# THE ROLE OF INDIVIDUAL AND CONTEXTUAL FACTORS IN POSITIVE DEVELOPMENT FOR YOUTH WITH EXTERNALIZING BEHAVIORS

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Doctor of Philosophy

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By

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## The Three-Manuscript Dissertation: Overview

This dissertation presents a series of three studies focused on exploring individual and contextual factors that may contribute to adaptive and maladaptive development in youth with elevated levels of externalizing behaviors. This dissertation follows the School of Education and Human Development Guidelines for Manuscript Style Dissertations, such that the doctoral candidate is the principal author on the three research manuscripts and includes an introduction (linking statement) that links the three manuscripts conceptually and theoretically. I am the lead author on the three manuscripts that are presented here. Below is a description and conceptual linking statement of the three manuscripts.

(1) A linking statement that provides a conceptual and theoretical framework for the three manuscripts included in the dissertation.

(2) A cross-sectional study examining the moderating role of sex-specific coping on the development of internalizing and externalizing symptoms in urban youth exposed to various levels of violence and racial discrimination entitled, “Urban Adolescents’ Exposure to Violence and Racial Discrimination: Sex Differences in Coping and Mental Health” (Hernandez et al., 2024, published in *Journal of Child and Family Studies*).

(3) A cross-sectional study investigating the moderating role of family factors on the development of internalizing and academic outcomes in urban youth exposed to violence, racial discrimination, and bullying victimization entitled, “Urban Black Adolescents’ Victimization Experiences: The Moderating Role of Family Factors on Internalizing and Academic Outcomes” (Hernandez et al., invited to revise and resubmit to *Journal of Community Psychology*).

(4) A longitudinal study using latent growth curve modeling and cross-lagged panel analysis to explore the development of social information processing and its association to externalizing behaviors across early adolescence entitled, “Social-Information Processing across Early Adolescence in Youth with Externalizing Problems: Longitudinal and Reciprocal Links by Sex” (Hernandez et al., in preparation for submission).

## Linking Statement

Youth with behavior difficulties are at particular risk of comorbid internalizing symptoms (McElroy et al., 2018; Pesenti-Gritti et al., 2008) and poor academic functioning (Kremer et al., 2016). Individual and social environments can maintain and perpetuate externalizing behaviors in youth and influence their internalizing and academic difficulties. For example, the procedure in which youth process social information (Crick & Dodge, 1994) can determine whether youth engage in aggressive behavior. Adverse experiences, including exposure to violence (Fleckman et al., 2016; Gaylord-Harden et al., 2011; McGill et al., 2014), racial discrimination (Bottiani et al., 2020; Loyd et al., 2019), and bullying (Fergusson et al., 2014; Stefanek et al., 2017), can also perpetuate youths' externalizing behaviors and result in internalizing and academic difficulties. Therefore, an ecological perspective is needed to comprehensively understand the maintenance and perpetuation of externalizing behaviors. An overarching goal of this study was to examine the extent to which individual (e.g., coping skills) and ecological systems (e.g., family factors) interact to promote positive development in youth with behavior problems (White & Renk, 2012). Additionally, we aimed to investigate the longitudinal changes of risk factors, including youths' maladaptive social-information processing (SIP), to inform our understanding of the risk and protective social-cognitive processes of youth with externalizing problems (Goldweber et al., 2011), which in turn may minimize the likelihood of additional psychological and academic difficulties.

With these goals in mind, it is helpful to consider the broader developmental context of this work. Specifically, youth development is theorized to occur through frequent and extensive complex reciprocal interactions between an individual and their environment (Bronfenbrenner, 1995). Bronfenbrenner's Process-Person-Context-Time (PPCT) model proposes four interacting

components that contribute to youth development, including: the bidirectional interactions between the developing youth and their immediate environment (Process); the active role that youth and their characteristics play in their environment (Person); the microsystem, mesosystem, exosystem, and macrosystem (Context); the events occurring during a specific day, the frequency of activities that occur within a youths' environment over time, and the changing expectations at different ecological levels (Time).

This model can be utilized to examine the role of social environments in the reinforcement and maintenance of externalizing behaviors, which can lead to significant ramifications in the United States, including violence and crime. For example, socially disorganized neighborhoods can maintain aggression and violence through residential instability, poverty, ethnic-racial heterogeneity of community members, and family disruptions (Park & Burgess, 2019). Youth living in socially disorganized communities (context) may experience less parental supervision and monitoring because their caregivers need to work and may be more likely to police each other through aggression (process), and in turn, develop specific social-cognitive processes and behaviors (person) that may be adaptive to their specific environments (time). However, the bidirectional influences of youths' externalizing behaviors within their ecological systems must also be considered to better understand the development of behavior difficulties. Evidence suggests that youth with externalizing problems are more likely to engage in risky behaviors, which can increase their exposure to adverse environments where they must use aggression as a form of protection (Anderson, 2019). According to the Phenomenological Variant of Ecological Systems Theory (PVEST), aggression may be a coping response to youths' environment and a behavior that youth deem as most adaptive within their context, which may be reinforced by individual and environmental risk factors and stereotypes imposed by society. To

understand how externalizing difficulties are developed and maintained, the unique experiences of youth with elevated behavior problems must be investigated, as well as the extent that individual and environmental factors play a role in perpetuating negative outcomes within the PPCT framework.

This three-paper manuscript contributes to the literature as it explores the extent that individual and contextual processes interact within a PPCT framework that may potentially stifle or promote positive development in youth with elevated behavior problems. The dissertation builds on itself, such that each paper places an emphasis on an additional component of the PPCT framework (i.e., *person, context, time*) as they relate to the *process* of individual and environmental factors in youth with elevated externalizing symptoms. For example, the first paper examined sex differences (*person*) in coping as it related to the potential development of emotional and behavioral difficulties in youth exposed to different levels of violence and racial discrimination (*process*) in a sample of youth with behavior problems. The second paper explored the interaction between familial factors (*context*) and victimization experiences (*process*) in relation to internalizing and academic outcomes. Finally, the third paper examined the sex differences (*person*) in SIP trajectories and longitudinal associations between SIP and externalizing difficulties (*time, process*) during early adolescence. Understanding how this framework applies to youth with conduct problems can provide insight on how individual and contextual factors associate with adverse experiences and inform prevention and intervention efforts to promote positive development in youth. In the sections below, we briefly review each of the papers included in the three-paper dissertation.

**Paper 1: Urban Adolescents' Exposure to Violence and Racial Discrimination: Sex Differences in Coping and Mental Health**

Paper 1 sought to explore sex differences in coping strategies that were both adaptive and maladaptive in adverse environments in a sample of urban and predominately Black male and female ninth graders. Therefore, we conducted multigroup analysis using cross-sectional data to examine sex as a possible effect modifier in the association between coping (i.e., self-reliance and ventilating feelings) and emotional and externalizing outcomes for youth with varying levels of exposure to violence and racial discrimination. There were no significant interactions for females, but there were several for males. Results indicate that ventilating feelings may be a potential risk factor for externalizing problems for males exposed to little to no community violence. Additionally, ventilating feelings may be a potential risk factor for emotional and externalizing symptoms for males with infrequent to frequent racial discrimination, whereas self-reliance may be a protective factor against racial discrimination and externalizing symptoms for males. Interventions should consider sex-specific coping responses to exposure to violence and racial discrimination for youth with elevated behavior problems. These findings can contribute to the literature, as they may provide insight on the adaptive and maladaptive role of individual factors, such as coping, for urban males and females at risk of exposure to violence and racial discrimination.

**Paper 2: Urban Black Adolescents' Victimization Experiences: The Moderating Role of Family Factors on Internalizing and Academic Outcomes**

Paper 2 aimed to investigate the moderating role of supportive family factors (i.e., family academic involvement, racial socialization, and relations with parents) on the association between victimization experiences (i.e., exposure to seen violence, told violence, racial discrimination, and bullying) and internalizing and academic outcomes in urban Black ninth graders with elevated behavior problems. Using cross-sectional data, several two-way

interactions were estimated to explore the extent that family factors and victimization experiences interacted and associated with anxiety, depression, academic engagement, and negative school attitudes. Results suggest that told violence exposure may potentially result in lower student- and teacher-reported depressive symptoms for youth with strong and weak parent relationships. Moreover, racial discrimination may be a potential risk factor for student-reported anxiety and depression, particularly for youth with high family academic involvement and strong parent relationships, and potentially increase youths' teacher-reported anxiety when family academic involvement is low. Instead, culturally relevant processes, such as racial socialization, may potentially offset or buffer the negative influence of racial discrimination on student-reported anxiety. Finally, bullying may be a potential risk factor for negative school attitudes and lower academic engagement, especially for youth with strong parent relationships. Findings may provide insight on the family factors that may be particularly helpful for youth with elevated behavior difficulties, within the context of victimization.

**Paper 3: Social-Information Processing across Early Adolescence in Youth with Externalizing Behaviors: Longitudinal and Reciprocal Links by Sex**

Paper 3 explored two aims that focused on: 1) SIP trajectories (i.e., hostile attribution bias, outcome expectations, behavioral dysregulation, and affective dysregulation) by females and males across early adolescence; and 2) longitudinal associations between SIP and externalizing behaviors (aggression and conduct problems) across early adolescence. This paper focused on a sample of youth with aggressive behaviors between the ages of 11-14 using integrated data from eight randomized controlled trials of the Coping Power intervention. For the first aim, latent growth curve analysis was used to explore SIP trajectories. The second aim examined longitudinal associations between SIP mechanisms and externalizing behaviors

(aggression and conduct problems) in females and males from ages 11-14 using cross-lagged panel analysis. This study may help identify the factors associated with risk and protective outcomes of youth with behavior problems to inform prevention and intervention efforts.

**Implications**

Considering the potential repercussions resulting from externalizing behaviors (e.g., crime, violence) and the role of individual and environmental factors in perpetuating and maintaining them, it is essential to understand how youth with conduct difficulties navigate their world and the complex factors that may result in adaptive or maladaptive outcomes. This three-paper dissertation seeks to provide additional insight on the individual and contextual processes, as represented in Bronfenbrenner's PPCT framework, that may influence development in youth with elevated behavior difficulties. Findings suggest that youth with externalizing difficulties exposed to victimization may utilize individual skills, such as particular coping strategies, to navigate adverse environments and may benefit from specific contextual influences (e.g., parenting factors) that should be considered within their ecological systems. It is also necessary to understand the SIP changes that occur within a youth over time to acquire a more comprehensive narrative of the development of psychological difficulties in youth with elevated externalizing symptoms.

Together, these three studies have the potential to identify key prevention and intervention targets that can mitigate maladaptive functioning and promote positive development in youth. Child-and adolescent-focused interventions that target behavior problems should be tailored to account for the unique ways in which individual (e.g., SIP mechanisms, coping strategies) and contextual (e.g., victimization experiences, family factors) characteristics contribute to positive youth development in youth with aggressive behavior. Finally, mental

health and school-based supports should strive to take a strength-based approach when serving youth with externalizing behaviors by reframing their maladaptive behavior as being functional within their ecological systems and identifying intervention targets at multiple ecological levels.

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## Author Positionality

I am a first-generation Spanish-speaking Mexican heterosexual cisgender woman. I currently have a master's degree in educational psychology and am working on my doctoral degree in clinical psychology. Growing up in an area with fewer resources exposed me to the multiple oppressive systems that limit educational and social upward mobility opportunities for Black and Brown communities, increase crime and violence, and in turn, intergenerational trauma, and emotional and behavioral difficulties in children and adolescents. Thus, my research is focused on the prevention and intervention of emotional and behavioral difficulties in BIPOC and underserved youth through the promotion of community-based and culturally-informed interventions aimed at increasing social-emotional and academic development. However, my positionality can also limit my research endeavors. To start, my lived experiences are not generalizable to all who come from disadvantaged communities, and my worldview and values may sometimes cause me to make automatic assumptions about the needs of marginalized communities. I value evidence-based research and practices, yet the standards of "evidence" and the development of evidence-based tools and practices are often determined by individuals with privilege (e.g., academic community) and typically exclude members from marginalized. communities. These top-down practices can influence how I interpret my findings and the implications that I make, which is a limitation of mine. Despite this, my shared characteristics (e.g., non-white, multiple marginalized identities, raised in an at-risk community, developing resilience) with my targeted populations make me committed to taking a strength-based approach by identifying and underscoring the protective factors of these individuals and promoting research practices that are inclusive, minimize power and privilege, and accurately capture and represent the communities that I aim to serve.

# Urban Adolescents' Exposure to Violence and Racial Discrimination: Sex Differences in Coping and Mental Health

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**Abstract**

Exposure to violence and racial discrimination are linked with behavioral and emotional health concerns among youth. However, it is unclear which coping strategies are most adaptive versus maladaptive for youth in urban areas. This study explored the extent to which self-reliance and ventilating feelings coping may buffer against the potential negative influence of exposure to violence and racial discrimination on behavioral and emotional health difficulties. Data are from 398 ninth graders (51% male; 92% Black). Multigroup analyses for males and females were conducted to explore the associations between racial discrimination and exposure to violence and emotional and externalizing symptoms, with coping strategies as potential moderators. Results suggest for females, ventilating feelings and exposure to violence were associated with increased emotional and behavioral symptoms; for males, there was a series of statistically significant interactions suggesting that coping strategies and community stressors operate in concert, with self-reliance coping indicated as a protective factor.

*Keywords*: community stressors, urban youth, cross-sectional design, sex differences, emotional and behavioral symptoms

## Urban Adolescents' Exposure to Violence and Racial Discrimination: Sex Differences in Coping and Mental Health

Urban adolescents are disproportionately exposed to environmental stressors, such as disadvantaged and unsafe neighborhoods (Caldwell et al., 2016). High rates of exposure to these factors have been linked with emotional problems (Busby et al., 2013; Loyd et al., 2019), as well as aggressive behaviors (Riina et al., 2013), particularly among Black youth who are also at risk of experiencing racism and discrimination (Loyd et al., 2019). Coping strategies may protect minority youth against the negative effects of living in adverse urban neighborhoods (Brady et al., 2008); however, certain coping strategies are likely to be more advantageous than others. As such, several studies have examined urban Black youths' coping strategies within the context of exposure to violence (McGee et al., 2019) and racial discrimination (Seaton et al., 2014), generally resulting in mixed findings regarding the adaptability of problem-focused coping versus emotion-focused coping.

Although the correlates and consequences of exposure to violence (Chen, 2010; Gaylord-Harden et al., 2011) and discrimination (Kwate & Goodman, 2015; Martin et al., 2011) for psychological adjustment in Black youth are well documented, less is known about how youth's differential coping strategies may buffer against the effects of exposure to violence and discrimination in the community. The current study aimed to address these and other gaps in the extant literature by exploring how coping strategies interact with exposure to violence and discrimination to predict youth's emotional and behavioral health difficulties, among a sample of urban and predominately Black male and female ninth graders. We were also particularly interested in sex as a possible effect modifier, given consistent sex differences noted in the literature (DiClemente & Richards, 2019; Sanchez et al., 2013). Exploring this interaction may

elucidate coping strategies that are both adaptive and maladaptive in adverse environments and inform prevention and intervention efforts to mitigate the impact of stress on youth who live in urban communities with high rates of violence and discrimination.

## Stressors for Youth in Urban Communities

### *Exposure to Violence*

Urban youth have a high risk of exposure to the most extreme forms of violence, including homicide, fights with injuries, and aggravated assaults (Sheats et al., 2018). In particular, Black adolescents from urban areas are disproportionately exposed to high rates of violence, and exposure is greater for those living in disadvantaged neighborhoods (Browning et al., 2017). Exposure to violence occurs through various modalities, including direct victimization, observations, being told about violent events, and media (Cooley et al., 1995), as well as in multiple contexts (e.g., home, school, and community; Mrug & Windle, 2010). Although multiple forms of exposure to violence have been linked with emotional and behavioral health challenges (Busby et al., 2013; Chen et al., 2016; Mrug & Windle, 2010), witnessing violence is one of the modalities that has the strongest influence on psychological functioning (Fowler et al., 2009); it has also been linked with internalizing and externalizing outcomes among Black youth (Busby et al., 2013; Fitzpatrick & Boldiza, 1993; Mrug & Windle, 2010).

### *Racial Discrimination*

Research suggests that approximately three-fourths of Black Americans have experienced some form of discrimination (Lee et al., 2019), with many experiencing some form of discrimination during adolescence (Lanier et al., 2017; Sellers et al., 2006). For example, Lanier and colleagues (2017) reported that 90% of their sample, which was primarily comprised of

Black youth, experienced some level of discrimination, including racial microaggressions. Furthermore, other researchers have found that racial discrimination experiences commonly ranged from once a year (Seaton et al., 2008) to daily (Sellers et al., 2006) for youth. Moreover, exposure to ethnic-racial discrimination has been associated with increased internalizing and externalizing difficulties in Black youth (Loyd et al., 2019). Specifically, a greater frequency of discrimination has been associated with greater internalizing and externalizing problems (Lanier et al., 2017; Liu et al., 2017).

### *Coping, Exposure to Violence, and Racial Discrimination*

Coping was originally operationalized in the adult literature as cognitive and behavioral efforts used to manage specific internal (personal) and external (environmental) demands that are considered to be stressful or as exceeding the person's resources (Lazarus & Folkman, 1984). There are several theoretical frameworks of coping (e.g., Altshuler & Ruble, 1989; Dollahite, 1991; Ebata & Moos, 1991), yet a distinction frequently made in the coping literature is between problem-focused and emotion-focused coping (Lazarus & Folkman, 1984). Problem-focused coping involves dealing with a problem or situation to eliminate the source of the stress and emotion-focused coping strategies target the emotions associated with the stress rather than directly targeting the stressor (Lazarus & Folkman, 1984). One example of a problem-focused coping strategy is self-reliance (Dusek & Danko, 1994), which is described as autonomous coping efforts, such as dealing with a problem independently and having a positive outlook on the situation (Kobus & Reyes, 2000). Self-reliance involves a person attempting to address the core problem and ones' reaction to it (Dusek & Danko, 1994) by relying on themself. In contrast, emotion-focused coping strategies target the emotions associated with the stress rather than directly eliminating the stressor (Mullis & Chapman, 2000). An example of emotion-focused

coping is ventilating feelings (Dusek & Danko, 1994), which involves expressing negative feelings to others (Patterson & McCubbin, 1987).

