following a 6-month family group cognitive-behavioral intervention (Compas et al., 2010). This suggests that the parenting skills learned in the intervention were the mechanism through which adolescent mental health problems decreased following the intervention (Compas et al., 2010). This further emphasizes the important role of parenting in determining adolescent mental health outcomes, especially in populations of adolescents exposed to high levels of stress.

Previous research on adolescents with ACE exposure has not adequately investigated the role of parenting in the development of primary control and secondary control coping or

psychological symptoms. The findings of the present study expand the body of research on the role of parenting in populations of adolescents with high levels of stress exposure to include adolescents with ACEs.

The Present Study

The current study aims to contribute to the understanding of the relationships between ACE exposure, coping skills, and psychological symptoms in adolescents and how these relationships may be impacted by parental communication. Though significant research has been conducted on adolescents and adults with ACE exposure since the seminal ACE paper by Felitti et al. (1998), current literature is still ambiguous on *how* ACEs impact coping and the development of anxious/depressed symptoms and aggressive behaviors. Previous research conducted in a variety of at-risk adolescent populations has shown that affectively positive and responsive parental communication is associated with increased coping skills and decreased prevalence of psychopathology (Compas et al., 2010; Compas et al., 2017; Eisenberg, Fabes & Murphy, 1996; Thompson & Meyer, 2007), but relatively little research has been conducted on the role of parenting in the population of adolescents with ACEs. The current study is intended to contribute to the growing body of literature targeted at understanding and preventing the development of psychopathology in adolescents with ACEs by deepening the understanding of the direct associations of ACE exposure with primary control coping, secondary control coping, internalizing problems, and externalizing problems, as well as introduce parenting as a moderator of these relationships that could be important in designing interventions to help improve outcomes for this population.

The following hypotheses were tested: (1) ACE exposure will be positively associated with anxious/depressed symptoms and aggressive behaviors. (2) ACE exposure will be

negatively associated with the use of primary control and secondary control coping strategies. (3) The use of primary control and secondary control coping strategies will be negatively associated with anxious/depressed symptoms and aggressive behaviors. (4) Affectively positive parental communication will be positively associated with primary and secondary control coping strategies, and negatively associated with anxious/depressed symptoms and aggressive behaviors. (5) Conversely, hostile/intrusive parental communication will be negatively associated with primary and secondary control coping strategies and positively associated with anxious/depressed symptoms and aggressive behaviors. (6) There will be indirect associations between ACE exposure and anxious/depressed symptoms and aggressive behaviors through primary and secondary control coping. (7) Parental communication will serve as a moderator of the association between ACEs and coping in the indirect effect models between ACEs and anxious/depressed symptoms and aggressive behaviors through coping. If there is evidence to support the moderating effect of parental communication on coping and mental health outcomes in adolescents with ACEs, there is a strong potential for future interventions to be designed to help parents and caregivers of adolescents with ACEs learn effective parenting strategies to ensure the best possible outcomes for their children.

Method

Participants

Participants for this study were drawn from a study of adolescents with varying levels of ACE exposure and their primary caregivers (R21HD098454: Adverse Childhood Experiences, Adolescent and Caregiver Emotion Regulation, and Adolescent Physical and Mental Health; PI: Compas) in the Vanderbilt Stress and Coping Laboratory. A total of 97 adolescents ages 10 to 15 ($M = 12.07$ years, $SD = 2.11$ years) and their parent or primary caregiver ($M = 42.04$ years, $SD =$

7.01 years) were enrolled in the study. Forty-five of the adolescent participants identified as male, 51 identified as female, and 1 did not indicate a gender of male or female. Caregivers were primarily mothers, with 86 being female and 10 being male. 90.7% of caregivers in the sample ($N = 88$) were biologically related to their child.

Participants were recruited from five different sites in Nashville, Tennessee: the Vanderbilt Center of Excellence for Children in State Custody, Vanderbilt Child and Adolescent Psychiatry Outpatient Clinic, Nashville Children's Alliance, Mental Health Co-Op of Middle Tennessee, and the web-based research advertising sites: Vanderbilt Research Match and Kennedy Center Study Finder. The use of five different sites for recruitment was designed to allow for a sample of adolescents with a wide range of histories of exposure to a variety of ACEs, as well as adolescents without histories of ACE exposure.

Inclusion criteria for adolescents to participate in the study were a current age of 10-15 years old and currently living with their caregiver (biological parent, adoptive parent, kinship parent with custody, etc.) for at least 50% of the time for the past 6 months. Exclusion criteria were a diagnosis of autism spectrum disorder in the child or schizophrenia in the caregiver or child. Demographic information including age, gender/sex, race/ethnicity, and SES were collected from adolescents and caregivers at the time of their laboratory visit using questionnaires.

Design

This study aimed to better understand the relationships between ACE exposure, primary and secondary control coping, anxious/depressed symptoms and aggressive behaviors, and affectively positive and hostile/intrusive parental communication. Bivariate correlation analyses were run using all key study variables to gain a sense of how they were interrelated. Linear

regression analyses were then conducted predicting adolescent anxious/depressed symptoms and aggressive behaviors. Next, direct and indirect effect analyses were conducted investigating the effect of primary control and secondary control coping on the relationship between ACE exposure and anxious/depressed symptoms and aggressive behaviors. Finally, moderated mediation analyses were conducted to understand how parental communication impacts the relationship between ACE exposure and coping in the indirect effect model of ACE exposure and psychopathology through coping.

ACE exposure was operationalized using scores on the Childhood Trauma Questionnaire (CTQ) (CTQ; Bernstein et al., 1997), adolescent primary and secondary control coping were assessed using the Response to Stress Questionnaire (RSQ) (RSQ; Connor-Smith et al., 2000), anxious/depressed symptoms and aggressive behaviors were indicated by scores on the Youth Self Report (YSR) and Child Behavior Checklist (CBCL) (YSR, CBCL; Achenbach & Rescorla, 2001), and parental communication was operationalized by behavioral codes from a coded adolescent-caregiver interaction task using the Iowa Family Interaction Rating Scale (IFIRS) (IFIRS; Melby et al., 1998).

Measures

To measure adolescents' exposure to ACEs, use of coping strategies, and levels of psychological symptoms, questionnaires completed by both the adolescent reporting on themselves and the caregiver reporting on the adolescent were used.

Adolescents' Anxious/Depressed Symptoms and Aggressive Behaviors

To operationalize adolescents' anxious/depressed symptoms and aggressive behaviors, adolescents and their caregivers completed the Youth Self Report (YSR) and the Child Behavior Checklist (CBCL) online through a RedCap survey. The YSR and CBCL are 118-item checklists

of problem behaviors that adolescents and their caregivers rate as 0 (not true), 1 (somewhat or often true), or 2 (very true or often true) for themselves or their child over the past 6 months (YSR, CBCL; Achenbach & Rescorla, 2001). The reliability and validity of the YSR and CBCL have been well established across a variety of populations in different cultures and contexts, therefore should provide an accurate measure of adolescents' symptoms of psychopathology (Achenbach, 2020).