Several coping-related studies have suggested that problem-focused coping strategies are adaptive (e.g., Compas et al., 2017), whereas emotion-focused coping strategies are maladaptive (Horwitz et al., 2011). More specifically, emotional and behavioral problems have been found to be negatively related to problem-focused coping, and positively associated with emotion-focused coping (Compas et al., 1988). However, the context in which youth utilize a coping strategy may be a better indicator of how adaptive it is (Kashdan & Rottenberg, 2010), as the same coping strategy can be both adaptive and maladaptive and depends on its functionality, timing, and the situation in which it is utilized (Lazarus & Folkman, 1984). Moreover, youth residing in adverse environments may utilize different coping skills than youth from other areas (Perzow et al., 2021). Considering that a high percentage of Black youth live in impoverished, stressful, and unsafe conditions (Caldwell et al., 2016), increased attention has been given to exploring which coping dispositions may be most "adaptive" for Black adolescents residing in urban communities.

Youth from inner-cities and who identify as Black, are more likely to live in violent neighborhoods (Browning et al., 2017) and experience racial discrimination (Clendinen & Kertes, 2022). As a result, urban Black youth may have to resort to specific coping strategies to deal with these environmental stressors that might otherwise be considered maladaptive in other environments and for youth who come from different backgrounds. For example, these youth may rely on problem-focused coping, which might involve confronting a community bully who causes them stress through physical or verbal attacks (Reid & Listwan, 2018), to successfully navigate their violent environment (Teitelman et al., 2010). Black youth from inner cities may

resort to utilizing less effective coping styles, such as emotion-focused coping (e.g., ventilating feelings), to cope with discrimination, which may place them at greater risk for developing internalizing problems (Dempsey, 2002; Seaton et al., 2014). Thus, there is a need to examine the adaptive (or maladaptive) function of coping strategies, such as ventilating feelings and self-reliance, in helping to prevent internalizing and externalizing symptoms for urban Black youth as findings on how the combination of these experiences impact urban Black youth are mixed and sparse (Edlynn et al., 2008; Sanchez et al., 2013).

### *Sex Differences in Coping with Environmental Stressors*

It is also important to explore the combined influence of race and sex when considering the potential harms associated with exposure to violence and discrimination exposure and the various coping strategies youth employ. Historically, Black males and females have each had a unique set of stressors stemming from sex-based racial discrimination and violence (Galán et al., 2022), underscoring the need to explore youth's intersectional social identities (Parent et al., 2013). Considering the sex-based environmental stressors the Black community had to endure, individuals may have developed sex-specific coping responses to stressors. Studies examining the differential coping responses of males and females within the context of exposure to violence (DiClemente & Richards, 2019) have found that Black youth who were exposed to more violence tended to use more emotion-focused coping, and males who utilized problem-focused coping had higher levels of future delinquency. They also found that females who used more emotion-focused coping and witnessed violence had lower future delinquency. This suggests that the utilization of problem-focused coping may be less adaptive for males, and the use of emotion-focused coping could be more adaptive for females who have witnessed violence. Although there is evidence supporting discrimination may lead to similar maladaptive coping

strategies (i.e., emotional eating, rumination) and mental health outcomes for Black women and men (Brownlow et al., 2019), there is more evidence suggesting there are sex-specific coping responses to racial discrimination (Jacob et al., 2013). Yet, more research is needed to elucidate the combined influence of youth's coping strategies and discrimination on psychological functioning. Additionally, research is lacking on the sex-specific coping responses among urban Black adolescents and who may be exposed to both violence and racial discrimination.

**The Current Study**

Urban youth face stressors that may lead them to engage in more aggression to navigate their environment (Cassidy & Stevenson, 2005; Salzinger et al., 2008) and this expression of externalizing behaviors may put them at risk for further exposure to environmental stressors (Boyd et al., 2003). For example, urban minority youth with elevated levels of aggression may be at an increased risk of violence exposure (Boyd et al., 2003), and youth with conduct problems may be more likely to encounter police in the community (Maughan et al., 2000), increasing their chances of experiencing racial discrimination by law enforcement (Brunson & Miller, 2006). Since coping can help buffer the negative effects of environmental stressors, it is especially important to explore how youth with pre-existing behavior problems cope with environmental stressors as studies show that aggressive individuals have more positive perceptions towards less effective strategies, such as ventilating feelings (Bushman et al., 2001). As such, additional research is needed to examine the interaction effects of these factors in urban Black youth with elevated levels of aggression. The current study sought to explore which coping strategies may be most adaptive versus. maladaptive in relation to emotional and externalizing problems among urban Black adolescents with elevated levels of aggression and at

different levels of exposure to discrimination or violent events in the community. We were also interested in how these associations may play out for urban Black males relative to females.

We analyzed data from youth who identified as 92% Black. Specifically, our first aim was to examine whether the utilization of self-reliance or ventilating feelings varied by sex in their association with emotional and externalizing symptoms. Evidence supports that female youth deal with stress through problem-focused coping (e.g., social support; Dusek & Danko, 1994) and male adolescents are more likely to use emotion-focused coping (e.g., ventilating feelings; Bird & Harris, 1990). Additionally, problem-focused coping has been associated with better emotional and behavioral outcomes, whereas emotion-focused coping has been associated with worse outcomes (Compas et al., 1988). Therefore, we hypothesized that males would use more ventilating feelings coping and have worse emotional and behavioral outcomes compared to females.

Our second aim explored the association between environmental stressors, such as exposure to violence in the community and frequency of discrimination, and emotional and externalizing symptoms among male and female adolescents. Studies suggest exposure to violence and racial discrimination results in emotional and behavioral consequences for both sexes (Busby et al., 2013; Loyd et al., 2019). However, there is some evidence that exposure to community violence is more strongly associated with emotional symptoms for Black females (Foster et al., 2004) and externalizing symptoms for Black males (Busby et al., 2013). Similarly, there is a stronger association between racial discrimination and internalizing symptoms for Black females (English et al., 2014; Loyd et al., 2019) and discrimination and externalizing symptoms for Black males (Brody et al., 2012). Therefore, we anticipated that exposure to

violence and discrimination would lead to higher emotional symptoms in females and elevated externalizing symptoms in males.

Finally, the third aim explored whether the interaction between coping strategies (i.e., self-reliance coping and ventilating feelings coping) and environmental stressors (i.e., exposure to violence and discrimination) varied by sex in their association with psychological problems (i.e., emotional and externalizing symptoms; DiClemente & Richards, 2019; Jacob et al., 2013). Specifically, emotion-focused coping has been found to mitigate the impact of exposure to violence on externalizing behaviors for females but not for males (DiClemente & Richards, 2019; Sanchez et al., 2013), whereas the use of problem-focused coping has been found to be associated with more externalizing behaviors for males (DiClemente & Richards, 2019). Thus, it was hypothesized that the use of ventilating feelings could lead to fewer externalizing behaviors for females exposed to violence, and self-reliance may be associated with greater externalizing symptoms for males exposed to violence. Considering that females may be more likely to ruminate about their discrimination experiences, which can lead to higher depressive symptoms (Seaton et al., 2010), we predicted that females who experience discrimination and utilized emotion-focused coping would have higher emotional symptoms. Since males and females have different biological responses to stressors that may contribute to higher levels of depression in females (Nolen-Hoeksema, 2006), we hypothesized that females who used ventilating feelings coping to combat discrimination would have higher emotional symptoms, and males would have lower emotional symptoms.

## Method

### Participants

The data come from a larger study, the Coping Power in the City (CPIC; Thomas et al., 2021) project, which was a student-level randomized controlled trial of the Coping Power intervention (Lochman & Wells, 2002) adapted for implementation with 9th graders in urban high schools. The Coping Power intervention is a school-based prevention intervention for youth demonstrating aggressive, disruptive behaviors. We analyzed the student self-report baseline data collected from the 398 ninth graders, who were screened into the project by their teachers based on elevated levels of aggressive behavior (Thomas et al., 2021). On average teachers reported a t-score of approximately 60 (one SD above average and in the at-risk range). The participating youth were 51% male, with an average age of 14 years old. Student self-report indicated they were 92% Black, and the rest were Non-Black (i.e., White, Latinx, Native American, and other). Additional demographics and school characteristics are provided in Table 1.

**Procedure**

The project was implemented in 11 urban high schools in a Mid-Atlantic city. Administrators of these schools voluntarily agreed to participate in the CPIC project. Teacher ratings were utilized to screen all students to determine which students would be eligible for the study. Teachers in participating schools screened all 9th grade students for indicators of reactive and proactive aggression (Dodge et al., 1997). Approximately 5,800 ninth graders were screened across all three study cohorts. A cutoff score was set to identify approximately 30% of ninth graders demonstrating the most acute aggressive behaviors across all classes within their schools (Hill et al., 2004). Thirty-five percent of those screened met the study criteria. Project staff contacted the parents/guardians of these students to collect written informed parent consent and student assent. After obtaining parental consent and youth assent, data collection for students occurred during the ninth-grade school year before implementation of the intervention. All data

collection and intervention procedures were approved by the Institutional Review Board at the participating institutions, including the school district.

## Measures

### *Coping*

Coping strategies were examined using an abbreviated version of the Adolescent Coping for Problem Experiences (A-COPE; Patterson & McCubbin, 1987) self-report measure. We leveraged two subscales from the ACOPE: *Self-Reliance* and *Ventilating Feelings*. Specifically, the *Self-Reliance* scale (7-items, $\alpha = 0.87$ current sample) represents problem-focused coping, including active coping (e.g., "When you face difficulties or feel stressed, how often do you organize your life and what you have to do") and self-reliance (e.g., "Try to make your own decisions"). The *Ventilating Feelings* scale (6-items, $\alpha = 0.78$ current sample) represents emotion-focused coping, and outward expressions of emotion (e.g., "When you face difficulties or feel stressed, how often do you get angry and yell at people?"). The two subscales were supported through factor analysis (in M*plus* version 8). Specifically, a confirmatory factor analysis was conducted on the original 20 items of the ACOPE to examine the underlying structure of the measure. The analyses resulted in four factors: *Self-Reliance*, *Ventilating Feelings*, *Coping with Drugs*, *Relational Coping*, though this study only used the *Self-Reliance* and *Ventilating Feelings* scales (RMSEA = .073; SRMR = .078; CFI = .932; TLI = .922).

### *Exposure to Violence*

Exposure to violence was measured with the Children's Report of Exposure to Violence (CREV; Cooley et al., 1995), which had included 5 items ($\alpha = 0.83$ current sample) that assessed students' direct observation of exposure to violence in the community (e.g., "Have you ever seen somebody you know being shot or stabbed?"). Adolescents rated their exposure to violence on a

four-point scale from 0 (“Never”) to 3 (“Many Times”). The CREV has been found to have good test–retest reliability, internal consistency, and construct validity (Cooley et al., 1995). Higher scores suggest greater exposure with a potential range from never to many instances of experiencing violence.

***Racial Discrimination***

The Racism and Life Experiences Scale (RaLES; Harrell et al., 1997) captured the frequency of discrimination experiences, inclusive of personally experiencing, witnessing, or hearing about racial discrimination. Youth were asked to rate their experiences involving racism, discrimination, or racial prejudice during the six months prior to completing the survey on a scale of 0 (“Never”) to 3 (“Very Often”). Five items were used to capture this construct and included questions such as “How often have you personally experienced racism, discrimination, or racial prejudice?” The RaLES has demonstrated good construct and criterion validity, and strong internal consistency (Harrell et al., 1997) (5-items, $\alpha = 0.86$ current sample). Higher scores suggest greater exposure with a potential range from never to many instances of experiencing racial discrimination.

***Emotional and Externalizing Symptoms***

Emotional and externalizing symptoms were captured, respectively, through the Emotional Symptoms Index and the Inattention/Hyperactivity composite score on the Behavior Assessment System for Children, Second Edition (BASC-2; Reynolds & Kamphaus, 2004). The BASC-2 is a widely used assessment with well-established internal consistency, reliability, and validity (Doyle et al., 1997). Specifically, the two composite youth self-reported scales were collected at baseline. The Emotional Symptoms Index composite scale (comprised of items reflecting stress, anxiety, depression, a sense of inadequacy, self-esteem, and self-reliance)

reflects internalizing problems and the Inattention/Hyperactivity composite scale (reflecting items related to inattention and hyperactivity) captures externalizing difficulties. T-scores greater than 60 indicate "at-risk" level difficulties and t-scores greater than 70 indicate "clinically-significant" problems with impairment across multiple settings. Items on both compositive scales were rated with respect to the frequency of occurrence (i.e., 0 = "Never", 1 = "Sometimes", 2 = "Often", and 3 = "Almost Always"). Examples of the statements on each scale were: "I feel depressed" (for emotional symptoms) and "I have trouble standing in lines" (for inattention/hyperactivity). The internal consistency validity for this sample was 0.94 for the Emotional Symptoms Index (i.e., emotional difficulties) and 0.81 for the Inattention/Hyperactivity composite (i.e., externalizing difficulties).

**Data Analysis**

Descriptive statistics (in Table 2) were examined using STATA (version 17) for demographic, coping strategies, exposure to violence, racial discrimination, and emotional and externalizing symptoms variables. To address our primary research aims, a multiple-group path model (i.e., male versus female youth) was fit to the data in M*plus* version 8 using robust full-information maximum likelihood to account for multivariate nonnormality and missing data (Enders, 2022). Specifically, the first research aim examined how self-reliance and ventilating feelings coping were associated with emotional and externalizing symptoms for males and females. The second research aim examined how exposure to violence and frequency of discrimination were associated with emotional and externalizing symptoms for both sexes. To explore which variables were associated with emotional and externalizing symptoms, the following predictors were entered as predictor variables: self-reliance, ventilating feelings, exposure to violence, and discrimination. Emotional and externalizing symptoms were entered as

outcomes. We also controlled for youth race. Given we had too few clusters (i.e., schools) to utilize a multilevel modeling approach or cluster-robust standard errors, we utilized a fixed effects approach to model nesting within schools and cohort (i.e., dummy variables) that was created by the original study design and as recommended in the methodological literature to produce satisfactory bias in parameter estimation, type one error rates and greater power in comparison to other approaches (McNeish & Stapleton, 2016).

The third research aim was explored by including the interaction of coping strategies (i.e., self-reliance and ventilating feelings) and environmental stressors (i.e., exposure to violence and discrimination) to assess whether there was an interaction between the coping strategies in relation to exposure to violence and discrimination, with regard to the BASC-2 emotional and externalizing scales. The predictor variables (i.e., exposure to violence and discrimination) and moderators (i.e., coping strategies) were grand mean-centered. Interaction terms were created for the different configurations of coping strategies and exposure to violence and discrimination by multiplying each centered predictor variable with each centered moderator (i.e., exposure to violence *Self-reliance coping, exposure to violence *Ventilating feelings coping, discrimination* Self-reliance coping, discrimination* Ventilating feelings coping). The predictors, moderators, and interaction terms were entered as predictors variables in each model.

A multigroup analysis was conducted to compare male and female-specific parameter estimates across models. Youth were provided with a binary option (male and female) of which to choose from to identify their sex. Sex was used as the grouping variable for the multigroup path model (i.e., male vs. female) to explore whether youth sex moderated any of the aforementioned main effect and moderated associations. Specifically, a series of Wald chi-square tests were used to determine if the associations between coping strategies, environmental

stressors, and psychological outcomes were statistically different across sex. Significant interaction effects were further delineated via Johnson-Neyman plots (Preacher et al., 2006), which depicted the conditional effect of one predictor on the outcome, across levels of the other predictor included in the interaction term. When interpreting these graphs, the "y-axis" represents the relationship between the predictor and outcome variables, and the "x-axis" represents the different levels of the moderator, with "0" being the mean of the moderator. The dotted lines represent the confidence intervals (CI). When zero on the y-axis is not within the CI, then there is a significant association between the predictor and outcome, at that given level of the moderator variable.

## Results

Descriptive statistics (in Table 2) reflect that on average, males and females slightly differed in their levels of coping, environmental stressors, and emotional and behavioral symptoms. Males had slightly higher levels of discrimination ($M = 0.79$) and exposure to violence ($M = 0.89$) than females ($M = 0.72$; $M = 0.82$, respectively), whereas females had slightly increased levels of self-reliance ($M = 1.60$) and ventilating feelings ($M = 1.23$) coping than males ($M = 1.54$, $M = 1.11$, respectively). However, t-tests examining mean differences in predictors across males and females suggested no significant differences (i.e., ps all > .05).

Females also had increased emotional symptoms ($M = 54.66$; 32-80) and behavioral challenges ($M = 58.80$; 34-82) than males ($M = 51.73$, $M = 56.60$, respectively). The results of the path models, including model intercepts representing average levels of emotional symptoms and externalizing problems controlling for other variables in the model, are presented in Table 3. Wald test results denoting significant differences in parameter estimates across males and females are summarized in Table 4. Findings indicated there were statistically significant sex

differences in emotional symptoms, such that males were less likely to experience emotional symptoms ($X^2 = 4.08$, $p = .04$) compared to females. There were no significant sex differences in youth's externalizing symptoms ($X^2 = 1.29$, $p = .26$).

**Aim 1: Main Effects of Coping by Sex**

***Males***

There were no significant associations between self-reliance or ventilating feelings coping and emotional symptoms. When examining the externalizing outcome for males, ventilating feelings coping ($b = 3.80$, $p = .002$) was positively associated with externalizing symptoms. Alternatively, self-reliance coping ($b = -2.05$, $p = .04$) was negatively associated with externalizing symptoms.

***Females***

When examining the emotional symptoms outcome for females, ventilating feelings coping ($b = 4.02$, $p < .001$) was positively associated with emotional symptoms. There were no significant associations between self-reliance coping and emotional symptoms. Regressing externalizing symptoms on predictors, ventilating feelings coping ($b = 6.38$, $p < .001$) was positively associated with externalizing symptoms. Self-reliance coping was not significantly associated with externalizing symptoms.

***Comparing Male and Female Models***

As summarized in Table 4, there were statistically significant differences in parameter estimates between the male and female models. There were significant differences between males and females in terms of the association between ventilating feelings and emotional symptoms ($X^2 = 4.07$, $p = .04$). The positive association between ventilating feelings coping and

emotional symptoms was stronger for females. There were, however, no other significant differences between males and females on main effects of interest.

**Aim 2: Main Effects of Environmental Factors by Sex**

***Males***

When examining the emotional symptoms outcome for males, exposure to violence was positively associated with emotional symptoms ($b = 1.97$, $p = .04$). There were no significant associations between discrimination and emotional symptoms. When examining the externalizing outcome for males, exposure to violence ($b = 2.61$, $p = .04$) was positively associated with externalizing symptoms. Racial discrimination was not significantly associated with externalizing problems.