Coping With Stress

The Responses to Stress Questionnaire- Family Stress (RSQ) is a 57-item questionnaire that measures five factors of the response to stressful events that occur in the family context: primary control coping, secondary control coping, disengagement coping, involuntary engagement, and involuntary disengagement (RSQ; Connor-Smith et al., 2000). The survey begins with a checklist of stressors that pertain to family stress, and participants are asked to indicate how often each of these stressors has occurred in the past 6 months. The questionnaire then asks participants to keep those stressors in mind while they rate how often they use each coping method or experience each type of involuntary stress response on a scale of 1 (not at all) to 4 (a lot). Adolescents and their caregivers (reporting on how the adolescent deals with stress) completed the questionnaire online prior to their laboratory visit, and ratio scores were calculated for each of the different types of coping (RSQ; Connor-Smith et al., 2000).

Adverse Childhood Experiences (ACEs)

In the laboratory, adolescents and their caregivers completed the Childhood Trauma Questionnaire (CTQ). The CTQ is a 28-item scale that assesses the prevalence, severity, and frequency of exposure to maltreatment and produces scores on five clinical scales: emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect. Items are rated on a

5-point Likert scale, with responses ranging from 1 (never true) to 5 (very often true). The CTQ was completed by both the adolescent and the caregiver to measure the adolescent's exposure to ACEs and was scored on a range from 25-125, with higher scores indicating greater severity of maltreatment (CTQ; Bernstein et al., 1997). For the purposes of this study since I was just attempting to quantify the number of ACEs to which children had been exposed rather than the severity of ACE exposure, binary scores were utilized. A score of 1 was assigned if a form of maltreatment was indicated and a score of 0 was assigned if maltreatment was not indicated, regardless of severity. This led to a CTQ score range of 0-28.

Adolescent-Caregiver Interaction Task

In addition to completing these questionnaire measures, adolescents and their caregivers completed a ten-minute semi-structured discussion task about an ongoing stressor in the family's life. The stressor they discussed was determined by their responses to the Issues Checklist, a 44-item list of items that adolescents and caregivers may have recently discussed together (e.g., technology usage, adolescents' friends, adolescents' school work). Adolescents and their caregivers are asked to circle either "yes" or "no" regarding whether they have discussed each of the topics in the last 4 weeks. For each issue marked "yes", the respondent uses a Likert-type rating scale from 1 (calm) to 5 (angry) to rate how they felt when they last discussed that topic. Research Assistants then analyzed the responses from both the adolescent and the caregiver, determined which issues caused the most stress, and gave families the options to choose between a few stressors that they both rated highly to discuss for 10 minutes.

These interactions were videotaped, and later coded for behaviors by two trained research assistants using the Iowa Family Interaction Rating Scales (IFIRS; Melby et al., 1998). The IFIRS coding scheme is a macro-level coding system that codes behaviors on two general types

of scales: characteristic scales and dyadic interaction scales. Each behavioral code is rated on a 9-point Likert scale, ranging from 1 (the behavior is not at all characteristic) to 9 (the behavior is mainly characteristic) based on the frequency, intensity, and affective nature of the behaviors seen in the interaction. Two independent coders who are blind to the adolescent's ACE exposure code the videos and meet to establish consensus on codes for which there is a greater than 1-point discrepancy.

For the purposes of the ongoing Adverse Childhood Experiences, Adolescent and Caregiver Emotion Regulation, and Adolescent Physical and Mental Health study, there are 14 adolescent behavior codes and 24 parent behavior codes. However, for the purposes of this honors thesis, I focused on specific codes related to two types of parental communication established in a factor analytic study conducted by Murphy et al. (2018): affectively positive communication and hostile/intrusive communication.

Affectively positive communication consists of the codes for Positive Reinforcement (PO), Child Monitoring (CM), Warmth (WM), Listener Responsiveness (LR), Sensitive/Child Centered (CC), and Positive Mood (PM) (Murphy et al., 2018). Positive Reinforcement (PO) refers to parent's positive responses to the adolescent's behaviors that meet their standards for their child's behavior. For example, "Thank you for doing your chores." Child Monitoring (CM) evaluates the degree to which the parent knows and pursues information about the child's life and daily activities, such as who their friends are and what their interests are. For example, a parent scoring high on CM might ask, "Did you get the division problems on your test correct?" demonstrating that they know their child had a test, and that division is something their child struggles with. Sensitive/Child Centered (CC) refers to the parent's awareness of the adolescent's needs, capabilities, and interests, and the degree to which they respond

appropriately to and engage the child in conversation. A parent scoring high on CC would notice that their child is upset and acknowledge, “I think this might be hard for you to talk about.”

Positive Mood (PM) measures the degree to which the parent demonstrates happiness or contentment towards themselves, others, or things in general. For example, a parent scoring high on PM might say, “I’m content with my life” (IFIRS; Melby et al., 1998).

Hostile/intrusive communication is made up of the codes for Hostility (HS), Intrusive (NT), and Guilty Coercion (GC) (Murphy et al., 2018). Hostility (HS) refers to hostile, angry, critical, disapproving, or rejecting behaviors towards the child in the interaction. A comment such as, “You’ll never amount to anything,” would be coded as HS. The Intrusive (NT) code refers to over-controlling behaviors that are focused on the parent’s needs, goals, or agenda rather than those of the child. For instance, a parent interrupting their adolescent and saying, “You’re going to need braces soon,” would be coded as NT. Guilty Coercion (GC) refers to behaviors in which the parent tries to control or change the behavior or opinions of their adolescent through contingent complaints, crying, whining, and manipulation. For example, stating, “You disappoint me when you do that,” would be coded as GC (IFIRS; Melby et al., 1998).

Procedure

Prior to coming into the laboratory, adolescents and their caregivers completed the YSR and CBCL, respectively, online through a RedCap survey to report on adolescent internalizing and externalizing problems experienced over the last 6 months. They also completed the RSQ-Family Stress version online through a RedCap survey to report on adolescent coping abilities in response to general family stress. In the laboratory, both adolescents and their caregivers completed the CTQ to operationalize adolescent ACE exposure, and research assistants followed

up on any answers that endorsed the experience of abuse or neglect. Adolescent-caregiver dyads then completed a ten-minute, video recorded family discussion task about an ongoing stressor in their family's life, determined by their responses to the Issues Checklist. This interaction task was later coded by two trained coders using the IFIRS coding scheme.