***Females***

When examining the emotional symptoms outcome for females, exposure to violence ($b = 3.02$, $p = .002$) was positively associated with emotional symptoms. There was not a significant association between discrimination and emotional symptoms. Regressing externalizing symptoms on predictors, exposure to violence ($b = 2.97$, $p = .02$) was positively associated with externalizing symptoms. Racial discrimination was not significantly associated with externalizing symptoms.

***Comparing Male and Female Models***

There were no significant differences between males and females on environmental stressor main effects.

**Aim 3: Interaction Effects of Coping and Environmental Factors**

***Males***

Main effects of focal predictors should be considered in the context of significant interaction terms discussed here. When predicting emotional symptoms for males, there was one significant interaction term, which was between ventilating feelings and discrimination ($b$ = 2.92, $p$ = .04). The JN plot (see Figure 1) suggests that at average to below average levels of discrimination, there was no significant relationship between ventilating feelings and emotional symptoms. However, at above average ($M$ = 0.79; 0-3) levels of discrimination, there was a significant, positive relationship between ventilating feelings and emotional symptoms. When predicting externalizing symptoms, there were three significant interaction terms. Specifically, the interaction between ventilating feelings and exposure to violence was significantly associated with externalizing symptoms ($b$ = -5.43, $p$ = .002). At above the average ($M$ = 0.89; range: 0-3) level of exposure to violence, there was no significant relationship between ventilating feelings and externalizing symptoms. However, for those below the average level of exposure to violence, there was a significant, positive association between ventilating feelings and externalizing problems. In addition, the interaction between ventilating feelings and discrimination ($b$ = 6.03, $p$ = .001) was significantly associated with externalizing symptoms. At below the average level of discrimination, there was not a statistically significant association between ventilating feelings and emotional symptoms. However, at average to above average levels of discrimination, there was a significant, positive relationship between ventilating feelings and externalizing symptoms. Finally, the interaction between self-reliance coping and racial discrimination ($b$ = -5.81, $p$ = .001) was significantly associated with externalizing symptoms. At below the average level of discrimination, there was not a significant association between self-reliance and externalizing problems. At or above the average level of discrimination, self-reliance coping was negatively associated with externalizing problems. The

interaction between self-reliance and exposure to violence was not significantly associated with externalizing symptoms.

### *Females*

There were no statistically significant interactions for females.

### *Comparing Male and Female Models*

As noted in Table 4, the Wald tests suggested a significant difference in several interaction terms between the male and female models. That is, there were no significant interaction terms in the female model but there were in the male model, as discussed above. This pattern was largely supported in the results of the Wald tests. The only notable exception was that there was a significant interaction term for ventilating feelings*RD in the male model but not in the female model. However, the Wald test did not suggest that there was a significant difference in this interaction term between males and females, although, the test did approach significance ($X^2 = 3.33$, $p = 0.07$). Overall, the models including coping strategies (i.e., self-reliance and ventilating feelings coping), environmental stressors (i.e., exposure to violence and discrimination), the interaction terms, and control covariates accounted for 25.5% and 32.1% of the variance in emotional symptoms for males and females, respectively, and 28.0% and 33.7% of the variance in externalizing symptoms for males and females, respectively.

## Discussion

This study sought to address these gaps by exploring the association between coping strategies (i.e., self-reliance and ventilating feelings), environmental stressors (i.e., exposure to violence and discrimination), and emotional symptoms and externalizing behaviors in urban Black youth, with a particular interest in potential sex differences between males and females. Additionally, participating youth were screened for participation in the broader study based on

teacher reports of aggression. In the current study, youth reported mean levels of externalizing difficulties ($M_{Male}$ = 56.60; $M_{Female}$ = 58.80) that fell well above average levels denoted in the BASC normative sample (i.e., t-scores; $M$ = 50; $SD$ = 10). Baseline difficulties of participating youth are further contextualized in Thomas et al. (2021) denoting teacher-reported average levels of aggression and conduct problems in the 'At-Risk' range (i.e., $M$ t-score > 60). Urban Black youth with elevated levels of externalizing symptoms may be particularly at risk for poor outcomes and may leverage different coping strategies than youth in the general population. Therefore, it is essential to explore the coping strategies that urban Black males and females with elevated levels of behavior problems employ when faced with exposure to violence and discrimination. Below we consider some of the main findings and implications of these results.

**Sex Differences in the Impact of Coping on Mental Health Outcomes**

Results suggest that problem-focused coping (i.e., self-reliance) was associated with fewer externalizing symptoms whereas emotion-focused coping (i.e., ventilating feelings) was related to greater externalizing symptoms in males. Previous studies exploring coping strategies in urban Black youth found that problem-focused coping is less adaptive for Black males in urban neighborhoods as the community stressors may be too overwhelming for boys to manage on their own (DiClemente & Richards, 2019). However, there were some important differences in how we conceptualized coping variables. Notably, we specifically focused on ventilating feelings as a form of emotion-focused coping and self-reliance as a form of problem-focused coping. Other studies (e.g., DiClemente & Richards, 2019) have focused on more general conceptualizations of coping and there may be a more nuanced relationship between specific coping strategies and youth mental health outcomes (e.g., problem-focused coping and externalizing symptoms vs. self-reliance and externalizing problems). Additionally, whereas

much of the literature has focused on the general population, we focused on youth with elevated levels of aggression, given they may be at particularly high risk for exposure to community stressors and for poor mental health outcomes.

Females who ventilated their feelings to cope tended to have higher emotional and externalizing symptoms. The coping literature has generally suggested that emotion-focused coping (e.g., ventilating feelings) is not the most optimal strategy to employ, as it has been linked with elevated psychological problems, including internalizing and externalizing symptoms (Dempsey, 2002). Additionally, females who ventilate their feelings may have trouble regulating their emotions (Eisenberg et al., 2001) on their own and be inclined to seek social support to cope. However, the act of ventilating feelings may not be sufficient to help them cope, which can in turn lead to additional emotional and externalizing problems.

**Sex Differences in the Impact of Environmental Stressors on Mental Health Outcomes**

This study also explored the sex differences related to how environmental stressors associate with mental health outcomes. Males and females exposed to violence had higher emotional and externalizing symptoms, whereas racial discrimination was not significantly associated with these outcomes for either sex. Our findings correspond to the literature on exposure to violence, which suggests that greater exposure to violence is associated with poorer mental health outcomes (Busby et al., 2013). Although we predicted there would be stronger relationships between exposure to violence and externalizing symptoms in males and internalizing symptoms in females, the literature has indicated that violence exposure impacts both sexes (Sheats et al., 2018).

However, our findings diverge from the literature on the impacts of discrimination. Our findings suggested that racial discrimination was not significantly related to mental health

problems, although there were significant interactions with coping for males. This divergence from the literature may be related to measurement of these constructs. For example, the intensity of the items on our scales may be important to consider. Our measure of exposure to violence assessed violence directly observed by an adolescent while our measure of discrimination included experience of, witnessing, or hearing about racial discrimination. Witnessing violence (e.g., "Have you ever seen somebody you know being beaten up?") may have a larger impact on youth's emotional and behavioral outcomes than hearing about racial discrimination (e.g., Hearing about someone else's experience of discrimination or prejudice). Additionally, the impact of racial discrimination is largely based on one's perceptions of the incident as it has been defined as an individual's cognitive *appraisal* of racial discrimination in their environment (Kressin et al., 2008), whereas witnessing a violent event is less prone to misinterpretation. Considering our sample of youth are in predominately Black communities (88.9%), there may be various factors in their community that protect them against discrimination, such as racial socialization (Neblett et al., 2008), which Black families perceive as important in youth's development and practice (Hughes et al., 2006).

## Sex Differences in Coping and Environmental Stressor Interactions

### *Males*

**Ventilating Feelings and Exposure to Violence.** The three-way interaction model by sex highlighted significant interactions for males. The association between externalizing symptoms, ventilating feelings, and exposure to violence indicated that males experiencing little to no violence (0 = never, 1 = once) demonstrated a positive relationship between ventilating feelings and externalizing symptoms, while at higher levels of exposure to violence, there was not a statistically significant relationship between ventilating feelings and externalizing

problems. Youth with elevated externalizing problems may have emotion regulation difficulties (Eisenberg et al., 2003) and ventilating feelings can lead them to ruminate more (Bushman, 2002) about their violence exposure, and in turn, increase behavioral symptoms. Our findings suggest that for males, this might be particularly true for youth exposed to lower levels of community violence.

**Self-Reliance and Exposure to Violence.** We did not find a statistically significant interaction between self-reliance and exposure to violence for males. DiClemente and Richards (2022) found that problem-focused coping was associated with increased externalizing problems for males exposed to high levels of community violence. They attributed this finding to higher levels of community violence exposure undermining problem-focused coping as males may be overwhelmed with the violence-related stress and have difficulty handling it on their own, suggesting that problem-focused coping might be more effective when violence exposure levels are lower. Although we did not find that self-reliance was significantly protective for males with lower levels of violence, we did not examine all types of problem-focused coping strategies.

**Ventilating Feelings and Racial Discrimination.** There were also significant sex differences in the association between emotional symptoms, ventilating feelings, and discrimination for males and females, which indicated that males who experienced infrequent to frequent discrimination (1 = sometimes, 2 = often, 3 = very often) and used more ventilating feelings coping experienced higher emotional symptoms. Researchers have found that Black youth who perceive having greater control over their racial discriminatory experiences utilize more problem-focused coping strategies (e.g., seeking social support, problem solving) (Scott & House, 2005), which we found to be protective for males. It is possible that males may perceive having less control of their racial discriminatory experiences which may lead them to utilize

more emotion-focused coping strategies (e.g., ventilating feelings), which can increase their feelings of emotional distress (Scott & House, 2005). Sex also moderated the association between externalizing symptoms, ventilating feelings, and discrimination, suggesting that males who experienced infrequent to frequent discrimination and used more ventilating feelings coping experienced higher externalizing behaviors. These findings align with the existing coping literature which indicates emotion-focused coping is maladaptive for youth who experience discrimination (e.g., Seaton et al., 2008).

**Self-Reliance and Racial Discrimination.** Finally, males and females differed on how their externalizing symptoms related to their self-reliance and discrimination. Males with infrequent to frequent discrimination experiences and who used more self-reliance coping had lower externalizing symptoms. This supports the literature on inner-city youth, as previous research has found that youth who utilize problem-focused coping tend to have fewer externalizing behaviors (McGee et al, 2019). As previously mentioned, Black males who utilize more problem-focused coping strategies may have greater perceptions of control over their discrimination experiences, which can reduce the likelihood that their stress will manifest in greater externalizing problems. Thus, self-reliance may be more adaptive for Black youth who experience high levels of discrimination.

### *Females*

**Coping with Exposure to Violence/Racial Discrimination.** There were no statistically significant interactions for females, suggesting that level of exposure to violence or discrimination did not influence the relationship between coping (i.e., ventilating feelings or self-reliance) and outcomes for females. Moreover, we did not find that either form of coping was protective for girls. The literature on coping with violence and racism suggests that emotion-

focused coping may be protective when girls are exposed to violence (DiClemente & Richards, 2022) and emotion-focused coping strategies, such as emotional support and religion, has been helpful for females who experience racism (Jacob et al., 2013; Shorter-Gooden, 2004). As discussed above, this discrepant finding may be related to differences in construct conceptualization, where conceptualization in the literature is broader and encompasses strategies beyond ventilating feelings (e.g., cognitive restructuring, acceptance, religion). It may be that other subtypes of emotion-focused coping are protective when exposed to violence, but ventilating feelings operates differently for females with elevated levels of aggression. Future research should compare specific subtypes of emotion-focused coping to discern the pattern of relationships between emotion-focused coping subtypes and mental health outcomes for girls.

**Limitations and Future Directions**

It is important to note some limitations of the current study, such as our reliance on the ACOPE as the primary indicator of coping. The ACOPE captured youth's coping strategies when faced with general stressors and did not assess the strategies employed when specifically faced with exposure to violence and discrimination. Using a measure that captures the specific coping strategies youth utilize when encountering these specific stressors could more accurately reflect how youth cope with witnessing violence and discrimination encounters. We also only focused on self-reliance and ventilating feelings coping as they mapped most closely onto our conceptual model; however, it is possible that youth may be utilizing additional forms of coping that could enhance or mitigate the association between environmental factors and psychological difficulties. Future studies could take a person-centered approach, rather than a variable centered approach as we did here; such an approach would enable the identification of particular coping profiles (e.g., youth who predominately use types of emotion- and problem-focused coping) and

allow for exploration of those patterns in relation to environmental stressors and emotional and behavioral symptoms. Further, all the key measures were self-reported by the youth, which may result in response bias and be sensitive to social desirability bias. However, these experiences may be best captured through self-report given our interest in how youth cope with difficult situations and their personal experiences with exposure to violence and discrimination. Future research could further explore these associations using additional informants (e.g., multi-informant assessment of youth symptom severity, parent or teacher report of environmental stressors). Although reducing environmental stressors would be the public health target to minimize youth's negative outcomes, it can be difficult to do so since it is a pervasive systemic challenge that requires systemic change. Therefore, we focused on coping, as it may provide insight regarding potential targets for preventive interventions. Moreover, the sample was 92% Black, therefore we did not have a sufficient sample of non-Black youth to explore for that as a possible effect modifier, though we controlled for race in these analyses.

Furthermore, these data are cross-sectional; as such it is not clear if the psychological challenges preceded the exposure to violence and discrimination. Thus, researchers should examine these variables longitudinally to capture how coping strategies may influence youth's psychological functioning when faced with community violence and discrimination over time. Additionally, these results may not generalize to individuals from other communities, such as youth living in rural areas or suburban communities. It is also important to note that our externalizing measure solely focused on inattention and hyperactivity and did not assess other types of externalizing behaviors, such as aggression, conduct problems, or delinquency which can be detrimental to youth (Card & Little, 2006; Cote et al., 2002). Finally, our design was

correlational, thus precluding casual conclusions regarding the impact of coping strategies and environmental factors on emotional and externalizing outcomes.

**Conclusions and Implications**

Taken together, these findings suggest that ventilating feelings (i.e., emotion-focused coping) may be a risk factor for externalizing problems for males exposed to little to no community violence, and may exacerbate emotional and externalizing symptoms for males with infrequent to frequent discrimination. Instead, using self-reliance (i.e., problem-focused coping) may assuage the potential influence that discrimination may have on externalizing symptoms for males. Interventions that are implemented in urban high schools should strive to promote problem-focused coping skills for males, according to youth's potential exposure to violence or discrimination, so that youth are better prepared to manage difficult and stressful environments to prevent increases in emotional and behavioral health problems. Further, interventions may be optimized if sex-specific coping is considered. These findings can aid in identifying specific coping strategies that are adaptive and maladaptive for urban Black adolescents' exposure to violence and discrimination, and in turn, be a potential target for prevention efforts to mitigate the impact on mental health problems. Specifically, school-based mental health services for youth with elevated externalizing problems should focus on promoting adaptive coping strategies among youth who have experienced or are at risk for exposure to violence and discrimination.

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**Table 1.**

*Demographics of Participating Students and Schools*
**(*N* = 398 youth, *J* = 11 schools)**

| | Student Demographics | N | Percentage |
|---|---|---|---|
| Sex | | | |
| | Male | 201 | 50.50 |
| | Female | 197 | 49.50 |
| Race | | | |
| | Black | 363 | 91.90 |
| | Other | 16 | 4.05 |
| | Latinx or Hispanic | 7 | 1.77 |
| | White | 5 | 1.27 |
| | American Indian or Native American | 4 | 1.01 |
| | Not reported | 3 | 0.75 |

| | School Demographics | M (SD) | Range |
|---|---|---|---|
| | Total enrollment | 943.31 (446.2) | 404-1663 |
| | Black students (%) | 88.9 (10.3) | 69.6-98.1 |
| | Free/reduced priced meals (%) | 56.2 (12.0) | 29.0-72.9 |
| | Attendance (%) | 79.5 (9.14) | 61.2-93.7 |
| | Out-of-school suspensions (%) | 11.7 (8.7) | .71-28.0 |

**Table 2.**

*Descriptive Statistics for Coping Strategies, Environmental Stressors, and Emotional and Behavioral Symptoms*

| | Full Sample | | | | Males | | | Females | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Range** | **Mean** | **SD** | **Missing (%)** | **Mean** | **SD** | **Missing (%)** | **Mean** | **SD** | **Missing (%)** |
| **Coping Strategies** | | | | | | | | | | |
| Ventilating Feelings | 0-3 | 1.17 | 0.64 | 21.36 | 1.11 | 0.62 | 23.88 | 1.23 | 0.65 | 18.78 |
| Self-Reliance | 0-3 | 1.57 | 0.74 | 20.10 | 1.54 | 0.75 | 21.39 | 1.60 | 0.73 | 18.78 |
| **Environmental Stressors** | | | | | | | | | | |
| Racial Discrimination | 0-3 | 0.72 | 0.70 | 19.10 | 0.79 | 0.68 | 20.90 | 0.65 | 0.72 | 17.26 |
| Exposure to Violence | 0-3 | 0.86 | 0.74 | 22.11 | 0.89 | 0.73 | 25.37 | 0.82 | 0.74 | 18.78 |
| **Emotional and Behavioral Symptoms** | | | | | | | | | | |
| Emotional Symptoms | 32-80 | 53.21 | 7.14 | 4.52 | 51.73 | 6.45 | 5.97 | 54.66 | 7.50 | 3.05 |
| Inattention/Hyperactivity | 34-82 | 57.69 | 10.29 | 3.52 | 56.60 | 9.60 | 3.98 | 58.80 | 10.86 | 3.05 |

**Table 3.**

*Main Effects of Coping Strategies on Behavioral and Emotional Symptoms*

| | **Emotional Symptoms** | | **Inattention/Hyperactivity** | |
|---|---|---|---|---|
| | Males | Females | Males | Females |
| | $\beta$ (SE) | $\beta$ (SE) | $\beta$ (SE) | $\beta$ (SE) |
| Intercept | 50.64 (2.41)*** | 57.62 (2.48)*** | 66.66 (2.97)*** | 61.82 (3.04)*** |
| Race (Black) | -0.31 (1.48) | -2.50 (1.49) | -6.01 (2.08)** | 0.24 (2.47) |
| **Coping Strategies** | | | | |
| Ventilating Feelings | 1.33 (0.98) | 4.02 (0.91)*** | 3.80 (1.26)** | 6.38 (1.26)*** |
| Self-Reliance | 0.62 (0.73) | 0.14 (0.85) | -2.05 (1.01)* | -1.97 (1.14) |
| **Environmental Stressors** | | | | |
| Racial Discrimination | 1.08 (1.05) | 1.54 (0.94) | -1.60 (1.30) | 0.57 (1.09) |
| Exposure to Violence | 1.97 (0.97)* | 3.02 (0.97)** | 2.61 (1.25)* | 2.97 (1.30)* |
| **Emotional and Behavioral Symptoms** | | | | |
| Ventilating Feelings x Racial Discrimination | 2.92 (1.41)* | -0.33 (1.09) | 6.03 (1.84)*** | -2.57 (1.62) |
| Ventilating Feelings x Exposure to Violence | -2.10 (1.52) | -0.22 (1.08) | -5.43 (1.77)** | -0.50 (1.72) |
| Self-Reliance x Racial Discrimination | -1.31 (1.58) | -1.88 (1.27) | -5.81 (1.72)*** | 0.91 (1.31) |
| Self-Reliance x Exposure to Violence | 0.81 (1.41) | 0.88 (1.33) | 1.95 (1.49) | 2.33 (1.53) |

*Note.* This model also controlled for design-related clustering from the original study (i.e., cohort and school). The race variable was coded as Black = 1 and every other race = 0.
*$p < .05$, **$p < .01$, ***$p < .001$.