Results

Descriptive Statistics

Means and standard deviations for key study variables can be found in Table 1. It is important to note that for the $n = 97$ sample, adolescents' psychological symptom levels are significantly elevated compared to normative levels. Adolescent and caregiver reports of adolescent anxious/depressed symptoms are nearly 1 standard deviation above the normative mean ($Mean T YSR = 57.90$; $Mean T CBCL = 58.93$) and adolescent and caregiver reports of adolescent aggressive behaviors are approximately half a standard deviation above the normative mean ($Mean T YSR = 55.61$; $Mean T CBCL = 56.40$). Additionally, scores on adolescent self-reports and caregiver reports on the Childhood Trauma Questionnaire indicating levels of exposure to ACEs were relatively low ($Mean adolescent self-report = 8.95$, $SD = 4.48$; $Mean parent report = 9.21$, $SD = 5.04$).

Bivariate Correlation Analyses

Bivariate Pearson correlations among levels of ACE exposure as reported by adolescents and their caregivers, adolescent psychological symptoms, levels of primary and secondary control coping in adolescents, and levels of affectively positive parenting and hostile/intrusive parenting are presented in Table 2. The correlations between adolescent reports of ACE exposure and caregiver reports of anxious/depressed symptoms are significant, which finds support for the first hypothesis. For example, ACE exposure reported by adolescents was positively associated

with caregiver reports of adolescent anxious/depressed symptoms ($r = .28, p < .01$). Significant positive correlations were also found between caregiver reports of ACE exposure and adolescent and caregiver reports of aggressive behaviors, which further supports my first hypothesis. For example, ACE exposure as reported by caregivers was positively associated with adolescent reports of aggressive behaviors ($r = .32, p < .01$). The only insignificant correlation found in regard to the first hypothesis was between caregiver reports of ACE exposure and adolescent reports of anxious/depressed symptoms. It is important to note that overall, adolescent self-reports and parental reports of adolescent ACE exposure and psychological symptoms were strongly correlated. The relationship between reports of ACE exposure was $r = .67, p < .01$ and the correlations between reports of anxious/depressed symptoms and aggressive behaviors were both $r = .59, p < 0.01$.

The correlational analyses also found support for my second hypothesis, as ACE exposure was negatively associated with adolescents' use of primary and secondary control coping based on both adolescent self-reports and caregiver reports of both variables. For example, the relationship between adolescent reports of ACE exposure and caregiver reports of primary control coping was $r = -.29, p < .01$ and the relationship between caregiver reports of ACE exposure and adolescent reports of secondary control coping was $r = -.25, p < .01$.

Support was also found for my third hypothesis. The use of primary control and secondary control coping strategies was negatively associated with anxious/depressed symptoms and aggressive behaviors according to reports both within and between informants on all relevant variables. For example, the relationship between adolescent reports of primary control coping and parent reports of adolescent anxious/depressed symptoms was $r = -.25, p < .05$. Further,

parent reports of adolescent secondary control coping were negatively correlated with adolescent reports of aggressive behaviors ($r = -.34, p < .01$).

Finally, examining my fourth and fifth hypotheses, several of the relationships between caregiver communication, ACE exposure, psychological symptoms, and coping were statistically significant. In terms of affectively positive parental communication, five relationships were statistically significant. First, affectively positive parental communication was negatively associated with adolescent and caregiver reports of ACE exposure ($r = -.28; p < .01$; $r = -.26; p < .05$, respectively). Looking at psychological symptoms, affectively positive parental communication was negatively associated with adolescent reported anxious/depressed symptoms ($r = -.22, p < .05$) and adolescent reported aggressive behaviors ($r = -.28, p < .01$). Affectively positive parental communication was also positively related to caregiver reports of adolescents' use of primary control coping strategies ($r = .25, p < .05$). Hostile/intrusive parenting, on the other hand, was only significantly correlated with adolescent reports of aggressive behaviors, $r = .24, p < .05$. Due to the lack of significant correlations between hostile/intrusive parenting and key study variables, only affectively positive parental communication as a potential protective factor was explored in later analyses.

Linear Regression Analyses

Multiple linear regression analyses were conducted to further understand the relationships between ACE exposure, coping, and psychological symptoms, as well as how affectively positive parental communication impacts these relationships. Table 3 presents the first linear regression analysis, predicting adolescent anxious/depressed symptoms using adolescent self-reports of all measures. In the first step, adolescent gender was the only demographic variable that was a significant predictor of anxious/depressed symptoms ($\beta = .35, p < .01$). In the second

step of the model, child gender remained a significant predictor of anxious/depressed symptoms ($\beta = .34, p < .01$) and adolescent ACE exposure was also a significant predictor of anxious/depressed symptoms ($\beta = .26, p < .01$). In the third step of the model, child gender remained a significant predictor of anxious/depressed symptoms ($\beta = .30, p < .01$), but the variance previously accounted for by adolescent ACE exposure was no longer significant. In addition to gender, both primary control coping and secondary control coping were shown to be significant predictors of anxious/depressed symptoms ($\beta = -.25, p < .01$; $\beta = -.39, p < .01$). In the fourth step of the model when affectively positive parental communication was added, child gender, primary control coping, and secondary control coping ($\beta = .31, p < .01$; $\beta = -.23, p < .01$; $\beta = -.39, p < .01$) remained significant predictors of anxious/depressed symptoms. Additionally, affectively positive parental communication approached significance ($\beta = -.16, p = .08$). Overall this model shows that adolescent gender and use of primary and secondary control coping strategies account for a significant portion of the variance in the development of anxious/depressed symptoms. Additionally, affectively positive parental communication approached significance as a negative predictor of anxious/depressed symptoms.

Table 4 represents the second linear regression analysis conducted, predicting adolescent aggressive behaviors using adolescent self-reports of all measures. In the first step of the model, none of the demographic variables were significant predictors of the development of aggressive behaviors. In the second step of the model, adolescent ACE exposure was a significant predictor of aggressive behaviors, while other demographic variables remained insignificant ($\beta = .37, p < .01$). In the third step, ACE exposure remained a significant predictor of aggressive behaviors ($\beta = .26, p < .01$) and the use of primary control coping and secondary control coping approached significance as negative predictors of aggressive behaviors ($\beta = -.21, p = .04$; $\beta = -.19, p = .07$).

In the fourth step of the model, none of the demographic variables were significant predictors of aggressive behaviors. ACE exposure and secondary control coping were significant predictors of aggressive behaviors at the $p \leq .05$ level, ($\beta = .21, p = .05$; $\beta = -.20, p = .05$) and primary control coping and affectively positive parental communication approached significance ($\beta = -.18, p = .06$; $\beta = -.19, p = .06$). Overall, this model demonstrates that ACE exposure and secondary control coping account for significant portions of the variance in the development of aggressive behaviors, and secondary control coping and affectively positive parental communication approach significance as predictors of aggressive behaviors.

Direct and Indirect Effects

Based on the results of my multiple regression analyses, I chose to further investigate the pathways through which ACE exposure, coping, and adolescent psychological symptoms were interrelated using indirect effect models in PROCESS. I created four models to analyze the indirect effect of primary control coping and secondary control coping on the relationship between ACE exposure and anxious/depressed symptoms (Figures 1 and 2) and aggressive behaviors (Figures 3 and 4). I chose to use caregiver reports of adolescent ACE exposure and adolescent self-reports of coping and psychological symptoms to ensure that the relationships found were not attributable to single-informant bias.

The first model, displayed in Figure 1, found a significant negative association between adolescent ACE exposure and primary control coping on the a-path ($\beta = -.23, p < .05$). The association between primary control coping and anxious/depressed symptoms on the b-path was also significant ($\beta = -.35, p < .01$). The direct association of ACE exposure and anxious/depressed symptoms on the c-path was not statistically significant ($\beta = .05$, not statistically significant [*ns*]), and this pathway remained not statistically significant when

primary control coping was included in the model (path c'; $\beta = .10$, [ns]). However, the total indirect effect of ACE exposure on anxious/depressed symptoms through primary control coping (path ab) was statistically significant ($\beta = .08$ standard error [SE] = .03; 95% CI [.02, .15]).

The second model, displayed in Figure 2, found a significant negative association between ACE exposure and secondary control coping on the a-path ($\beta = -.25$, $p < .05$). The association between secondary control coping and anxious/depressed symptoms on the b-path was also significant ($\beta = -.48$, $p < .01$). The direct association of ACE exposure and anxious/depressed symptoms on the c-path was not statistically significant ($\beta = .05$, [ns]) and remained insignificant when secondary control coping was included in the model (path c'; $\beta = .06$, [ns]). The total indirect effect of ACE exposure on anxious/depressed symptoms through secondary control coping (path ab) was statistically significant, $ab = .12$ (SE = .06, 95% CI = .02 to .25).

Figures 3 and 4 examined the relations between ACE exposure and aggressive behaviors through the pathways of primary control coping and secondary control coping. The first of these models (Figure 3) found significant negative associations between ACE exposure and primary control coping on the a-path ($\beta = -.23$, $p < .05$) and between primary control coping and aggressive behaviors on the b-path ($\beta = -.24$, $p < .01$). The direct path between ACE exposure and aggressive behaviors was statistically significant on the c-path ($\beta = .25$, $p < .01$) and remained statistically significant with primary control coping included in the model (path c'; $\beta = .27$, $p < .05$). The total indirect effect of ACE exposure on aggressive behaviors through primary control coping (path ab) was significant, ($\beta = .05$, [SE] = .03; 95% CI [.01, .12]).

Figure 4 examined the relations between ACE exposure, secondary control coping, and aggressive behaviors. There was a significant negative association between ACE exposure and

secondary control coping on the a-path ($\beta = -.25, p < .05$) and between secondary control coping and aggressive behaviors on the b-path ($\beta = -.23, p < .05$). The direct path between ACE exposure and aggressive behaviors was statistically significant on the c-path ($\beta = .25, p < .01$) and remained significant with secondary control coping included in the model (path c'; $\beta = .26, p < .01$). The total indirect effect of ACE exposure on aggressive behaviors through secondary control coping (path ab) was significant ($\beta = .06, [SE] = .03; 95\% CI [.01, .13]$).

Moderated Mediation Analyses

To better understand the role of affectively positive parental communication in the relationships between ACE exposure and psychological symptoms through the pathway of coping, moderated mediation analyses were conducted. Affectively positive parental communication was investigated as a moderator of the a-path between ACE exposure and coping using PROCESS model 7. In all four of the models (investigating primary control coping and secondary control coping, predicting anxious/depressed symptoms and aggressive behaviors), no statistically significant effects were found for affectively positive parental communication as a moderator of the relationship between ACE exposure and coping. Figure 5 provides a representative example, looking at the relationship between ACE exposure and anxious/depressed symptoms through primary control coping, with the a-path between ACE exposure and primary control coping moderated by affectively positive parental communication. The a-path from ACE exposure to primary control coping was not statistically significant ($b = .003, p = .50$). The b-path from primary control coping to anxious depressed symptoms was statistically significant ($b = -36.95, p < .01$). The direct path between ACE exposure and anxious depressed symptoms was not statistically significant and was not significant when primary control coping was included in the model (c path: $b = .09, p = .33$; c' path: $b = .09, p = .33$).

Affectively positive parental communication as a moderator of the a-path between ACE exposure and primary control coping was not statistically significant ($b = -.0002, p = .30$). The overall index of moderated mediation for affectively positive parental communication was not statistically significant ($b = .006$; 95% CI = $-.003$ to $.02$).

Discussion

Existing research has investigated the impact of adolescents' use of coping strategies on the development of psychopathology in a variety of populations at increased risk of developing psychological symptoms (Compas et al., 2017). The present study expands upon this research by focusing more narrowly on the high-risk population of adolescents with exposure to early adversity and by investigating a new variable that may impact the relationship between stress, coping, and psychopathology: parental communication. The findings of this study find strong support for the role of primary control coping and secondary control coping as protective factors against the development of psychopathology in adolescents with varying levels of ACE exposure. Emerging evidence was also found for affectively positive parental communication as a potential protective factor against the development of psychopathology in this population.

Consistent with my first hypothesis and in-line with existing research on the population of adolescents with histories of early adversity (Felitti et al., 1998; Henry et al., 2021), adolescent and caregiver reports of ACE exposure were significantly positively associated with anxious/depressed symptoms and aggressive behaviors. The more ACEs that adolescents had been exposed to, the more psychological symptoms they were experiencing. My second hypothesis was also confirmed, as adolescent and caregiver reports of ACE exposure were significantly negatively associated with the use of primary and secondary control coping strategies. This aligns with existing research that highlights the fact that adolescents exposed to

early adversity often adopt maladaptive coping mechanisms that may limit their ability to effectively cope with stress and may lead to the development of psychopathology (Compas et al., 2001; Eisenberg, Fabes, & Murphy, 1996; Frankenhuis & Del Giudice, 2012; Gruhn & Compas, 2020). Support for my third hypothesis that higher levels of primary and secondary control coping would be negatively associated with lower levels of psychological symptoms was also found. This aligns with existing research on the benefits of coping (Compas et al., 2017) and expands this research to a new population of interest: adolescents with ACE exposure. As the use of coping strategies has been shown to reduce the risk of developing psychological symptoms, the fact that adolescents in this study sample with higher levels of ACE exposure were both exhibiting higher levels of psychological symptoms and lower levels of adaptive coping strategies is a cause for concern. It also raises the question of directionality in the relationships between ACE exposure, coping, and psychological symptoms, which is important to understand to begin to develop interventions targeted at this population.