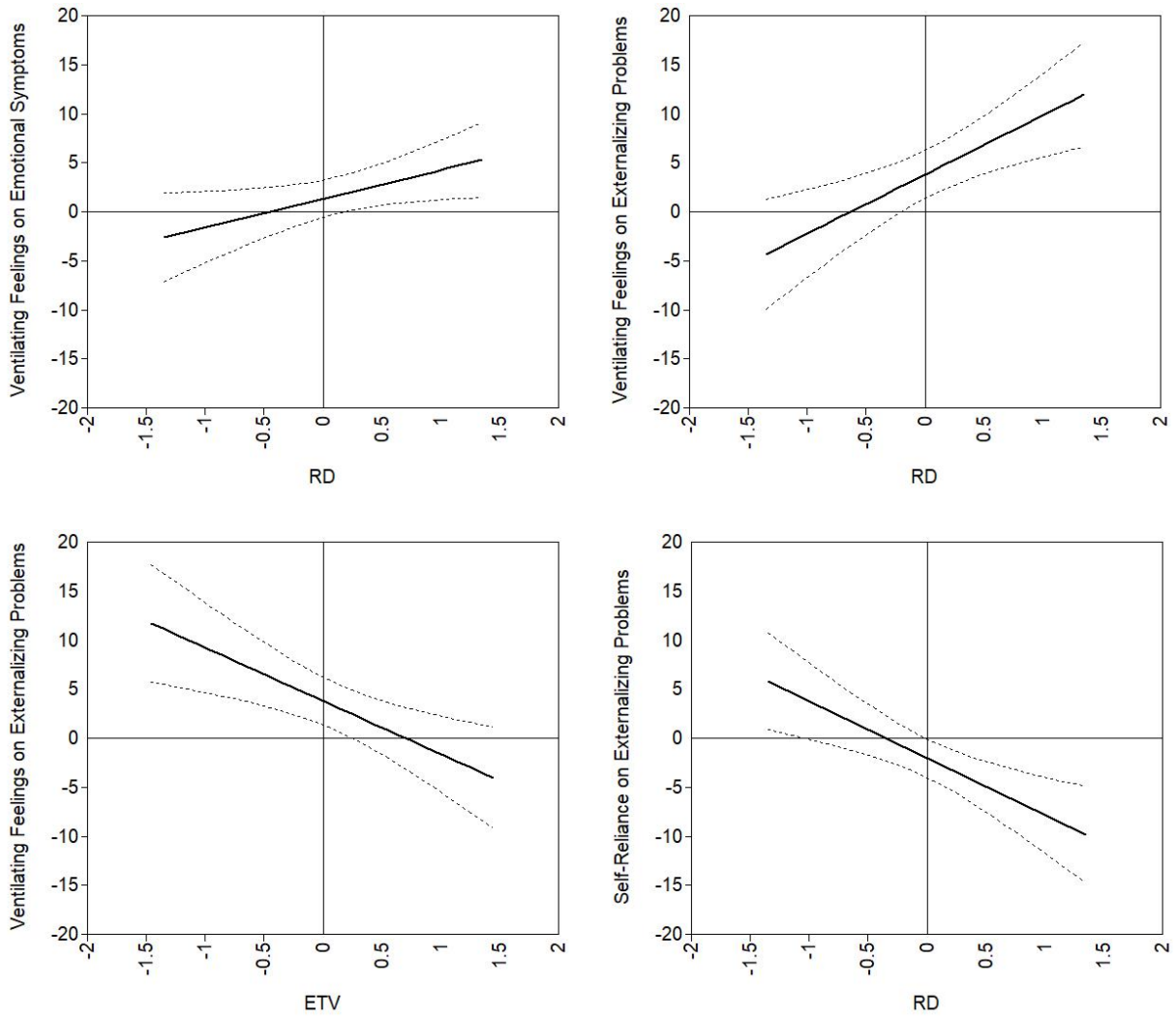
**Table 4.**

*Wald Tests of Parameter Differences in Intercepts and Associations Between Coping and Emotional and Behavioral Outcomes y Sex*

| | **Emotional Symptoms** | | **Inattention/Hyperactivity** | |
|---|---|---|---|---|
| | $X^2$ | DF | $X^2$ | DF |
| Intercept | 4.08* | 1 | 1.29 | 1 |
| Ventilating Feelings | 4.07* | 1 | 2.10 | 1 |
| Self-Reliance | 0.18 | 1 | 0.002 | 1 |
| Racial Discrimination | 0.12 | 1 | 1.63 | 1 |
| Exposure to Violence | 0.59 | 1 | 0.04 | 1 |
| Ventilating Feelings x Racial Discrimination | 3.33 | 1 | 12.30*** | 1 |
| Ventilating Feelings x Exposure to Violence | 1.03 | 1 | 3.99* | 1 |
| Self-Reliance x Racial Discrimination | 0.08 | 1 | 9.70* | 1 |
| Self-Reliance x Exposure to Violence | 0.001 | 1 | 0.032 | 1 |

*$p < .05$, **$p < .01$, ***$p < .001$.

**Figure 1.** Johnson-Neyman plots of the association between coping and mental health problems by differing levels of racial discrimination (RD) and exposure to violence (ETV).




*Note*. Dotted line represents 95% confidence interval.

# Urban Black Adolescents' Victimization Experiences: The Moderating Role of Family Factors on Internalizing and Academic Outcomes

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**Abstract**

This study investigated the moderating role of family factors on victimization experiences and internalizing and academic outcomes. Data (collected 2017-2019) on 471 Black urban ninth graders (51% male; $M_{age}$ = 14 years) with elevated externalizing symptoms were analyzed and we explored how the interaction between (self-reported) racial socialization, parent relations, and (teacher-reported) family academic involvement and (self-reported) violence exposure, racial discrimination, and (teacher-reported) bullying potentially influenced (student- and teacher-reported) anxiety and depression, and (student-reported) academic engagement and negative school attitudes. High racial socialization and parent relations were associated with lower internalizing symptoms for youth with discrimination and heard violence, respectively. High academic involvement and parent relations were linked with higher internalizing symptoms for youth with discrimination and high parent relations were linked with higher anxiety for bullied youth. Racial socialization and parent relations may help offset the potential influence of discrimination and heard violence, respectively, for adolescents.

*Keywords*: victimization, family factors, urban youth, Black youth, cross-sectional design, internalizing outcomes, academic outcomes

## Urban Black Adolescents' Victimization Experiences: The Moderating Role of Family Factors on Internalizing and Academic Outcomes

Urban youth from racial and ethnic minority backgrounds are disproportionately exposed to community violence and racial discrimination (Sheats et al., 2018; Tobler et al., 2013). In particular, Black adolescents experience higher rates of bullying and victimization than any other racial and ethnic adolescent group (Albdour & Krouse, 2014), and these victimization experiences are salient for youth with behavior problems (Frey & Higheagle Strong, 2018). As suggested by the Phenomenological Variant of Ecological Systems Theory (PVEST), risk factors (e.g., having a Black identity, residing in an urban area) can contribute to disproportional stress levels (e.g., victimization experiences, lack of social support) in urban Black youth, resulting in their selection of coping responses that are most adaptive in their context and based on what society may expect of them given their social identities (e.g., stereotype of Black males being aggressive), and in turn, their conduct difficulties. This highlights the importance of examining how risk (victimization experiences) and protective (supportive family) factors interact and contribute to urban Black youths' coping responses (e.g., internalizing and academic outcomes) to their environment (Spencer et al, 1997). Despite considerable research examining the buffering role of family factors on victimization experiences and psychological and academic outcomes, less is known about which family factors may be supportive for urban Black youth with elevated externalizing problems. Further, there is limited research on how family factors, previously deemed as supportive (i.e., academic involvement, racial socialization, and relations with parents), interact with distinct forms of victimization (i.e., exposure to violence, racial discrimination, and bullying) in relation to youths' anxiety, depression, academic engagement, and negative attitudes toward school. The current study aimed to explore these gaps in the

literature by examining the moderating role of supportive family factors on the association between victimization experiences and internalizing and academic outcomes among urban Black youth. Investigating these interactions may provide clarity on the type of family factors that are most helpful in supporting youths' psychological and academic development for youth exposed to victimization, in turn providing insight regarding potential targets for preventive interventions to reduce risk for subsequent mental health concerns.

**Familial Factors and Exposure to Violence**

Parental involvement in school has been shown to be protective against exposure to extreme forms of community violence on academic achievement (Diab et al., 2018), but it is unclear how these associations relate to internalizing outcomes, like anxiety and depression. Additionally, a positive parent-adolescent relationship in which youth perceive parents as supportive can help buffer the negative effects of community violence on internalizing symptoms (Ozer et al., 2017) and school performance (Romero et al., 2018). Further, racial socialization (i.e., cultural-racial messages to enhance youths' awareness and understanding of racial stratification, inter- and intragroup dynamics, and identity (Lesane-Brown, 2006), can result in fewer depressive symptoms for Black youth who witnessed community violence (Banerjee et al., 2015) and higher levels of racial pride in Black youth with less community violence exposure may have higher academic self-efficacy beliefs (Butler-Barnes et al., 2011). Yet, more research is needed on the extent that these familial factors relate with academic engagement and attitudes toward school to better understand school functioning within the context of community violence.

**Familial Factors and Racial Discrimination**

Research shows that cultural socialization can buffer the negative effects of peer discrimination on internalizing (Dunbar et al., 2022) and academic outcomes (Banerjee et al.,

2018). Relationship with parents may play an unexpected role in buffering the potential effects of racial discrimination on school engagement, such that when father-daughter closeness is low, girls exposed to racial discrimination may potentially experience higher academic engagement; parent closeness was not predictive of internalizing symptoms (Cooper et al., 2013). Additional research is needed to further explore how perceived parental relationships relate to depression and anxiety symptoms, and other forms of school functioning (e.g., attitudes toward school). Moreover, the potential role of family academic involvement in buffering racial discrimination is unclear, but is important to explore as it might play a role helping youth manage challenging situations, like racial discrimination. When parents are involved in their children's school life, youth have more favorable school attitudes (McNeal, 2014) and academic engagement (Gonzalez-DeHass et al., 2005) and fewer internalizing symptoms (Ucus et al., 2017).

**Familial Factors and Bullying**

Being bullied can contribute to less positive relationships with parents and impede well-being (Chai et al., 2020). Feeling close and connected with a parent can result in fewer depressive symptoms for victimized youth (Arango et al., 2019) and may serve as a buffer for bullied youths' perceptions of school belonging (Han et al., 2021). Moreover, racial socialization practices may be particularly important in supporting Black youths' wellbeing against victimization (Banerjee et al., 2015). Yet, few studies have explored the role of racial socialization in buffering the link between bullying and internalizing or academic outcomes. Parent involvement in their child's school, through parent-teacher contact, may also promote better outcomes for bullied youth. Therefore, it is important to explore how family practices, including racial socialization and parental academic involvement may potentially influence adolescents' internalizing symptoms, academic engagement, and negative school attitudes.

**The Current Study**

The current study sought to explore the family factors that may be protective against victimization and internalizing and academic outcomes for youth with pre-existing levels of aggression. Specifically, the first aim was to examine a well-established link – the association between different forms of victimization (i.e., hearing about and witnessing violence, racial discrimination, and bullying), and internalizing symptoms (i.e., anxiety and depression) and academic functioning (i.e., academic engagement and negative school attitudes). Urban Black youth are often exposed to violence, racial discrimination, and bullying, and experience significant barriers to accessing and utilizing mental health services (Salami et al., 2021) and to receiving advanced academic opportunities (Sealey-Ruiz & Greene, 2011), which may result in worsening mental health, decreased academic engagement, and negative attitudes towards school. As previously established, we hypothesized youth who are exposed to any form of victimization would have increases in their anxiety and depressive symptoms and decreases in their academic engagement and positive school attitudes. Our second aim was to examine the extent that family factors related to internalizing and academic outcomes. Considering the strong familial values that many members of the Black community hold (Cross et al., 2018) and the benefits of culturally responsive practices (Banerjee et al., 2018), we hypothesized that higher levels of family academic involvement, perceived positive parent relationships, and racial socialization would be associated with lower anxiety, depression, and negative school attitudes, and higher academic engagement.

Finally, our third aim was to examine the moderating role of family factors in the association between victimization and internalizing and academic outcomes. In terms of community violence, we hypothesized that a stronger parent-adolescent relationship and higher

caregiver racial socialization practices may potentially buffer the negative influence of community violence on internalizing symptoms (Banerjee et al., 2015; Ozer et al., 2017) and academic outcomes (Butler-Barnes et al., 2011; Romero et al., 2018), and family academic involvement may potentially attenuate exposure to both forms of violence (witnessed and heard) in different ways (Diab et al., 2018; Hill et al., 2004). As for racial discrimination, we predicted that a strong parent-child relationship may be negatively associated with internalizing symptoms (Ozer et al., 2017) and positively associated with academic outcomes (Cooper et al., 2013). We also expected that youth exposed to racial discrimination and who receive more racial socialization messages (Bottiani et al., 2020) and have parents with higher academic involvement (Banerjee et al., 2018; Dunbar et al., 2022) would have lower internalizing symptoms and higher school functioning. With regard to bullying, we hypothesized that youth with higher parent relations, racial socialization, and family academic involvement would have better internalizing (Abdirahman et al., 2012; Arango et al., 2019; Ozer et al., 2017) and academic outcomes (Han et al., 2021; Romero et al., 2018).

## Method

### Participants

The data come from the Coping Power in the City (CPIC; Thomas et al., 2021) project, a student-level randomized controlled trial of the Coping Power intervention (Thomas et al., 2021) adapted for implementation with ninth graders in urban high schools. Coping Power is a school-based prevention intervention for adolescents with aggressive and disruptive behaviors. We conducted secondary analyses utilizing student self-report baseline data from 471 ninth graders that identified their race and ethnicity as Black. The sample was 51% male (SD = .50), with an average age of 14 years old (SD = .74). In terms of missing data, 54% had missing data in at

least one measure and there were 29 missing-value patterns, with the most commonly occurring patterns representing complete data on all measures (46%) and youth with missing self-report data but with demographic and teacher-report data (12%).

Additional demographics and school characteristics are provided in Table 1.

## Procedure

The CPIC project was implemented in 11 high schools in an urban Mid-Atlantic city, beginning in summer 2017; we enrolled a total of three cohorts of 9$^{th}$ grade students from these schools. School administrators and teachers volunteered to participate in CPIC through a partnership with the school district, which led the recruitment effort. To identify students who were eligible for study participation, teachers in participating schools screened all of their ninth graders for elevated externalizing symptoms (Thomas et al., 2021). Student participants who exceeded the cutoff score that was set to identify youth with aggressive behaviors were eligible for study participation (approximately 30% of 5,800 ninth graders; Hill et al., 2004). Project staff contacted students' caregivers to obtain written informed parent consent and student assent, and then collected student data during the ninth-grade school year before implementation of the intervention. The Institutional Review Board at the participating institutions and the school district approved all data collection and study procedures. Online surveys were administered in a computer lab at school by a trained project staff member, who read aloud the questions as the students followed along and answered the questions to ensure the youth could comprehend the questions. Teachers completed the surveys online on their own devised through a password protected website. Students and teachers received a gift card ($15) for completing surveys.

## Measures

### *Victimization*

**Exposure to Violence.** The Children's Report of Exposure to Violence (CREV; Cooley et al., 1995), included five items measuring youths' indirect exposure to violence through witnessing (e.g., "Have you ever seen somebody you know being shot or stabbed?"; a = .83, witnessed violence alphas reported are for this sample) and hearing about violence in the community (e.g., "Have you ever been told that somebody you know was robbed or mugged?"; a = .86, heard violence alphas reported are for this sample). Youth rated their lifetime violence exposure on a four-point Likert scale from 0 ("Never") to 3 ("Many Times"), with higher scores suggesting instances of experiencing violence. The CREV has demonstrated good overall test–retest reliability, internal consistency, and construct validity (Cooley et al., 1995).

**Racial Discrimination.** Racial discrimination was assessed with the Racism and Life Experiences Scale (RaLES; Harrell et al., 1997), which measured the frequency of youths' discrimination experiences within the past year. Youth rated their experiences with racism, discrimination, or racial prejudice by indicating whether they directly experienced, witnessed, or heard about racial discrimination events during the six months prior to completing the survey. This survey incorporated five items that included questions such as "How often have you personally experienced racism, discrimination, or racial prejudice?" Higher scores suggest greater exposure to racial discrimination ranging from 0 ("Never") to 3 ("Very Often"). The RaLES has been found to have solid construct and criterion validity, and strong internal consistency (Harrell et al., 1997) in other samples, and in our sample (a = .86).

**Bullying.** Bullying was assessed with one item from the Bullying victimization scale (Bradshaw et al., 2013), which captured student-reported frequency of bullying experiences. Youth were asked to rate their bullying experiences within the month in which they completed the survey on a five-point Likert scale, ranging from 0 ("Not at all") to 4 ("Several times a

week"). However, this study used a binary version of this item rated 0 ("Not at all/once during the month") or 1 ("2-3 times during the month or more") since some categories were sparse.