Focusing on affectively positive parental communication, partial support was found for my fourth hypothesis. Affectively positive parental communication was significantly negatively associated with adolescent reports of anxious/depressed symptoms and aggressive behaviors and was positively associated with caregiver reports of primary control coping. This shows that when affectively positive parental communication was present, adolescents tended to have lower levels of anxious/depressed symptoms and aggressive behaviors and exhibit higher levels of primary control coping. This could be because adolescents learn many of their coping/emotion regulation skills through their parents; therefore, those parents who use affectively positive communication have children who are better able to cope with stress, and thus, have lower levels of psychological symptoms. This has been suggested in past research (Anderson et al., 2021;

Thompson & Meyer, 2007; Watson et al., 2014, 2021), but further investigation into this population of adolescents would need to be conducted to investigate the directionality of these associations. It is also possible that children with lower levels of psychological symptoms are easier to parent, therefore parents can use more positive parenting with them because they are not dealing with as many problems or difficult behaviors.

Though this was not hypothesized, it is worth noting that significant negative associations were found between adolescent and caregiver reports of ACE exposure and affectively positive parenting. This is an important finding, as it suggests that children with higher levels of ACE exposure receive lower levels of affectively positive parenting. Due to the bidirectionality of the relationship between adolescents and their caregivers, this could be due to a variety of factors. A possible explanation is that adolescents with ACE exposure tend to display more negative behaviors, like anxious/depressed symptoms and aggression (Kessler et al., 2007; Merikangas et al., 2010), which may lead caregivers to use less positive parenting strategies since these children are more difficult to parent. On the other hand, ACE exposure most often occurs at the hands of parents (Centers for Disease Control and Prevention, 2021), and since this sample was predominantly biologically related adolescents and caregivers, parents with a history of child maltreatment may be included in the sample. These parents may use less positive parenting styles for a variety of reasons, which warrants further investigation. Overall, affectively positive parental communication was an important variable for this population of adolescents, but further research should be conducted to investigate the directionality of the associations found.

Less support was found for my fifth hypothesis. Hostile/intrusive parental communication was only significantly positively correlated with adolescent reports of aggressive behaviors, meaning that more hostile/intrusive parenting was associated with more aggressive

behaviors in adolescents. Like the impact of affectively positive parental communication, this could be interpreted in different ways. Hostile/intrusive parents could serve as models of hostile/intrusive behaviors and lead their children to exhibit aggressive behaviors, which could explain this positive association. Conversely, aggressive behaviors on the part of the child may lead parents to use hostile/intrusive communication to try to control their behaviors. Further investigation into the directionality of this relationship should be conducted, especially as it relates to interventions for this population. Adolescents with ACE exposure may display more difficult behaviors, but if parents were taught how to respond to these behaviors in a positive way, they may be able to learn more adaptive behaviors and coping styles.

Linear regression analyses and indirect effect analyses were conducted to better understand the pathways through which ACE exposure, coping, and psychological symptoms are related and to investigate my sixth hypothesis. My first linear regression analysis found that child gender and both primary control coping and secondary control coping accounted for a statistically significant portion of the variance in the development of anxious/depressed symptoms, even when child age, ethnic group/race, ACE exposure, and affectively positive parental communication were considered. Affectively positive parental communication approached significance as a predictor of anxious/depressed symptoms. This suggests that the relationship between ACE exposure and anxious/depressed symptoms may be better accounted for by coping, which led me to conduct an indirect effect analysis. Statistically significant indirect pathways were found for the associations between ACE exposure and anxious/depressed symptoms through both primary control and secondary control coping. This shows that coping is an important protective factor in the relationship between ACE exposure and anxious/depressed symptoms. Furthermore, while ACE exposure may be associated with lower amounts of coping,

the use of effective coping strategies decreases the levels of anxious/depressed symptoms displayed, despite high levels of ACE exposure. This has important implications for future interventions to improve outcomes for this population of adolescents. If primary and secondary control coping strategies can be taught to adolescents with histories of early adversity, they may reduce their risk of developing anxious/depressed symptoms (Compas et al., 2010; Watson et al., 2014, 2020).

My second linear regression analyses found that adolescent ACE exposure and secondary control coping were statistically significant predictors of aggressive behaviors and primary control coping and affectively positive parental communication approached significance when child gender, age, and ethnic group/race were accounted for. This suggested that several factors may be at play in the relationship ACE exposure, coping, and aggressive behaviors, and I wanted to better understand how these factors were interconnected. Indirect effect models investigating the indirect effects of primary and secondary control coping on the relationship between ACE exposure and aggressive behaviors found statistically significant effects for both the direct and indirect pathways of the model, and for the indirect effects of both primary control coping and secondary control coping on the relationship between ACE exposure and aggressive behaviors overall. These findings show that while the relationship between ACE exposure and aggressive behaviors is significant, the effect of coping on this relationship is also significant. This suggests that the use of effective coping strategies may be able to mitigate the effects of ACE exposure on the development of aggressive behaviors, which aligns with existing research on the impact of coping on psychological symptoms (Compas et al., 2017).

My final analyses investigated affectively positive parental communication as a potential moderator of the a-path between ACE exposure and coping in the indirect effect models created

to test hypothesis 6. I hypothesized that affectively positive parental communication might moderate this relationship because previous research has highlighted parents as models of effective coping skills and emphasized the importance of positive parenting in the development of coping. None of the moderated mediation analyses conducted were statistically significant, which shows that affectively positive parental communication did not explain the relationship between ACE exposure and coping in the indirect effect model. It is important to note that the confidence interval on the overall index of moderated mediation was relatively narrow and close to zero, which suggests that while the effect was very small it may have been approaching statistical significance. This emphasizes the importance of continuing to investigate parental communication in the relationships between ACE exposure, coping, and psychological symptoms, especially using longitudinal data and larger sample sizes.

Strengths and Limitations

The present study contributes to the growing body of research on the impact of early adversity on adolescents and has several strengths. First, all measures of ACE exposure, coping, and psychological symptoms were obtained using both adolescent self-report measures and caregiver reports on adolescents. This ensured that the responses gathered were representative of the adolescents' true levels of ACE exposure, coping, and psychological symptoms and were not impacted by single-informant bias or social desirability bias. Further, the data gathered on ACE exposure, coping, and psychological symptoms were all obtained using highly reliable and valid questionnaire measures (the Childhood Trauma Questionnaire, Bernstein et al., 1997; Response to Stress Questionnaire, Connor-Smith et al., 2000; and the Youth Self Report and Child Behavior Checklist; Achenbach & Rescorla, 2001). The use of established measures of each of these variables ensures that they were accurately captured and that the design of this study could

be easily replicated by other scientists hoping to further investigate my or similar hypotheses. The use of composite codes of caregiver communication based on observed behaviors coded using the Iowa Family Interactions Rating Scale, an established behavioral coding scheme, further ensured that my variables of affectively positive and hostile/intrusive caregiver communication were valid (IFIRS; Melby et al., 1998). Finally, the investigation of the role of parenting in the population of adolescents with ACE exposure is relatively novel and is an important pathway to investigate and understand to be able to eventually design interventions for adolescents with ACEs involving their caregivers. The family is an important context of development across the lifespan, especially in adolescence, so an intervention involving the adolescent and their caregiver could be particularly beneficial and has shown to be effective in other populations of adolescents and caregivers (Compas, et al., 2010; Drotar, 1997; Haverfield & Theiss, 2019; Thompson & Meyer, 2007).