### *Familial Factors*

**Family Academic Involvement**. Teachers reported on the current level of involvement students' families had in their school using the Family Involvement subscale from the Teacher Observation of Child Adaptation (TOCA-R; Werthamer-Larsson et al., 1991), which has good internal consistency and construct validity (Racz et al., 2013). Teachers responded to six items (a = .89) on this scale that included statements such as, "Parent is involved and supportive of child's education" and "Parent attends school functions such as open houses, book fairs, and PTA." The six response options ranged from 0 ("Never") to 5 ("Almost Always").

**Family Racial Socialization.** The Teenager Experience with Racial Socialization Scale (Stevenson et al., 2002) captured adolescents' current level of racial socialization experiences. Students reported on racial socialization messages that their caregivers provided by rating six items on a four-point Likert scale from 0 ("Never") to 3 ("Very Often"). Adolescents reported on messages they received growing up such as "You should be proud to be Black" or "Racism is real, and you have to understand it, or it will hurt you" (a = .79).

**Relations with Parents.** Students rated their current level of perceived relationship with parents using the Relations with Parents subscale on the Behavior Assessment System for Children, Second Edition (BASC-2; Reynolds & Kamphaus, 2004). The BASC-2 is a widely used questionnaire to assess several domains of social, emotional, and academic functioning, and its internal consistency, reliability, and validity has been well-established. Relations with Parents t-scores lower than 40 and 30 suggest "at-risk" and "clinically-significant" challenges across multiple settings, respectively. This scale included 10 items (i.e., 0 = "Never" and 3 =

"Always"), capturing youth's perceptions of their parents and the quality of the parent-child relationship "My parents are easy to talk to" (a = .87).

### *Internalizing Symptoms*

Current depression and anxiety symptoms were captured with the student- and teacher-reported BASC-2, with t-scores at or above 60 suggesting "at-risk" levels of symptoms and t-scores at or above 70 suggesting "clinically significant" levels of difficulty.

**Depression.** Reporters rated youths' frequency of depressive symptoms using 11 items for teachers and 12 items for students on a four-point Likert scale (i.e., 0 = "Never" and 3 = "Always"): "I feel sad" and "I don't seem to do anything right" (students) and "Seems lonely" (teachers) ($a_{Student}$ = .85; $a_{Teacher}$ = .81).

**Anxiety.** The Anxiety subscales included 13 items for students and seven for teacher with four response options ranging from 0 ("Never") to 3 ("Always"). Example statements include: "I worry about what is going to happen" and "I get so nervous I can't breathe" for students; "Is nervous" and "Worries about what other adolescents will think" for teachers ($a_{Student}$ = .83; $a_{Teacher}$ = .80).

### *Academic Outcomes*

**Academic Engagement.** Current academic engagement was captured using the Academic Engagement scale (Haynes et al., 2001), which has well-established strong construct and criterion validity, and internal consistency. Adolescents rated their level of academic engagement by answering four questions (a = .82) related to their own and teacher's perceptions of their academic potential and their perceptions of the importance of school. This scale ranged from 1 ("Strongly Disagree") to 5 ("Strongly Agree"); some items were reverse coded. The

measure included items such as “It is important to finish high school” and “My teachers believe that I can do well in school.”

**Attitude to School.** The Attitude to School Scale is a student-reported subscale on the BASC-2, which included seven items to capture students’ current attitude to school. Statements on this scale include: “I hate school” and “School is boring.” This scale used T-scores (see description above) and youth rated the frequency of occurrence on four items 0 (“Never”) to 3 (“Always”) (a = .77).

**Data Analysis**

Descriptive statistics (in Table 1) were examined using STATA (version 17) for all variables. We addressed our primary research aims by fitting a path model to the data in M*plus* version 8 using robust full-information maximum likelihood to account for multivariate nonnormality and missing data (Enders, 2006; Enders & Bandalos, 2001). We implemented a fixed effects approach to model nesting within schools and cohort (i.e., dummy variables). For our first two aims, key variables were entered as predictors: hearing about violence, witnessing violence, racial discrimination, bullying, family academic involvement, family racial socialization, relations with parents. Depression, anxiety, academic engagement, and school attitudes were entered as outcomes. We controlled for youth sex, cohort, school, and assigned treatment condition (despite data coming from the baseline prior to intervention delivery).

To examine the third aim, we fit two models assessing how internalizing and academic outcomes regressed on key indicator variables, separately. The indicators (i.e., all victimization variables), moderators (i.e., all family variables), and interaction terms were entered as predictor variables in both the internalizing and academic models. The continuous indicators and moderators were grand mean-centered. Interaction terms were created by multiplying each

centered indicator variable with each centered moderator (e.g., Witnessed violence*Family academic involvement, Hearing about violence*Family racial socialization, Witnessed violence *Relations with parents). To explore the statistically significant interaction effects, we conducted a simple slopes analysis. The interactions were probed by plotting the conditional effects of familial factors on outcomes at two levels of victimization experiences, one standard deviation below the mean and one standard deviation above the mean. Given the multiple testing with the same data, we used the Benjamini-Hochberg procedure to control the expected proportion of false discoveries (Benjamini & Hochberg, 1995). We included all (19) associations and interactions, excluding our control variables (i.e., treatment condition, cohort, school, and sex), in calculating the adjusted p-value.

## Results

On average, youth reported having infrequent ($M$ = 0.85) witnessing violence, slightly more frequent ($M$ = 1.34) hearing about violence (0 = Never; 1 = Once; 2 = A few times), and infrequent racial discrimination ($M$ = 0.69; 0 = Never to 1 = Sometimes) experiences. More youth ($n$ = 311) endorsed experiencing no bullying or once in the past month prior to completing the survey (coded 0). Additionally, youth had average self-reported ($M$ = 53.76) and teacher-reported ($M$ = 54.01) depressive symptoms, and average self-reported ($M$ = 52.95) and teacher-reported ($M$ = 50.74) anxiety. Finally, youth reported mid-levels of academic engagement ($M$ = 3.29; 3 = Agree to 4 = Strongly Agree), but slightly elevated negative school attitudes ($M$ = 53.23). Additional descriptive statistics are in Table 1.

### Aim 1: Main Effects of Victimization Experiences

As denoted in Table 2, there were no significant associations between seeing violence or bullying and student-reported depression. Hearing about violence ($b$ = -10.55, $p$ = .036) was

negatively associated with student-reported depression and racial discrimination ($b = 15.73$, $p < .001$) was positively associated with student-reported depression. Seeing violence, hearing about violence, or bullying was not statistically associated with student-reported anxiety, but racial discrimination was positively associated with student-reported anxiety ($b = 12.08$, $p = .01$). Victimization experiences were not significantly associated with teacher-reported depression or anxiety. When examining academic outcomes, hearing about violence and racial discrimination were not significantly associated with academic engagement. Witnessing violence ($b = -0.61$, $p = .03$) and bullying ($b = -1.77$, $p < .001$) was negatively associated with academic engagement. However, neither violence experiences nor racial discrimination was significantly associated with negative school attitude. Bullying victimization was associated with a negative school attitude ($b = 17.27$, $p = .01$). The only main effects of victimization after conducting the Benjamini-Hochberg procedure were as follows: seeing violence ($p < .001$ for both), hearing about violence ($p < .001$; $p = .006$), and racial discrimination ($p = .006$ for both) were significantly associated with both student-reported depression and academic engagement. Additionally, seeing violence ($p < .001$ for both) was significantly associated with student-reported anxiety and negative school attitude.

**Aim 2: Main Effects of Familial Factors**

In terms of internalizing symptoms, there were no significant associations between family academic involvement or racial socialization and student-reported depression. Relations with parents was negatively associated with student-reported depression ($b = -0.49$, $p < .001$). Family academic involvement or relations with parents were not significantly associated with teacher-reported depression. There was a negative significant association between racial socialization ($b = -2.34$, $p = .02$) and teacher-reported depression. There were no statistically significant relations

between family factors and student- or teacher-reported anxiety. Upon exploring academic outcomes, racial socialization ($b = 0.15$, $p = .01$) and parent relations ($b = 0.03$, $p < .001$) were positively associated with academic engagement. Parent relations were negatively associated with negative attitude toward school ($b = -0.33$, $p < .001$). There were no other significant associations between family factors and negative attitudes toward school. After adjusting for the p-values, familial factors did not predict internalizing or school outcomes.

**Aim 3: Interaction Effects of Victimization and Familial Factors**

***Depressive Symptoms***

The direct effects of victimization experiences and internalizing and academic outcomes should be considered in the context of significant interaction terms discussed here. The interactions were probed by testing the conditional effects of familial factors at two levels of victimization experiences, one standard deviation below the mean and one standard deviation above the mean. When predicting student- and teacher-reported depressive symptoms, there were four significant interactions terms. Specifically, the interaction between racial discrimination and family academic involvement was significantly associated with student-reported depressive symptoms ($b = 1.92$, $p = .01$). Test of simple slopes (see Figure 1a) suggest that the positive association between racial discrimination and student-depression was of greater magnitude for youth with high family academic involvement (1 SD above the mean; $b = 17.65$, $p < .001$) than those with low family academic involvement (1 SD below the mean; $b = 13.81$, $p < .001$). Further, the interaction (see Figure 1b) between racial discrimination and relations with parents was significantly associated with student-reported depressive symptoms ($b = 0.47$, $p = .001$). The positive association between racial discrimination and student-depression was stronger for youth with higher relations with parents ($b = 16.20$, $p < .001$) than those with lower relations with

parents ($b$ = 15.26, $p$ < .001). In addition, the interaction between hearing about violence exposure and relations with parents was significantly associated with student-reported ($b$ = -0.38, $p$ = .04) and teacher-reported ($b$ = -0.34, $p$ = .04) depressive symptoms (see Figures 1c-d). The negative association between hearing about violence exposure and student-depression was similar for youth with higher ($b$ = -10.93, $p$ < .001) and lower ($b$ = -10.18, $p$ < .001) relations with parents. The negative association between hearing about violence exposure and teacher-depression was of greater magnitude for youth with higher relations with parents ($b$ = -9.23, $p$ < .001) than those with lower relations with parents ($b$ = -8.56, $p$ < .001). There were no other significant interactions for student- or teacher-reported depression. After adjusting for the p-values, there were no significant interactions.

***Anxiety Symptoms***

Upon exploring student- and teacher-reported anxiety symptoms, there were four significant interaction terms. In particular, the interaction (Figure 1e) between racial discrimination and racial socialization was significantly associated with student-reported anxiety symptoms ($b$ = -2.89, $p$ = .02). The positive association between racial discrimination and student anxiety was greater for youth lower in racial socialization ($b$ = 14.97, $p$ < .001) than those high in racial socialization ($b$ = 9.19, $p$ < .001). Additionally, the interaction (Figure 1f) between racial discrimination and relations with parents was significantly associated with student-reported anxiety symptoms ($b$ = .35, $p$ = .02). The positive association between racial discrimination and student anxiety was larger for youth who have high relations with parents ($b$ = 12.425, $p$ < .001) than low relations with parents ($b$ = 11.729, $p$ < .001). Finally, the interaction between racial discrimination and family academic involvement was significantly associated with student-reported ($b$ = 2.53, $p$ < .001) and teacher-reported ($b$ = 2.22, $p$ = .006) anxiety

(Figures 2a-b). The positive association between racial discrimination and student anxiety was stronger for youth with higher family academic involvement ($b = 14.61$, $p < .001$) than for youth with lower family academic involvement ($b = 9.54$, $p < .001$) relations with parents. In contrast, there was a negative association between racial discrimination and teacher-reported anxiety symptoms for youth with low family academic involvement ($b = -4.88$, $p < .001$), but no significant association for youth with high family academic involvement. No additional significant interactions were found for student- or teacher-reported anxiety. After adjusting for the p-values, there were no significant interactions.

### *Academic Outcomes*

In terms of academic outcomes, there was one significant interaction term. The interactions (Figure 2c) between bullying and relations with parents were significantly associated with negative school attitude ($b = 0.48$, $p = .04$). The positive association between bullying and negative school attitudes increased at a slightly greater rate for youth higher in relations with parents ($b = 17.75$, $p < .001$), than lower in relations with parents ($b = 16.78$, $p < .001$). After adjusting for the p-values, there were no significant interactions.

## Discussion

The current study aimed to explore the association between victimization experiences (i.e., seeing and hearing about violence, racial discrimination, and bullying), familial factors (i.e., family academic involvement, racial socialization, and relations with parents), and internalizing symptoms and academic outcomes in urban Black youth. Participating youth were selected according to their teacher-reported levels of aggression in a broader study and had above average levels of externalizing difficulties ($M = 60.54$) in reference to the BASC normative sample (i.e., t-scores; $M = 50$; $SD = 10$), which are further contextualized in Thomas et al. (2021). Urban

Black youth with greater externalizing difficulties could be at an increased risk of exposure to various forms of victimization, potentially resulting in worse mental health and academic outcomes and may benefit from supportive family factors. Thus, we investigated the potential buffering role of family factors on victimization experiences on youths' mental and academic functioning. The main findings and implications of these results are discussed below.

**Victimization on Internalizing and Academic Outcomes**

The results suggest victimization experiences were associated with internalizing and academic outcomes. Seeing violence was negatively associated with academic engagement (Elsaesser et al., 2020), but not with any of the measured internalizing symptoms. Unexpectedly, hearing about violence was negatively associated with student-reported depression, but not with academic outcomes. Studies show that urban Black youth with high community violence exposure can experience a decrease in depressive symptoms, which may imply desensitization (Gaylord-Harden et al., 2011). Hearing about violence exposure may be a better indicator of an individual's macro- and micro-systems, compared to witnessed violence, as youth living in more dangerous communities may have family and friends who are also being exposed to violence, resulting in frequent discussions about violence, and in turn, desensitization.

Racial discrimination was positively associated with student-reported depression and anxiety (Tobler et al., 2013). However, it was not associated with academic outcomes, which may be due to the racial discrimination being more community-based than school-based, and thus, less impactful on their academic functioning (Gale & Dorsey, 2020). Though it is important to note that our racial discrimination measure did not capture the location where the racial discrimination occurred. Furthermore, bullying was negatively associated with academic engagement (Laith & Vaillancourt, 2022) and positively associated with negative school attitude

(Ünlü & Avci, 2023), which supports our hypothesis. Contrary to the literature, there were no significant associations between bullying and internalizing symptoms, which may be related to the low number of youth ($n$ = 47) who endorsed high levels of bullying. Overall, victimization experiences were not significantly associated with teacher-reported internalizing outcomes, which is not uncommon as teachers may not be the best informants for internalizing symptoms (Von der Embse et al., 2023). This might be especially true for youth with conduct problems as teachers may be focused on managing their disruptive behaviors and potentially overlook signs of internalizing symptoms in youth with externalizing behaviors. Since the only significant associations, after using the Benjamini-Hochberg procedure, were between seeing violence, hearing about violence, and racial discrimination and student-reported depression and academic engagement, as well as seeing violence and student-reported anxiety and negative school attitude, all other associations should be interpreted with caution.

**Familial Factors on Internalizing and Academic Outcomes**

Relations with parents was negatively associated with student-reported depression, but not anxiety or teacher-reported outcomes. Youth with depressive symptoms and strong parent relations may lean on them to challenge their negative narratives and help them feel better about themselves, which can serve as a potential buffer against additional symptoms. However, anxious youth may not receive the same social benefits from a strong parent-child relationship as depressed youth, who often require increased positive social interactions to improve their mood (Filia et al., 2021). Relations with parents were also negatively associated with negative school attitudes and positively associated with academic engagement, corroborating past studies linking positive parenting styles and academic engagement (Hill et al., 2018).

Additionally, racial socialization was negatively association with teacher-reported depression but not with student-reported depression or anxiety. Although self-report is likely best for identifying internalizing symptoms, our teacher-report measure may capture symptoms not assessed through self-report measures, particularly because the teacher and student BASC instruments had little overlap in their items. We also found that racial socialization promoted academic engagement (Banerjee et al., 2018), but was not associated with school attitudes. A study found that racial socialization contributed to Black youths' positive school attitudes (Anglin & Wade, 2007); however, they had an adult sample and perhaps in adolescence, there are other factors that are more likely to contribute to their feelings about school (e.g., peers; Wang et al., 2018). Finally, family academic involvement was not significantly associated with internalizing or academic outcomes. Family school involvement, in the way that we measured it (e.g., parents' school attendance), may not be as relevant to youths' functioning as other parenting aspects, like supportiveness and warmth (Hill et al., 2018). However, there were no associations between familial factors and internalizing or academic outcomes after adjusting for their p-values, so findings should be considered with this information in mind.

**Interactions between Victimization and Familial Factors**

It should be noted that none of the interaction findings were significant after correcting for multiple testing, and thus, results should be interpreted judiciously.

***Exposure to Violence***

There were no significant interactions with exposure to witnessing violence, suggesting these specific factors may not be as helpful to more intense forms of victimization, like witnessing violence, and instead, targeted violence exposure interventions may be more beneficial (Berkowitz et al., 2011). We also found a negative association between hearing about

violence exposure and student depression for both high and low parent relations groups, suggesting that the more violence youth hear about, the lower their depressive symptoms for those with low and high relations with parents. A similar pattern was found between violence they hear about and teacher-reported depression for youth with high, but not low, levels of relations with parents, potentially indicating that youth with better parent relations may have more emotional and social support to cope with the stress associated with violence exposure.

***Racial Discrimination***

There were several interactions for racial discrimination and family factors. However, these findings should be interpreted with several considerations in mind. For example, racial discrimination was infrequently endorsed by youth. These youth come from a predominately Black urban area, which can make racial discrimination more ambiguous, as students may perceive racially discriminatory encounters with others (e.g., school staff) as benign because other students may be treated similarly. Further, these results should be interpreted within a cross-sectional context, such that youth experienced key factors at a single point in time and the temporal ordinance of variables is unclear. That said, there was a positive association between youths' racial discrimination experiences and student-reported depression and anxiety for youth with low, and especially, high levels of relations with parents. Youth exposed to racial discrimination may navigate stressful environments that can contribute to their internalizing symptoms and adolescents exposed to higher levels of racial discrimination may rely on their parents more for support, which can enable them to perceive their parent relations as stronger.