Although this study has many strengths, there are some limitations that should be addressed in future research to continue to investigate the pathways between ACE exposure, coping, parental communication, and psychological symptoms. First, the present study sample included predominantly white participants (70 participants; 72.2% of sample). This lack of diversity in the study sample reduces the generalizability of my findings, especially in the population of adolescents with ACEs, as individuals with marginalized identities tend to experience ACEs at higher rates (Centers for Disease Control and Prevention, 2021). Future studies should aim to recruit a more diverse sample that is representative of the general population and the population at risk of ACE exposure. Secondly, though the study intended to measure coping, psychological symptoms, and parental communication in a population of adolescents with varying levels of ACE exposure, the participants that were recruited had

relatively low levels of ACEs. Future studies should aim to recruit adolescents with higher levels of ACE exposure to ensure that the findings of this study remain true for adolescents with more severe early maltreatment histories. Additionally, the present study was cross sectional, so it focused on reports of ACE exposure, coping, and psychological symptoms and measured caregiver communication all at one point in time. A longitudinal design could better capture participants' histories of ACE exposure if they were followed from early childhood and would also provide more robust measures of psychological symptoms over time that would allow us to better understand the pathways and course of development of psychological symptoms. This would also provide greater understanding to how coping and parental communication evolves over time and could provide greater insight into the directionality of these relationships. Finally, due to the present study's moderate sample size of 97 adolescent/caregiver dyads, I did not have enough statistical power to detect small effects. Conducting this study with more participants would enable me to detect small yet relevant effects that may be important for fully understanding the relationship between key study variables. Future research should aim to recruit participants with higher levels of ACE exposure, follow them over time rather than examining them cross-sectionally, and include a larger number of participants.

Future Directions

The relationships between early adversity, coping, parental communication, and psychological symptoms are an important area of research due to the myriad of risk factors experienced by adolescents with histories of early adversity (Felitti et al., 1998; Henry et al., 2021; McLaughlin et al., 2012). This paper revealed the importance of primary and secondary control coping in the prevention of psychological symptoms in adolescents with histories of ACE exposure, as well as highlighted affectively positive parental communication as an additional

protective factor. These findings provide a preliminary understanding of some of the pathways through which the development of psychopathology could be prevented in adolescents with ACE exposure. Future research should continue to investigate the pathways of primary control coping, secondary control coping, and affectively positive parental communication in the prevention of psychopathology in this population and how they might be interrelated both directly and indirectly. Directionality should also be considered in future research, as it is important to understand how parents and children impact each other to truly understand how parenting might impact the development of coping, and thus prevent psychopathology.

One way to continue to investigate how parents and adolescents impact each other's behaviors could be through deeper analysis of adolescent-caregiver interaction tasks coded using the Iowa Family Interactions Rating Scale (IFIRS). There are a total of 14 child codes and 24 parent codes in the IFIRS coding scheme, and this study focused on a small number of codes that accounted for affectively positive and hostile/intrusive parental communication. Future studies could investigate more of the parent codes, such as those focused on emotions rather than communication, to encapsulate other aspects of parenting. Adolescent codes will also be important to analyze in future research, as the child-caregiver relationship is bidirectional. For instance, children who are hostile towards their parents are likely to be met with more hostility, so it is important to understand how adolescents' communication styles and emotions might be impacting their caregivers' responses. This will be especially important to understand in the development of interventions for this population of adolescents, as this study highlights that they are more likely to display both anxious/depressed symptoms and aggressive behaviors which may make them difficult to parent or unreceptive to parenting.

Finally, as more data are collected to strengthen our understanding of the role of coping and parenting in the prevention of psychopathology in adolescents with ACEs, evidence-based intervention programs should be designed and tested focusing on adolescents and their caregivers. These interventions should be examined using randomized controlled trials where adolescents with varying levels of ACE exposure are recruited and randomly assigned to receive either the intervention program or to serve as the control group. Though there is significant research that needs to be done prior to the development of an intervention program for this population, it is an essential future direction to consider, as the goal of conducting psychological research is to use it to inform programs that directly benefit those at risk of developing psychopathology. Numerous studies have pointed to the heightened risk of adverse outcomes this population of adolescents' experiences, therefore the need to design an intervention targeted at the prevention of adverse outcomes in this population is essential. Future research in this area should consider the feasibility and utility of an intervention program for adolescents with early maltreatment histories and focus on the factors that could lead to the greatest reductions in their risk of developing psychopathology.

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Table 1.
Descriptive Statistics

	<i>n</i>	<i>M</i>	<i>SD</i>
ACE Exposure (Adolescent Report)	97	8.95	4.48
ACE Exposure (Caregiver Report)	97	9.21	5.04
Anxious/Depressed Symptoms (Adolescent Report; T Score)	97	57	7.96
Anxious/Depressed Symptoms (Caregiver Report; T Score)	97	58.93	9.73
Aggressive Behaviors (Adolescent Report)	97	55.61	6.69
Aggressive Behaviors (Caregiver Report)	97	56.40	8.43
Ratio Primary Control Coping (Adolescent Report)	96	.18	.04
Ratio Primary Control Coping (Caregiver Report)	97	.19	.05
Ratio Secondary Control Coping (Adolescent Report)	96	.25	.05
Ratio Secondary Control Coping (Caregiver Report)	97	.24	.06
Affectively Positive Caregiver Communication	95	30.25	6.31
Hostile/Intrusive Caregiver Communication	94	9.67	3.56