Further, there was a positive association between youths' racial discrimination experiences and student-reported anxiety and depression for youth with both low and high levels of family academic involvement, with the association being pronounced for youth with high

family academic involvement. In contrast, there was a negative association between racial discrimination and teacher-reported anxiety for youth low in family academic involvement. Results from the high involvement group were not significant. Families may have higher school involvement because of their students' internalizing difficulties and experiences with racial discrimination, as well as externalizing problems, which can influence students' school performance, and in turn, require parents to be more involved in school. Of note, the family academic involvement measure captured teacher report of parents' school presence (e.g., attending open houses), communication frequency with parents, and teacher-parent relationship quality, which may not accurately represent parents' academic involvement. For example, home-based academic involvement is preferred by many Black families (Marchand et al., 2019), which could have caused teachers to under report caregivers' school involvement since they cannot witness this type of school support. Additionally, our sample comes from a low-income area and this measure places Black families with financial strain at a disadvantage, as many likely work multiple jobs to afford their basic needs, which can cause them to work outside of school hours when school events typically occur and make it challenging for them to be available when teachers' attempt to communicate with them. Black families may also have a strained relationship with teachers due to school staff's biases of the Black community and the disproportional communication that parents of externalizing youth receive compared to well adapted youth, which can decrease trust and connection between Black families and school staff.

In addition, there was a positive association between youths' racial discrimination and student-reported anxiety for youth with both low and high levels of racial socialization, with the association being especially true for youth lower in racial socialization. Thus, youth higher in racial socialization have a more gradual increase in anxiety than youth lower in racial

socialization, corroborating studies that suggest racial socialization may help disrupt the link between racial discrimination and internalizing symptoms (Dunbar et al., 2022). Consistent with the PVEST framework, the cultural messages received at home (i.e., racial socialization) may help prepare Black youth to face the harmful stereotypes and messages stemming from racial discrimination; this model further highlights the importance of a positive self-perception of being Black, in turn reducing the likelihood of a maladaptive response (anxiety) to their environment.

### *Bullying*

Contrary to our hypothesis and other studies (Laith & Vaillancourt, 2022), there was no association between bullying and academic engagement for youth with either level of parent relations. However, bullying was positively associated with negative school attitudes for youth in both high and low parent relations groups, with a slightly more pronounced association for youth high in parent relations. This suggests that bullied youth had negative school attitudes regardless of their perceived relationship with their parents. Youth may benefit less from their parents' support since bullying often occurs at school (Aluede et al., 2008) and away from their parents, which can foster their negative school perceptions (Ünlü & Avci, 2023).

## Limitations and Future Directions

There were some limitations to the current study, for example, bullying was measured by using one item to capture youths' bullying victimization experiences 30 days prior to survey completion, which may be less representative of youths' overall bullying experiences; especially since youth experience higher rates of bullying in middle school (Bradshaw et al., 2007). Using a bullying measure that captures a longer period of youths' victimization experiences can better represent youth who are high and low in bullying victimization and provide more insight on how victimization experiences relate with mental health and academic functioning for youth. Further,

we focused on a specific set of family factors (i.e., family academic involvement, relations with parents, and racial socialization) as they fit best with our conceptual framework; yet there are several familial factors that were not assessed in this study that may be more relevant in how victimization relates with internalizing and academic outcomes. Additionally, the incremental changes of values between some of the levels of the moderator did not appear very distinct, which can suggest that there may be few differences between the high and low groups. Future research should compare high and low groups of our key family variables to gain more clarity on how these experiences associate with internalizing and academic outcomes. Despite efforts to examine that the measures utilized were relevant to our study sample, some of these results may be qualified as some of our family measures (e.g., family school involvement) may not be as culturally relevant to Black and low-income families. Future studies should use measures that are culturally grounded or adapted to ensure "supportive" factors are culturally informed and meaningful to low-income Black youth. In addition, our study was cross-sectional and correlational, making it unclear if the psychological and academic challenges preceded the victimization experiences and limiting the casual conclusions made regarding the impact of victimization and family factors on internalizing and academic outcomes. Future research should examine how victimization trajectories predict internalizing symptoms and academic outcomes over time, the role of family factors, and the casual nature of these experiences. Of note, there may be potential confounding factors not measured that could explain the pattern of results in this study (e.g., peer relationships, adaptive coping skills, resilience). Further, these findings may not be generalizable to youth who do not share the specific identities of our sample (i.e., urban Black youth with externalizing behaviors). Finally, we conducted several analyses using the same variables in a model, which can increase the risk of having a Type I error, and as such, we

modified the p-values according to the Benjamini-Hochberg procedure. Thus, the interpretations made from our results are limited considering the potential impact of multiple testing.

**Conclusions and Implications**

These findings suggest that hearing about violence exposure may be associated with decreased student-reported depression for youth with strong and weak relations with parents, and decreased teacher-reported depression for youth with strong relations with parents. Racial discrimination may be linked with increases in youths' self-reported internalizing symptoms (i.e., anxiety and depression), particularly when they have high family academic involvement and strong relations with parents and decreases in teacher-reported anxiety when family academic involvement is low. Instead, high racial socialization may potentially offset or buffer the influence that racial discrimination has on student-reported anxiety. Bullying was also found to positively influence negative school attitudes, especially for youth with strong parent relations. Family factors did not appear to interact with violence witnessed in relation to youths' internalizing and academic outcomes. These findings can aid in identifying supportive parenting factors that may assuage the potential influence of victimization on urban Black youth, and in turn, be a potential target for prevention research to mitigate the impact on mental health and academic functioning. For example, caregivers of urban Black youth at risk of heard violence exposure should strive to provide high quality parenting and social support to their adolescent to help minimize the risk of depression. Our findings also suggest that it is especially important for caregivers to engage their Black youth in racial socialization practices (e.g., discussion of Black pride, how to respond to discrimination) to help protect them against internalizing racially discriminatory messages that can potentially result in a maladaptive coping response (anxiety) and help them navigate racism at the individual and systemic level. Mental health providers

working with urban Black youth with externalizing difficulties should aim to raise awareness in youth on how their mental health may be impacted by their victimization experiences and facilitate parent-child content and skills-based groups aimed at increasing the parent-child relationship quality (e.g., authoritative parenting; Hart et al., 2019), combating racial discrimination (e.g., raising awareness, disarming the microaggression, educate the perpetrator, seek external reinforcement or support; Sue et al., 2019), and discussions about their race and identity.

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*Demographics of Participating Students and Schools*
**(N = 471 youth, *J* = 11 schools)**

| Student Demographics | N | Percentage |
|---|---|---|
| **Sex** | | |
| Male | 240 | 50.96 |
| Female | 231 | 49.04 |
| **Race** | | |
| Black | 471 | 100 |

| School Demographics | M (SD) | Range |
|---|---|---|
| Total enrollment | 943.31 (446.2) | 404-1663 |
| Black students (%) | 88.9 (10.3) | 69.6-98.1 |
| Free/reduced priced meals (%) | 56.2 (12.0) | 29.0-72.9 |
| Attendance (%) | 79.5 (9.14) | 61.2-93.7 |
| Out-of-school suspensions (%) | 11.7 (8.7) | .71-28.0 |

*Descriptive Statistics for Victimization Experiences, Family Factors, and Internalizing and Academic Outcomes*

| | Full Sample | | | |
|---|---|---|---|---|
| | Range | Mean | SD | Missing (%) |
| **Victimization Experiences** | | | | |
| Witnessing Violence | 0-3 | 0.85 | 0.74 | 38.22 |
| Hearing about Violence | 0-3 | 1.34 | 0.84 | 38.22 |
| Racial Discrimination | 0-3 | 0.70 | 0.70 | 35.24 |
| Bullying | 0-1 | 0.13 | 0.34 | 23.99 |
| **Family Factors** | | | | |
| Family School Involvement | 0-5 | 1.53 | 1.30 | 22.72 |
| Relations with Parents | 19-65 | 45.58 | 10.29 | 22.51 |
| Family Racial Socialization | 0-3 | 1.90 | 0.75 | 33.33 |
| **Internalizing and Academic Outcomes** | | | | |
| Student-Reported Depression | 40-86 | 53.76 | 11.02 | 22.29 |
| Student-Reported Anxiety | 33-82 | 52.95 | 10.21 | 23.14 |
| Teacher-Reported Depression | 42-97 | 54.01 | 10.21 | 22.72 |
| Teacher-Reported Anxiety | 39-86 | 50.74 | 10.56 | 22.72 |
| Student-Reported Academic Engagement | 1-4 | 3.29 | 0.60 | 23.35 |
| Student-Reported School Attitudes | 35-76 | 53.23 | 8.87 | 21.87 |

**Table 2.**

*Main Effects of Victimization on Internalizing Symptoms and Academic Outcomes*

| | **Internalizing Symptoms** | | | | **Academic Outcomes** | |
|---|---|---|---|---|---|---|
| | *Student-Reported* | | *Teacher-Reported* | | *Student-Reported* | |
| | Depression | Anxiety | Depression | Anxiety | Academic Engagement | School Attitudes |
| | β (SE) | β (SE) | β (SE) | β (SE) | β (SE) | β (SE) |
| Intercept | 41.37 (3.67)*** | 55.95 (3.96)*** | 62.11 (3.49)*** | 58.53 (4.41)*** | 4.26 (0.19)*** | 44.36 (3.28)*** |
| **Victimization Experiences** | | | | | | |
| Witness Violence | 2.32 (5.57) | 6.84 (6.15) | 8.42 (4.97) | 5.69 (6.35) | -0.61 (0.27)* | 6.38 (5.10) |
| Hearing about Violence | -10.55 (5.03)* | -5.95 (5.07) | -8.90 (4.93) | -3.11 (5.10) | 0.22 (0.22) | -7.06 (4.60) |
| Racial Discrimination | 15.73 (4.31)*** | 12.08 (4.71)* | 0.61 (3.60) | -2.66 (4.38) | 0.18 (0.24) | 3.63 (4.72) |
| Bullying | 10.10 (9.44) | 15.13 (8.00) | -5.29 (7.54) | -4.63 (7.01) | -1.77 (0.50)*** | 17.27 (6.91)* |
| **Family Factors** | | | | | | |
| Family School Involvement | -0.85 (0.46) | -0.02 (0.49) | 0.18 (0.43) | 0.87 (0.48) | -0.03 (0.03) | -0.40 (0.42) |
| Relations with Parents | -0.49 (0.09)*** | 0.03 (0.11) | 0.02 (0.09) | 0.01 (0.10) | 0.03 (0.01)*** | -0.33 (0.09)*** |
| Family Racial Socialization | -1.21 (0.86) | -0.27 (0.93) | -2.34 (0.96)* | -0.36 (1.01) | 0.15 (0.06)* | -0.56 (0.83) |
| **Internalizing and Academic Outcomes** | | | | | | |
| Witness Violence x Family Involvement | 0.12 (0.98) | -0.54 (0.86) | 1.63 (0.86) | 0.28 (1.07) | 0.05 (0.05) | -1.12 (0.75) |
| Witness Violence x Relations with Parents | -0.02 (0.20) | 0.08 (0.21) | 0.32 (0.17) | 0.20 (0.20) | -0.01 (0.01) | 0.16 (0.17) |
| Witness Violence x Racial Socialization | 0.52 (1.68) | 0.43 (1.88) | -3.61 (1.99) | -2.64 (2.14) | 0.14 (0.09) | 0.16 (1.50) |
| Hearing about Violence x Family Involvement | 0.27 (0.87) | 0.22 (0.84) | -0.76 (0.95) | -0.94 (0.91) | 0.02 (0.05) | 0.58 (0.79) |
| Hearing about Violence x Relations with Parents | -0.38 (0.18)* | -0.19 (0.17) | -0.34 (0.17)* | -0.13 (0.17) | 0.00 (0.01) | -0.27 (0.16) |
| Hearing about Violence x Racial Socialization | 0.47 (1.46) | 1.49 (1.50) | 1.41 (1.70) | 1.90 (1.62) | -0.10 (0.09) | 2.45 (1.33) |
| Racial Discrimination x Family Involvement | 1.92 (0.78)* | 2.53 (0.72)*** | 0.79 (0.79) | 2.22 (0.80)** | -0.05 (0.04) | 0.76 (0.72) |
| Racial Discrimination x Relations with Parents | 0.47 (0.14)** | 0.35 (0.15)* | 0.01 (0.12) | -0.14 (0.14) | 0.01 (0.01) | 0.12 (0.15) |
| Racial Discrimination x Racial Socialization | -1.00 (1.40) | -2.89 (1.27)* | 1.17 (1.53) | 0.93 (1.49) | -0.01 (0.08) | -0.65 (1.29) |
| Bullying x Family Involvement | -1.09 (1.28) | -2.52 (1.55) | 1.11 (1.76) | 0.88 (1.32) | 0.00 (0.09) | -0.93 (1.12) |
| Bullying x Relations with Parents | 0.20 (0.32) | 0.41 (0.25) | -0.19 (0.26) | -0.13 (0.23) | -0.06 (0.02)** | 0.48 (0.24)* |
| Bullying x Family Racial Socialization | 1.15 (2.78) | 1.54 (2.67) | 1.87 (2.65) | -0.57 (2.14) | 0.12 (0.15) | -1.92 (1.87) |

*Note.* This model also controlled for sex, treatment condition, and design-related clustering from the original study (i.e., cohort and school).
*$p < .05$, **$p < .01$, ***$p < .001$.

**Figure 1a.**
*The Association Between Racial Discrimination and Student-Reported Depression by Family Involvement*

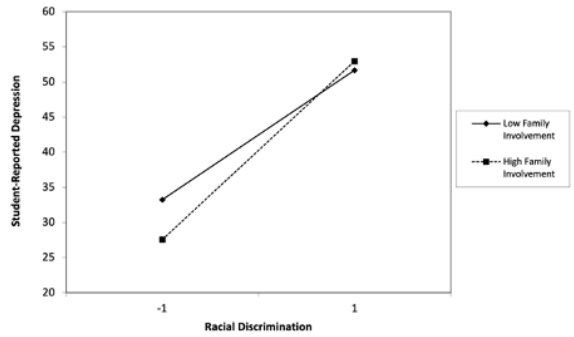


**Figure 1b.**
*The Association Between Racial Discrimination and Student-Reported Depression by Parent Relations*

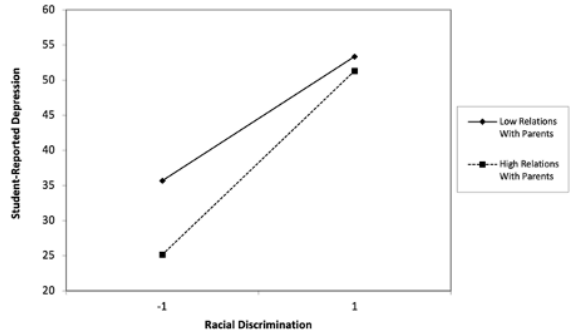


**Figure 1c.**
*The Association Between Heard about Violence and Student-Reported Depression by Parent Relations*

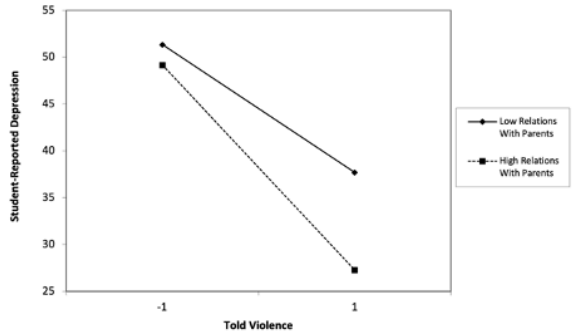


**Figure 1d.**
*The Association Between Heard about Violence and Teacher-Reported Depression by Parent Relations*

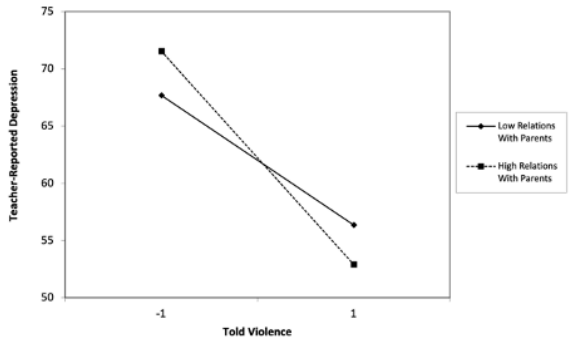


**Figure 1e.**
*The Association Between Racial Discrimination and Student-Reported Anxiety by Racial Socialization*

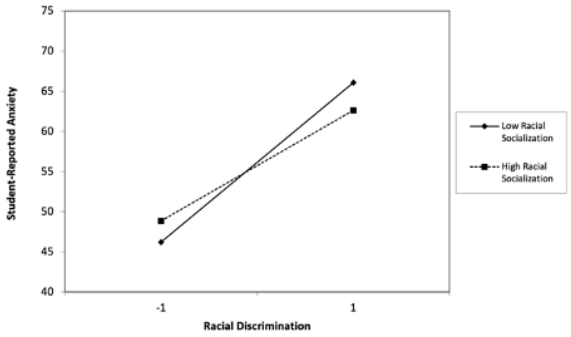


**Figure 1f.**
*The Association Between Racial Discrimination and Student-Reported Anxiety by Parent Relations*

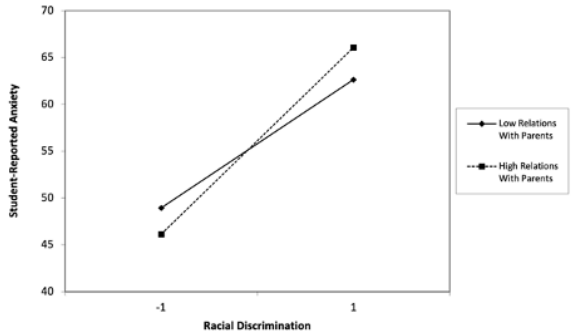

**Figure 2a.**
*The Association Between Racial Discrimination and Student-Reported Anxiety by Family Involvement*

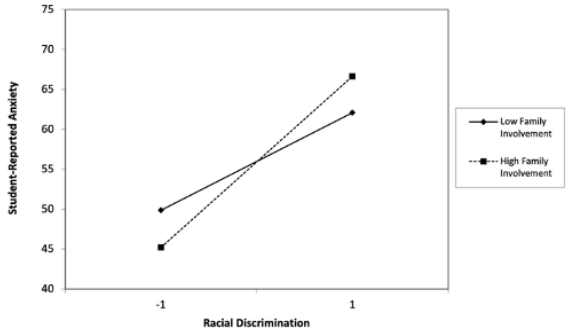


**Figure 2b.**
*The Association Between Racial Discrimination and Teacher-Reported Anxiety by Family Involvement*

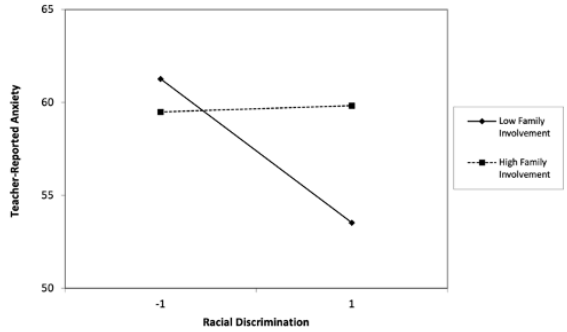


**Figure 2c.**
*The Association Between Bullying and Negative School Attitudes by Parent Relations*

# Social-Information Processing across Early Adolescence in Youth with Externalizing Behaviors: Longitudinal and Reciprocal Links by Sex

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## Author Note

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**Abstract**

Social-information processing (SIP) has been identified as a key factor in the development of challenging peer relations among aggressive youth. Yet the developmental changes in SIP over early adolescence for females and males separately has received less attention for youth with externalizing behaviors. Additionally, it is unclear how SIP mechanisms and externalizing behaviors associate across early adolescence by sex; understanding these factors may have important implications for preventive interventions that are both developmentally- and sex-sensitive. This study sought to examine SIP trajectories by sex in early adolescence (ages 11-13), and the longitudinal associations between SIP mechanisms and externalizing (i.e., aggression, conduct problems) outcomes in females and males with elevated externalizing symptoms. Data came from 8 randomized controlled trials using an integrative data analysis framework; only participants ages 11-14 in the control/usual care condition were analyzed in this study. Latent growth curve analysis was utilized to identify changes in SIP trajectories in early adolescence and explore the longitudinal associations between SIP and externalizing behaviors for females and males. This study has important potential implications for intervention efforts aiming to prevent the escalation of psychological difficulties in at-risk youth, with particular sensitivity to sex.