Table 2.
Bivariate Correlation Matrix

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. ACE Exposure (Adolescent Report)	—											
2. ACE Exposure (Caregiver Report)	.67**	—										
3. Anxious/Depressed Symptoms (Adolescent Report)	.27**	.18	—									
4. Anxious/Depressed Symptoms (Caregiver Report)	.28**	.26**	.59**	—								
5. Aggressive Behaviors (Adolescent Report)	.35**	.32**	.38**	.22*	—							
6. Aggressive Behaviors (Caregiver Report)	.42**	.46**	.21*	.37**	.59**	—						
7. Ratio Primary Control Coping (Adolescent Report)	-.24*	-.23*	-.37**	-.25*	-.30**	-.21*	—					
8. Ratio Primary Control Coping (Caregiver Report)	-.29**	-.37**	-.30**	-.45**	.42**	-.52**	.50**	—				
9. Ratio Secondary Control Coping (Adolescent Report)	-.36**	-.25*	-.49**	-.47**	-.29**	-.25*	.23*	.29**	—			
10. Ratio Secondary Control Coping (Caregiver Report)	-.32**	-.31**	-.29**	-.58**	-.34**	-.51**	.11	.48**	.39**	—		
11. Affectively Positive Caregiver Communication	-.28**	-.26*	-.22*	-.07	-.28**	-.10	.184	.25*	.08	.06	—	
12. Hostile/Intrusive Caregiver Communication	-.04	.01	.02	-.17	.24*	.07	-.07	-.18	.08	.07	-.59**	—

Table 3.
Regression Analyses Predicting Adolescent Anxious/Depressed Symptoms (Adolescent Reports)

	β	<i>t</i>	<i>Sig (p)</i>
Step 1.			
Child Age	.09	.90	.37
Child Gender	.35	3.40	<.01
Child Ethnic Group/Race	.15	1.44	.15
Step 2.			
Child Age	.08	.84	.40
Child Gender	.34	3.48	<.01
Child Ethnic Group/Race	.14	1.39	.17
ACE Exposure (Adolescent Report)	.26	2.69	<.01
Step 3.			
Child Age	.06	.74	.46
Child Gender	.29	3.30	<.01
Child Ethnic Group/Race	.05	.52	.61
ACE Exposure (Adolescent Report)	.07	.75	.46
Ratio Primary Control Coping (Adolescent Report)	-.25	-2.84	<.01
Ratio Secondary Control Coping (Adolescent Report)	-.39	-4.21	<.01
Step 4.			
Child Age	.05	.64	.53
Child Gender	.31	3.50	<.01
Child Ethnic Group/Race	.07	.73	.47
ACE Exposure (Adolescent Report)	.03	.34	.74
Ratio Primary Control Coping (Adolescent Report)	-.23	-2.66	<.01
Ratio Secondary Control Coping (Adolescent Report)	-.39	-4.31	<.01
Affectively Positive Parental Communication	-.16	-1.79	.08

Dependent Variable = Adolescent Anxious/Depressed Symptoms

Table 4.
Regression Analyses Predicting Adolescent Aggressive Behavior (Adolescent Reports)

	β	<i>t</i>	<i>Sig (p)</i>
Step 1.			
Child Age	-.10	-.91	.36
Child Gender	.09	.78	.44
Child Ethnic Group/Race	-.03	-.28	.78
Step 2.			
Child Age	-.11	-1.11	.27
Child Gender	.08	.79	.43
Child Ethnic Group/Race	-.05	-.45	.66
ACE Exposure (Adolescent Report)	.37	3.85	<.01
Step 3.			
Child Age	-.12	-1.29	.20
Child Gender	.05	.48	.63
Child Ethnic Group/Race	-.10	-.97	.34
ACE Exposure (Adolescent Report)	.26	2.57	.01
Ratio Primary Control Coping (Adolescent Report)	-.21	-2.12	.04
Ratio Secondary Control Coping (Adolescent Report)	-.19	-1.85	.07
Step 4.			
Child Age	-.13	-1.38	.17
Child Gender	.06	.65	.52
Child Ethnic Group/Race	-.08	-.82	.42
ACE Exposure (Adolescent Report)	.21	2.03	.05
Ratio Primary Control Coping (Adolescent Report)	-.18	-1.89	.06
Ratio Secondary Control Coping (Adolescent Report)	-.20	-1.96	.05
Affectively Positive Parental Communication	-.19	-1.90	.06

Dependent Variable = Adolescent Aggressive Behavior

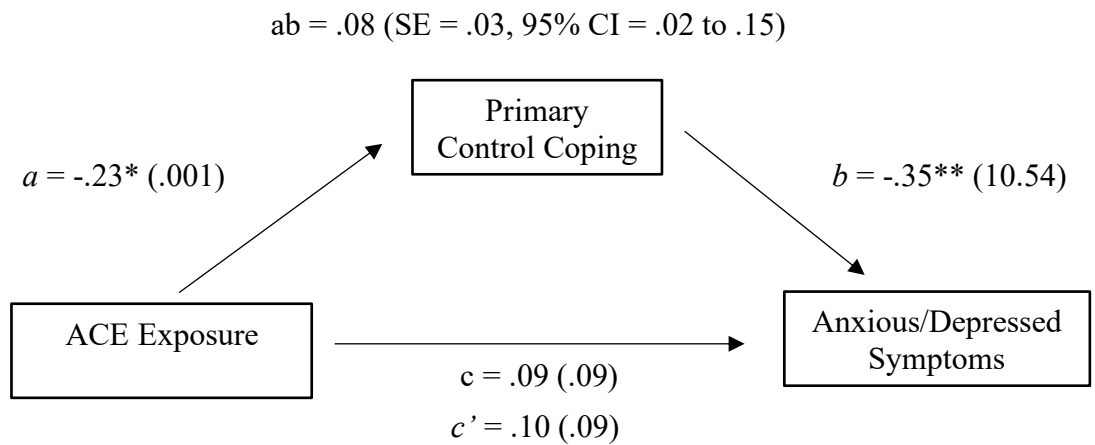


Figure 1. Direct and indirect associations of ACE exposure and anxious/depressed symptoms through primary control coping without covariates. Standardized path coefficients, with standard errors in parentheses, are given. * $p < .05$. ** $p < .01$

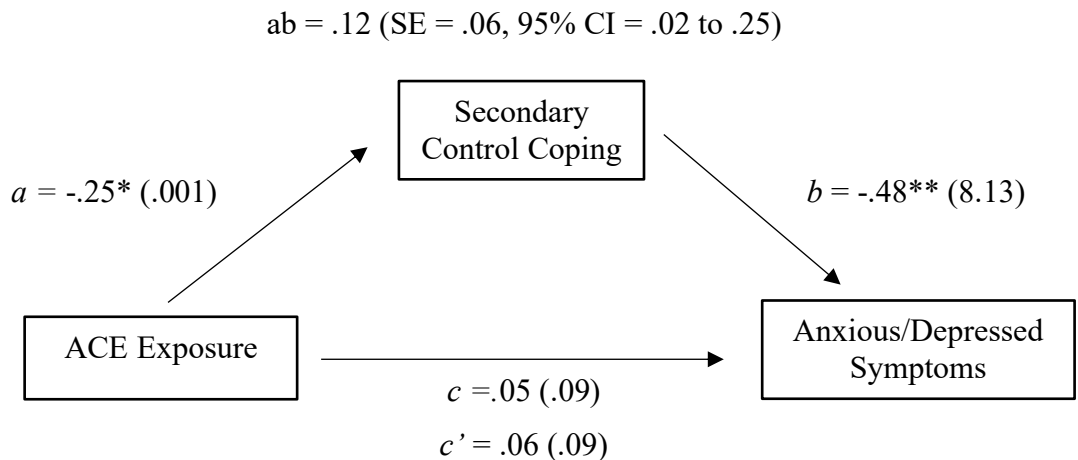


Figure 2. Direct and indirect associations of ACE exposure and anxious/depressed symptoms through secondary control coping without covariates. Standardized path coefficients, with standard errors in parentheses, are given. * $p < .05$. ** $p < .01$

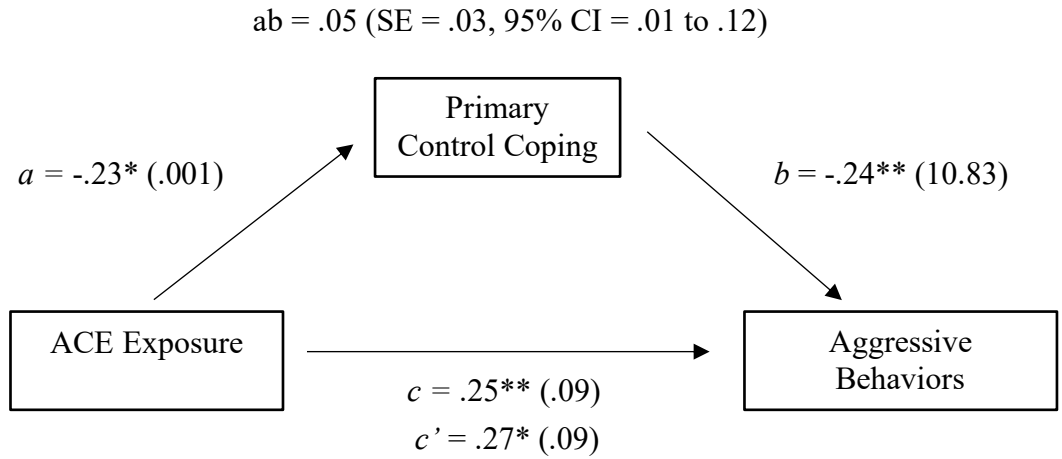


Figure 3. Direct and indirect associations of ACE exposure and aggressive behaviors through primary control coping without covariates. Standardized path coefficients, with standard errors in parentheses, are given. * $p < .05$. ** $p < .01$

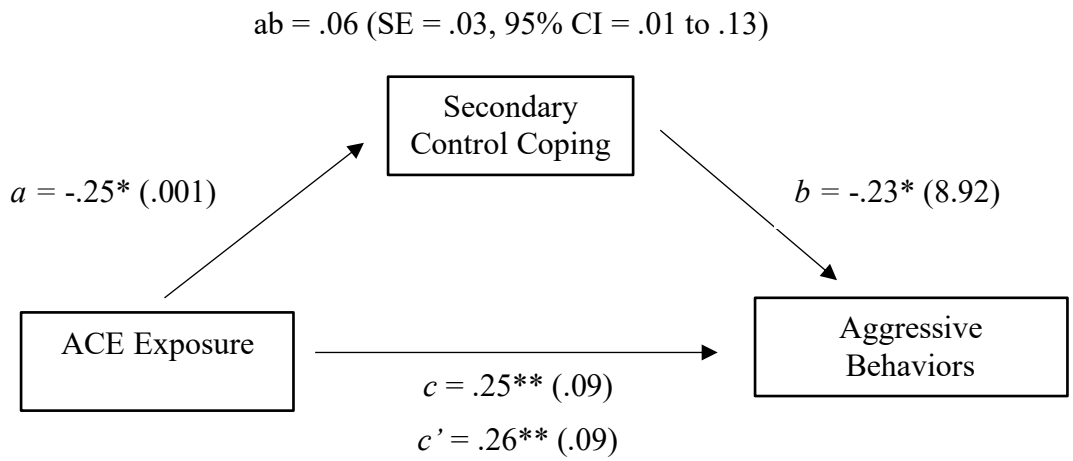


Figure 4. Direct and indirect associations of ACE exposure and aggressive behaviors through secondary control coping without covariates. Standardized path coefficients, with standard errors in parentheses, are given. * $p < .05$. ** $p < .01$

Index of moderated mediation = .006 (95% CI = -.003 to .02)

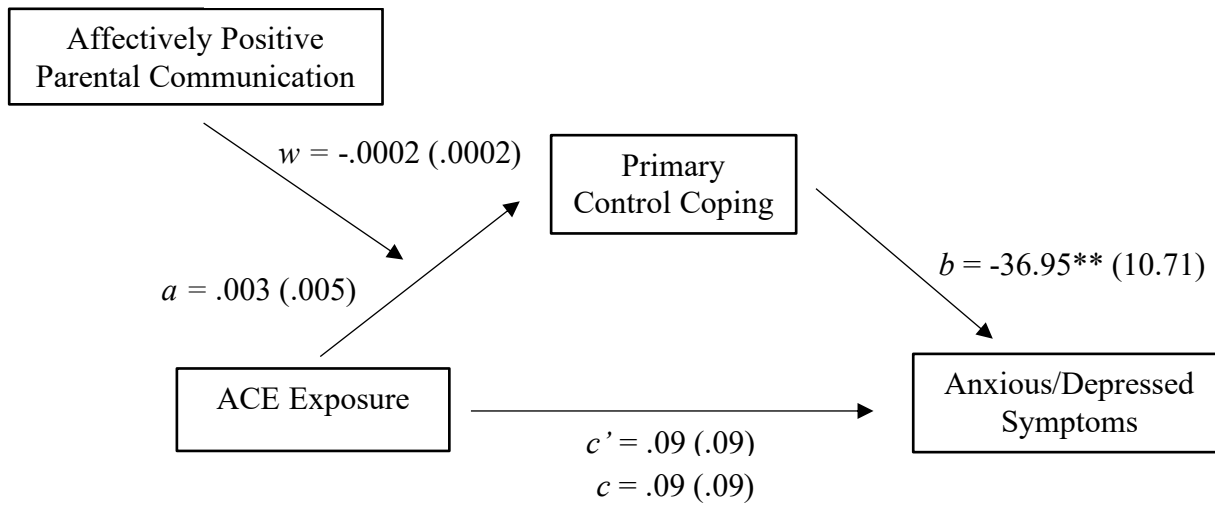


Figure 5. Direct and indirect associations of ACE exposure and anxious/depressed symptoms through secondary control coping without covariates. Affectively positive parental communication as a potential moderator of the association between ACE exposure and primary control coping. Unstandardized path coefficients, with standard errors in parentheses, are given. * $p < .05$. ** $p < .01$