*Keywords*: Social-information processing, sex differences, longitudinal design, externalizing behaviors, early adolescence

## Social-Information Processing across Early Adolescence in Youth with Externalizing Behaviors: Longitudinal and Reciprocal Links by Sex

Youth with externalizing difficulties often process social information in specific and unique ways, which can increase their likelihood of engaging in further aggression and conduct problems (Lansford et al., 2006; Van Rest et al., 2020). Crick and Dodge (1994) proposed a theoretical model of social-information processing (SIP) to explain how a series of cognitive processes can influence youths' aggressive behavior, particularly in ambiguous and potentially threatening situations. There is strong evidence suggesting that youth with aggressive behavior tend to interpret ambiguous situations negatively (i.e., hostile attribution bias), favor aggressive retaliation when perceiving slights (i.e., retaliatory attitudes), and have difficulty predicting the outcome or consequences of their externalizing behavior (i.e., outcome expectations; De Oliveira Franco & Bazon, 2017; Nas et al., 2005b). Lemerise and Arsenio (2000) expanded the SIP model to account for emotional processes, as they suggested that emotions interact with the SIP process in the development of youths' aggression. Their extension of the original SIP model might be particularly important to use when examining youth with pre-existing behavioral challenges, as youth with externalizing behaviors have difficulties regulating their emotions, making them especially susceptible to future externalizing behavior. Additionally, Ostrov and Godleski (2010) proposed that males and females process social information differently, which influences if and how their externalizing behaviors manifest, further highlighting the need to examine SIP mechanisms for females and males separately.

Previous studies have explored how SIP mechanisms relate to externalizing outcomes longitudinally, but few studies have investigated how SIP mechanisms develop for females and males separately in early adolescence. Additionally, longitudinal studies examining the

association between SIP constructs and externalizing behaviors have not assessed the reciprocal effects of SIP and externalizing outcomes in externalizing females and males across early adolescence (Van Reemst et al., 2016), which is necessary to better understand their transactional process and identify potential mechanisms of change in youth with externalizing challenges. As such, this study sought to examine the 1) SIP trajectories by females and males (separately) across early adolescence (ages 11-13); and 2) longitudinal associations between SIP and externalizing behaviors (aggression and conduct problems) across early adolescence. Together, these aims would provide helpful insights into potential targets for preventive interventions for male and female adolescents at risk for aggressive behavior problems.

**SIP across Early Adolescence**

Adolescence is an essential developmental period where youth experience various age-related changes that make them more attuned to social interactions. Youth in early adolescence (ages 11-13), which is typically considered to coincide with the start of puberty (Blakemore et al., 2010), may be particularly hypersensitive to their peers' opinions compared to older adolescents (Blakemore, 2018), which can place them at greater risk for aggressive behavior. For example, young adolescents' heightened levels of social information input during interaction with peers (Blakemore, 2018; Goddings et al., 2012) can make them more vigilant to hostile cues (Freeman et al., 2011) and influence their potential outcome expectation (e.g., appeasing friends in response to peer pressure) and behavior response selection and execution (e.g., engaging in aggression; Thompson et al., 2020). Thus, changes in SIP mechanisms may be particularly important to explore in early adolescence, as youth may also experience higher rates of bullying (Bradshaw et al., 2007) and exposure to violence (Finkelhor et al., 2005) during this time, which can worsen (i.e., make more aggressive) SIP styles.

Although there is strong evidence that suggests a link between SIP mechanisms and aggressive behavior problems, few studies have examined how SIP mechanisms change across early adolescence. Previous studies examining changes in SIP mechanisms focused on elementary school-age children and older adolescents (grades 8 or 11) but did not examine longitudinal changes in youth between the ages of 11-14 (Lansford et al., 2006). Researchers who have explored SIP changes in early adolescents (ages 7-13) did not explore the role of emotional and behavioral regulation as part of their SIP framework, which are key in understanding social processes (Lemerise & Arsenio, 2000) during an emotionally-vulnerable stage of development, especially for youth with or at risk of aggressive behaviors. Further, a literature review of SIP and aggression suggests a need for a cross-lagged panel design to help identify the directionality of externalizing behaviors (Van Reemst et al., 2016). Therefore, it is essential to investigate SIP trajectories when youth may be most at risk for changes in their social cognitive processes, such as early adolescence, to understand the trajectories that may influence positive development in youth at risk of aggressive behavior. Exploring the extent that SIP changes in early adolescence and potentially influences future externalizing behavior is particularly necessary as a prevention target, as externalizing outcomes (Petersen et al., 2015; World Health Organization, 2021) often increase around age 14.

**SIP and Externalizing Behaviors**

The SIP model provides a theoretical framework that underscores the social and cognitive processes that contribute to aggressive behavior (Crick & Dodge, 1994). The SIP model theorizes that prior to engaging in aggression, youth process social information in six steps: 1) encoding of cues; 2) interpretation of cues; 3) clarification of goals; 4) response access or construction; 5) response decision; and 6) behavior enactment. As noted above, Lemerise and

Arsenio (2000) expanded this SIP model to include emotional processes and provided strong theoretical and empirical support that posited that SIP mechanisms work in tandem with emotion regulation (e.g., attentional mechanisms can determine emotion regulation and emotion regulation influences attention). Studies that have explored emotional processes with other SIP mechanisms have found bidirectional associations between SIP mechanisms and emotion regulation (Helmsen et al., 2012), such that individuals with disruptive mood dysregulation disorder were susceptible to interpreting cues as hostile (Stoddard et al., 2016) and youth with varying levels of revenge goal trajectories had more behavioral and affective dysregulation (McDonald & Lochman, 2012). Utilizing Lemerise and Arsenio's (2000) SIP framework may be especially important in assessing social-cognitive processes and directional influences of SIP and externalizing outcomes in youth with aggression as emotion regulation may play a central role in their aggressive behaviors (Mullin & Hinshaw, 2007).

**Sex Differences in SIP.** Ostrov and Godleski (2010) also proposed a sex-specific SIP model, whereby gender socialization influences youths' "database" of social schemas and scripts, resulting in sex-based SIP processes and aggressive behavior in early and middle childhood. Galán et al. (2022) further contend that gender socialization plays an important role in how youth attend to and interpret social cues, the type of goals they pursue, and the type of aggressive behaviors they enact. For example, they suggested that girls may have higher hostile attribution bias in relationally provocative situations, whereas boys do in physically provocative situations, due to the traditionally socialized values of relationships for girls and physical dominance for boys (Step 2). Furthermore, girls may be more likely to anticipate negative consequences from aggressive behaviors than boys because parents are less tolerant of physical aggression in girls, potentially resulting in girls having more negative outcome expectations and

boys fewer (Step 5). Additionally, emotion and behavioral regulation may play a particularly important role in aggressive behaviors for both sexes but may be more relevant for females as they may be more susceptible to affective dysregulation (Selby et al., 2008) compared to males, which can also influence their behavioral dysregulation (Yuan et al., 2009; Step 5). Despite persuasive theory suggesting sex differences in SIP, studies have largely been inconclusive or limited (Bookhout et al., 2021; Galán et al., 2022; Martinelli et al., 2018). Relatively few studies have longitudinally explored sex-based SIP models in a sample of adolescents with elevated levels of aggression, making it particularly important to explore SIP in this adolescent population, considering the strong focus of adopting "socially acceptable" roles and behaviors in this age group, which may vary by sex and context.

### *Externalizing Behaviors*

Numerous studies associate SIP mechanisms with aggressive behavior in adolescents. For example, a meta-analysis found a strong link between hostile attribution of intent and aggression in children and preadolescents (De Castro et al., 2002). Furthermore, higher (i.e., more aggressive) retaliatory attitudes in youth predicted increases in aggression over time (Copeland-Linder et al., 2012). Additionally, youth with externalizing behavior generally place higher value on less adaptive goals (e.g., retaliation) than those without behavior difficulties (Lochman et al., 1993) and are less likely to consider negative consequence as an outcome of their externalizing behavior (Elowsky et al., 2022). Behavioral inhibition has also been found to affect social-cognitive processes. For example, impaired behavioral inhibition predicted positive evaluation and selection of aggressive responses in youth with severe behavior problems (Van Nieuwenhuijzen et al., 2017). However, more research is needed to understand longitudinal

associations between SIP mechanisms and externalizing behaviors, including aggression and conduct problems (Bradshaw & Garbarino, 2004).

**The Current Study**

Elucidating SIP trajectories over early adolescence is particularly important for youth with externalizing behaviors, as their risk for maladaptive SIP (De Oliveira Franco & Bazon, 2017; Nas et al., 2005b) may be heightened during this stage of development. It is particularly important to assess the trajectories of SIP in youth with aggression, and the longitudinal and reciprocal associations of SIP and externalizing outcomes to better understand how these mechanisms develop in early adolescence. Additionally, sex differences in social-cognitive process should be considered given the inconclusive empirical findings, despite theoretical support for a sex-linked model.

Our first aim addressed the gaps in the literature by exploring whether SIP mechanisms (hostile attribution bias, affective dysregulation, behavioral dysregulation, and outcome expectation) change over time (ages 11-13) for females and males (Aim 1a), and if there where sex differences in these SIP trajectories (Aim 1b). We predicted that there would be a change in SIP mechanisms considering their biological and social vulnerability during early adolescence (Blakemore, 2018; Blakemore et al., 2010). We also hypothesized that there would be sex differences in youths' SIP trajectories considering the strong theoretical support for sex-based social schemas and scripts (Galán et al., 2022).

For our second aim, we were interested in exploring the longitudinal associations between SIP and externalizing behaviors, for females and males. We investigated how each SIP construct longitudinally influenced aggression and conduct problems outcomes generally (Aim 2a), given the strong evidence linking SIP and externalizing behaviors. We also explored how

externalizing behaviors (aggression and conduct problems) were longitudinally associated with each SIP construct across time (Aim 2b). Considering the SIP model posits that SIP mechanisms lead youth to engage in externalizing behaviors, we hypothesized that each SIP construct would predict aggression and conduct problems for females and males. Although the SIP model also posits a cyclical process between SIP and externalizing behaviors, young adolescents are particularly attuned to their social context (e.g., assuming social roles and behaviors that are socially adaptive) and may engage in behaviors to be socially accepted, without having the maladaptive social-cognitive processes. Therefore, we hypothesized that externalizing behaviors may not have the same longitudinal association with SIP constructs.

## Method

### Participants

Data for this project come from eight randomized controlled trials (see Table 3; McDaniel et al., 2023) of the Coping Power intervention (Lochman & Wells, 2002), a school-based prevention intervention for adolescents with externalizing behaviors; the datasets were combined using an integrative data analysis framework (Curran & Hussong, 2009; Morgan-López et al., 2022). Two of the eight studies in Table 3 do not contain citations, as no articles have been published for these studies, but these studies were funded by the Office of Juvenile Justice and Delinquency Prevention (OJJDP) and Department of Justice (DOJ). The specific number of students, schools, and waves that derive from the OJJDP and DOJ studies are unclear. The individual randomized controlled trials collected data on youth who participated in Coping Power between the ages of 8 and 19, though this study only included youth in the control conditions that had data collected when they were between the ages of 11 and 14. The studies took place in various settings, including urban, suburban, and rural neighborhoods primarily

from lower SES backgrounds. Additional demographics are reported in Table 1. Of note, one participant is missing information regarding their race and the "Other" race category represents participants who did not identify as Black or White. This study utilized secondary data analysis of harmonized data resulting from integrative data analysis. Participants were only provided two "gender" options (i.e., male or female) to choose from on the self-report survey when collecting demographic information, so we are presenting these data as "sex" to minimize misrepresentation.

## Procedure

The trials were implemented in 195 schools in urban and suburban areas of the South and Mid-Atlantic. All participation from school staff was voluntary. All youth screened into the studies according to their elevated aggressive, disruptive behavior based on teacher (and sometimes an additional parent) report. Caregivers provided consent and youth provided assent. The Institutional Review Board at the participating institutions and the school district approved all study procedures, as well as the current secondary data analysis project.

## Measures

Of note, not all eight studies collected each SIP measure resulting in the key predictors having study-level missingness. However, the BASC or ASEBA were collected in every study.

### *SIP Mechanisms*

**Hostile Attribution Bias.** The Hostile Attribution subscale of the Child Attribution Measure (Lochman & Dodge, 1994) captured youths' hostile attributions in response to social situations. This measure contains a total of four vignettes of parent-child and child-peer interactions. Youth were asked to provide their interpretation of a peer's or mother's intention or motive. The response options range from 1 to 3 (1 = Accident, 2 = Protagonist was angry, 3 =

Don't know), with higher scores suggesting more hostile attribution bias. We collapsed the first and third response options into a binary variable (0 = Accident/Don't know; 1 = Protagonist was angry) to more precisely distinguish when a youth assigned ill-intent to an ambiguous situation. Measures that use narrative stimuli to assess hostile attribution bias have demonstrated low to moderate internal reliability in the past (Yaros et al., 2014).

**Outcome Expectations.** The Outcome Expectation Questionnaire (Perry et al., 1986) is a student-report, vignette-based assessment of youths' expectations regarding the consequences of their deviant behavior. The scale includes 12 vignettes in which youth are asked to imagine themselves enacting a specific behavior on a peer and then to rate their confidence level (e.g., 1 = Very sure he/she will bother you again to 4 = Very sure he/she won't bother you again) on the expected outcome (e.g., rewards, punishment) resulting from their behavior. All scores were reversed coded so that higher scores indicated the child anticipated positive outcomes from using aggression. The construct reliability and validity in previous studies has been supported (Dodge et al., 1997).

**Dysregulation.** Emotion and behavioral dysregulation were captured with the emotion dysregulation and behavioral dysregulation subscales from the Abbreviated Dysregulation Inventory (Mezzich et al., 2001), a 30-item assessment (three 10-item scales for cognitive dysregulation, affective dysregulation, and behavioral dysregulation) that assessed youths' self-regulation abilities. The affective dysregulation subscale measured youths' ability to regulate negative emotions (e.g., "I have trouble controlling my temper") and the behavioral dysregulation scale measured youth's ability to regulate their behavior and attention (e.g., "I have difficulty remaining seated at school or at home during dinner") items were rated on a 4-point scale (0 = "Never True" to 3 = "Always True"). Higher scores on the affective and

behavioral dysregulation subscales suggest more difficulty regulating emotions and behavior, respectively. Research demonstrates reliability and validity for this measure (Althoff & Ametti, 2021).

### *Externalizing Outcomes*

**Externalizing.** The Behavior Assessment System for Children, Second Edition (BASC-2; Reynolds & Kamphaus, 2004) and the Achenbach System of Empirically Based Assessment (ASEBA; Achenbach, 1991) teacher-reported Aggression and Conduct Problems subscale were semantically (McDaniel et al., 2023) and analytically (Bauer, 2017) harmonized. Instead of t-scores, harmonized moderated nonlinear factor analysis (MNLFA) factor scores adjusted for differential item functioning (DIF) were used in the current study. Teachers rated their students' frequency of aggressive and rule breaking behavior. Items included statements, such as student "Hits other adolescents" and "Bullies others" for aggression; "Skips classes at school" and "Steals" for conduct problems.

## Data Analysis

Descriptive analyses will be conducted in STATA (version 17) to examine key variables. A multiple-group path model (i.e., males versus females) was fit to the data in M*plus* version 8. The sex variable was dichotomized (1= female and 0 = male). Using latent growth curve analysis (Meredith & Tisak, 1990), we assessed if SIP mechanisms: hostile attribution bias, outcome expectation, behavioral dysregulation, and affective dysregulation, change over time (ages 11-13) for females and males. The linear growth curve models were estimated for each SIP mechanism at three time points (ages 11-13), without covariates, for females and males, separately. Then, we estimated the linear growth curve models of each SIP mechanism.

For our second aim, we used cross-lagged panel analysis (Kearney, 2017) to capture the longitudinal associations of SIP mechanisms and aggression and conduct problems by sex across three waves (ages 11-14). We enabled autoregressive pathways between the same variables across three time points and cross-lagged pathways between the SIP mechanism and externalizing behavior at three time points. We allowed the SIP mechanism and externalizing behavior to correlate within time points and assessed overall goodness of fit (Hu & Bentler, 1999), denoted as RMSEA ≤ .06, SRMR ≤ .08, CFI/TLI ≥ .95, for the hypothesized models.

## Results

### Aim 1a: SIP Trajectories by Sex

We accounted for race, family income, and baseline externalizing behavior, depending on the outcome that we explored in the model (aggression or conduct problems). When exploring the average slope for each SIP mechanism, there was a significant increase in outcome expectation over time ($\beta = 0.07$, $SD = 0.03$, $p < .001$), suggesting that females had decreases in their positive outcome expectations of aggression across ages 11-13. The outcome expectation latent growth model fit the data well (RMSEA = .04; SRMR = .06; CFI = .97; TLI = .95). No other models fit the data well. There were no other significant slopes for females or males on hostile attribution bias, affective dysregulation, or behavioral dysregulation (see Figure 1).

### Aim 1b: Sex Differences in SIP Trajectories

When examining sex differences in SIP slopes, there were no significant differences between females and males in any of the SIP constructs (hostile attribution bias, outcome expectation, affective dysregulation, and behavioral dysregulation) across ages 11-13 (reference Figure 1).

### Aim 2a: Longitudinal Links Between SIP and Externalizing Behaviors by Sex

Cross-lagged panel model results exploring the longitudinal links between SIP and externalizing behaviors by sex are denoted in Figures 2a-9b, with statistically significant associations discussed below. We controlled for sex, race, and family income in all models.

***Females***

For females, outcome expectation at age 11 negatively predicted aggression at age 12 ($\beta = 0.22$, $p = .05$), such that fewer positive expectations around aggressive behavior were associated with higher aggressive behavior. Affective dysregulation at age 13 positively predicted conduct problems at age 14 ($\beta = 0.36$, $p = .004$). Behavioral dysregulation at age 13 positively predicted aggression ($\beta = 0.34$, $p = .006$) and conduct problems at age 14 ($\beta = 0.407$, $p < .001$). Hostile attribution bias at age 13 negatively predicted aggression at age 14 ($\beta = -0.27$, $p = 0.02$).

***Males***

Behavioral dysregulation at age 11 predicted aggression at age 12 ($\beta = 0.16$, $p = .04$). Outcome expectation at age 13 positively predicted aggression ($\beta = -0.152$, $p = .02$) and conduct problems at age 14 ($\beta = -0.125$, $p = 0.02$), such that more positive expectations of using aggressive behavior were associated with higher aggressive behavior. Hostile attribution bias and affective dysregulation did not have a statistically significant association with aggression or conduct problems at any timepoint.

**Aim 2b: Reciprocal Links Between SIP and Externalizing Behaviors by Sex**

***Females***

Neither aggression nor conduct problems has a statistically significant association with any of the later SIP mechanisms at any age group for females.

***Males***

Conduct problems at age 13 negatively predicted behavioral dysregulation ($\beta$ = -0.21, $p$ = .009) and hostile attribution bias ($\beta$ = -0.27, $p$ = .01) at age 14, suggesting that more conduct problems was associated with lower behavioral dysregulation and lower hostile attribution bias. Aggression at age 13 negatively predicted behavioral dysregulation at age 14 (β = -0.16, $p$ = .03), such that more aggression was associated with lower behavioral dysregulation. No other SIP constructs were significantly linked with conduct problems or aggression at any timepoint for males.

## Discussion

The current study aimed to explore changes in SIP mechanisms (hostile attribution bias, outcome expectation, affective dysregulation, behavioral dysregulation) across early adolescence and cross-lagged effects of SIP and externalizing behaviors in females and males. Youth in this study were selected based on teacher-reported levels of aggression in eight randomized controlled trials, all which had above average levels of externalizing difficulties in reference to the BASC and ASEBA normative sample, which are elaborated on further in (McDaniel et al., 2023). Youth with elevated levels of externalizing difficulties are susceptible to maladaptive SIP mechanisms, which may result in additional aggression and conduct problems. However, adolescent females and males may have different SIP mechanisms resulting from their sex-based lived experiences and expectations, which can influence their externalizing outcomes (Galán et al., 2022; Ostrov & Godleski, 2010). Thus, we explored how SIP mechanisms change over time for early adolescent females and males, sex differences in SIP trajectories, and how SIP mechanisms relate with externalizing behaviors longitudinally. The main findings and implications of these results are discussed below.

### SIP Trajectories

There was a significant and negative trajectory in outcome expectations for females, such that, on average, females had a decrease in their positive beliefs of using aggression to achieve a desired goal, suggesting that their outcome expectations are becoming more adaptive. Consistent with the sex-linked model, females' social expectations against the use of aggression for girls may become more salient during early adolescence, when engaging in socially adaptable behaviors is key for others' approval. Agentic goals have been found to predict relational aggression (e.g., saying mean things about others, gossiping or spreading rumors), and relational aggression has been found to be more closely linked with girls than with boys (Ojanen & Nostrand, 2014). Girls may develop agentic goals in pursuit of status and power during early adolescence and hold more favorable beliefs of engaging in relational aggression (gossiping or spreading rumors, intentionally ignoring others, social exclusion, coercion) rather than the overt aggression (yelling, name calling, pushing; Crick & Grotpeter, 1995) that we measured in our study, which may contribute to their decreased favorable expectations of using overt aggression. Despite females' decreased outcome expectations trajectory across early adolescence, there were no significant sex differences between females' and males' outcome expectations slopes, suggesting no differences in the stability of their slopes. Inconsistent with our hypothesis, there were no other significant slopes for females or males, suggesting that hostile attribution bias, affective dysregulation, and behavioral dysregulation were stable, on average, over early adolescence for both females and males.

## SIP Predicting Externalizing Behaviors

### *Females*

Results suggest that outcome expectation at age 11 negatively predicted aggression at age 12, suggesting that females who believed that using aggression would not be suitable in

obtaining a desirable outcome at age 11 had more aggressive behaviors at age 12. It's possible that females who did not hold favorable expectations of using aggression at age 11 enter environments at age 12 that require them to respond with aggression out of self-defense or because it's more socially adaptive. Furthermore, some evidence shows that adolescent females have higher social desirability than males (Fernández-González et al., 2013). Females may have endorsed responses against the use of aggression as a way of appearing more socially desirable rather than having a fundamental belief that aggression is unhelpful or maladaptive, which may explain the discrepancy between their outcome expectations of aggression and their aggressive behavior. Additionally, hostile attribution bias at age 13 negatively predicted aggression at age 14, suggesting that thirteen-year-old females who encode and interpret ambiguous situations as hostile are less likely to be aggressive as they get older. Females with more hostile attribution bias at age 13 may have refrained from engaging in overt aggression at age 14 and adopted more relationally aggressive behaviors, which was not the focus of our aggression measure, and may have been overlooked by teachers reporting on their aggression. It is possible that females with higher hostile attribution bias were also victimized by their peers (Kokkinos & Voulgaridou, 2018), and as they became older, they were not victimized as often, potentially due to environmental changes (e.g., transition from middle to high school, different peer group), making it so females with hostile attribution bias no longer have to react with aggression (Martinelli et al., 2018) to protect themselves.

We also found that behavioral dysregulation at age 13 predicted aggression at age 14, which aligns with the SIP literature (Romero-López et al., 2021), indicating that females with behavior regulation difficulties are more likely to protect themselves from the threat and behave aggressively. Affective dysregulation and behavioral dysregulation at age 13 predicted conduct

problems at age 14. Unlike aggression, which may require one to perceive a threat (hostile attribution bias) and/or believe that responding aggressively in defense will help them achieve their goals (outcome expectation), conduct problems does not appear to be related to the traditional SIP mechanisms for females. Instead, affect and behavior regulation may be more relevant in determining risk of conduct challenges in females, as females are susceptible to emotion dysregulation (Yuan et al., 2009), which can then influence their behavioral dysregulation (Selby et al., 2008), and difficulties in affect and behavior regulation may result in girls enacting impulsive and unplanned antisocial behaviors (Frick, 2012). We did not find that any of the key SIP constructs predicted aggression or conduct problems from ages 12-13. One study found that that SIP profile membership in elementary school was unrelated to SIP profile membership in grade 8 or 11, suggesting that youth may experience a cognitive restructuring in beliefs about aggression across time (Lansford et al., 2006). The biological and environmental changes (Blakemore, 2018; Blakemore et al., 2010) that occur in early adolescence can lead youth to experience negative interactions (e.g., victimization; Bradshaw et al., 2007; Finkelhor et al., 2005), which may contribute to youths' cognitive restructuring of aggression. It may be that youths' social-cognitive processes may not contribute to externalizing behaviors in a meaningful way because they are still developing during this time.

***Males***

Results indicate that behavioral dysregulation at age 11 predicted aggression at age 12 for males, which is expected considering the role of inhibitory control (Romero-López et al., 2021) in predicting aggression. As anticipated, positive outcome expectations of using aggression at age 13 predicted aggression and conduct problems at age 14. Research suggests that males, compared to females, expect more benefits from engaging in aggression and have less fear of

authority figures (Marks et al., 2012). Additionally, males with pre-existing aggressive behaviors may have had fewer positive socialization experiences growing up, resulting in challenges anticipating negative consequences of aggressive behavior or delaying gratification (Frick, 2012), and in turn, increase their aggression and conduct problems later in development. We did not find that any of the key SIP constructs predicted aggression or conduct problems from ages 12-13. As with females, youth of this age group may still not have had the opportunity to fully develop their SIP in a way that meaningfully contributes to externalizing behaviors due to their emerging relationships and social interactions.

**Externalizing Behaviors Predicting SIP**

***Females***

Neither aggression nor conduct problems predicted any of the SIP mechanisms at any time point. The sex-linked model suggests that females may develop SIP mechanisms that are more relationship-based (Galán et al., 2022). As relationships become more important in early adolescence, perhaps general aggression and conduct problems may not be as significant in predicting SIP mechanisms in females, compared to specific subtypes of aggression that have been more closely linked with females, such as relational aggression (Ojanen & Nostrand, 2014).

***Males***

Conduct problems at age 13 negatively predicted hostile attribution bias at age 14, indicating that males with greater conduct difficulties at age 13 had lower hostile attribution bias at age 14. This may be representative of how we dichotomized our measure as we coded responses that assigned ill-intent in the vignette as “1” and responses with alternative explanations (e.g., “It was an accident”) or that reflected not knowing the person’s intent (e.g., “You don’t know why he/she broke it”) as “0.” Thus, it is possible that as youth get older, they

may have better problem-solving skills and may be able to better reason through the vignette and get a lower hostile attribution bias mean score. Youth with persistent conduct problems may also perceive situations that are more relevant to their context as hostile, which were not captured with this measure. Conduct problems and aggression at age 13 negatively predicted behavioral dysregulation at age 14, suggesting that males with conduct problems and aggression at age 13 had better behavioral regulation at age 14. A review examining the developmental origins of disruptive behaviors posited that youth learn socially acceptable behaviors through interactions in their environment as they become older (Tremblay, 2010) and the transition to high school, which may occur at age 14; this in turn may provide youth with an opportunity to change social roles (Benner, 2011). Therefore, males with aggression and conduct challenges may become aware of the need to adopt more socially acceptable behaviors (e.g., more behavioral control) in their environment during this age and capitalize on the opportunity to engage in more socially adaptable behavior, such as exerting more behavioral regulation. No other SIP constructs were significantly linked with conduct problems and aggression at any timepoint.

**Limitations and Future Directions**

While there are several strengths of this study, such as the inclusion of youth across eight relatively large and diverse studies spanning multiple age ranges across adolescence, it is also important to consider some limitations. For example, one limitation was the amount of missing data resulting from the measures and age group that we assessed. Not all eight studies collected each SIP measure or recruited participants between the ages of 11 and 14, which resulted in study-level missingness and limited the data we could analyze. data across the 8 studies, which made it difficult for some of our models to estimate when including school and study level variables. For this reason, we were unable to control for school when examining the cross-lagged

effects and study for all the analyses, which does not accurately account for environmental factors that may be contributing to youth's scores. Another limitation is that we used mean scores for the SIP mechanisms instead of MNLFA scores, which are recommended when utilizing integrative datasets (Curran et al., 2014). Studies utilizing large datasets across several randomized controlled trials should strive to utilize the recommended approach of MNLFA scores. Furthermore, we did not assess how SIP trajectories relate with externalizing behaviors because of estimation challenges that were likely due to missing data, which limits our understanding of how changes in SIP trajectories relate with externalizing outcomes at later stages of adolescence, which is typically when we see increases in externalizing behaviors (Petersen et al., 2015; World Health Organization, 2021). Additionally, our hostile attribution bias variable was created out of a pre-existing measure meant to assess hostile attribution bias, which may have narrowed our understanding of the different situations and forms in which youth can assign ill-intent to ambiguous situations. Our hostile attribution bias measure mostly presented examples of people using physical aggression, which has been traditionally linked with males, and did not capture relational aggression, which may be more relevant to female adolescents (Ojanen & Nostrand, 2014). Future studies should examine a more validated measure of hostile attribution bias that aims to capture various forms of aggression that are expressed by both sexes (Martinelli et al., 2018) to develop a more robust understanding of the role of hostile attribution bias in externalizing behaviors for both females and males across early adolescence. Additionally, it should be noted that this study focused on SIP constructs separately, when it is theorized that they work in tandem. Thus, future studies should take a person-center approach when examining changes in SIP mechanisms to better understand how SIP mechanisms transition together across early adolescence to assess risk of externalizing

behaviors. Finally, our demographic questionnaire aimed to collect gender, but it only provided youth with two options (female or male) to select from, which may have resulted in some youth reporting their biological sex and others their gender identity. This limits the sex-specific generalizations that we can make for males versus females. Subsequent research should utilize more precise measures of gender and sex and explore how SIP trajectories differ by sex and gender.

**Conclusions and Implications**

Findings suggest that females' outcome expectations changed over time, such that they anticipated less favorable outcomes of using aggression across ages 11-13. There were no significant changes in SIP mechanisms over time for males, or significant sex differences in SIP trajectories. In terms of SIP predicting externalizing behaviors, females with affective dysregulation at age 13 had higher conduct problems at age 14, whereas females with behavioral dysregulation at age 13 had higher aggression and conduct problems at age 14. This suggests that affective and behavioral dysregulation may be risk factors for females' later externalizing behaviors (Romero-López et al., 2021). Unexpectedly, females with fewer positive expectations of using aggression at age 11 had higher aggression at age 12 (Marks et al., 2012) and females with greater hostile attribution bias at age 13 had lower aggression at age 14 (Martinelli et al., 2018). Although outcome expectations and hostile attribution bias predicted externalizing behaviors in unexpected directions, sex schemas and scripts may influence females to have more socially desirable outcome expectations and influence their perceptions of hostile situations that were not captured in this study. In terms of males, males with behavioral dysregulation at age 11 had higher aggression at age 12. Similarly, males who anticipated more favorable outcomes from using aggression at age 13 had higher aggression and conduct problems at age 14. These findings

provide evidence that behavioral dysregulation and maladaptive outcome expectations may be a risk factor for externalizing behaviors for males in early adolescence (Crick & Dodge, 1994). Males' affective dysregulation and hostile attribution were not associated with aggression or conduct problems at any age.

When exploring the effects of externalizing behaviors on SIP, males with conduct problems at age 13 had lower behavioral dysregulation and hostile attribution bias at age 14. Similarly, males with aggression at age 13 also had lower behavioral dysregulation at age 14, suggesting males with externalizing behaviors experience better behavioral regulation and hostile attribution outcomes later in development. The transition from middle to high school (Benner, 2011), may help explain these associations, such that males who are entering a new school with older youth may feel more compelled to regulate their behavior in ways that are socially acceptable. Furthermore, the situations they previously deemed as hostile may not be relevant to their age group. Neither aggression nor conduct problems predicted SIP mechanisms for females at any age.

Taken together, the current study provides insight on females and males social-cognitive processes during this critical stage of development and sheds light on how SIP mechanisms may influence adaptive or maladaptive externalizing outcomes across early adolescence for males and females, separately. The results study may highlight potential targets for prevention and intervention in early adolescence for youth with aggressive behavior, such as the specific age that can place youth with behavioral challenges at risk of externalizing outcomes later in development, including outcome expectation for females and behavioral dysregulation for males at age 11, and affective dysregulation and behavioral dysregulation for females and outcome expectation for males at age 13.

Interventions targeting externalizing behaviors should provide psychoeducation on the SIP model (e.g., how our database of previous experiences may cause youth to have positive outcome expectations of using aggression) and should instill skills that can create more distance between a prompting event or stimulus and their aggressive response, such as distress tolerance and emotion regulation skills, by allowing them to better tolerate their distress around not responding with aggression to a perceived threat or to achieve a desired goal, and in turn, breaking their SIP cycle. Distress tolerance and emotion regulation skills can also help minimize youths' emotion and behavioral dysregulation (Jakubovic & Drabick, 2023), which can help them consider alternative outcomes of aggressive behavior and solutions to achieve a desired goal.

Additionally, our findings suggest that the natural progression of early adolescent females is that they may have fewer positive expectations of using aggression over time and males may have better behavioral regulation and lower hostile attribution bias later in development. These findings should raise additional questions for researchers and mental health providers on whether youths' SIP mechanisms are minimizing or just taking a different form that is more suitable for their age and environment. Understanding that some social-cognitive process and behavioral regulation in youth can change as they become older can also help researchers and clinicians shift their attention on targeting other social-cognitive processes that may be reinforcing youths' externalizing behaviors. Teachers and parents should create incentives that maintain youths' progression towards more adaptive cognitions, emotions, and behaviors as they become older and reinforce the environmental incentives that may be minimizing their maladaptive SIP mechanisms and behaviors. The results may also contribute to interventions targeting externalizing behaviors by providing insight on how SIP trajectories may develop across early

adolescence for females and males who exhibit behavioral challenges. Findings could also help better tailor preventive interventions by providing sex-based guidance on adaptive and maladaptive social-cognitive processes for youth with externalizing behaviors to prevent future externalizing difficulties. Finally, these results can inform the timing of interventions regarding adolescent development aimed at minimizing risk of aggressive and problem behavior.

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**Table 1.**

*Demographics of Students Participating in Control Condition with Data for at Least One of the Ages of Interest*

| | Student Demographics | N | Percentage |
|---|---|---|---|
| **Sex** | | | |
| | Male | 585 | 62.43 |
| | Female | 352 | 37.57 |
| **Race** | | | |
| | Black | 696 | 74.28 |
| | White | 190 | 20.28 |
| | Other | 38 | 4.06 |
| | Hispanic | 12 | 1.28 |
| **Age** | | | |
| | 11 | 493 | 23.84 |
| | 12 | 496 | 23.98 |
| | 13 | 506 | 24.47 |
| | 14 | 573 | 27.71 |

*Note.* $N =$ ($N = 937$ youth, $J = 79$ schools). Other included biracial, multi-racial, Native American.

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**Table 2a.**

*Descriptive Statistics for SIP Mechanisms and Externalizing Outcomes in Current Study for Females*

| | Females | | | | | |
|---|---|---|---|---|---|---|
| | Age 11 | | | Age 12 | | |
| | **Range** | **Mean** | **SD** | **Range** | **Mean** | **SD** |
| **SIP Mechanisms** | | | | | | |
| Affective Dysregulation | 0-2.7 | 1.09 | 0.69 | 0-3.0 | 1.13 | 0.70 |
| Behavioral Dysregulation | 0.1-2.7 | 1.23 | 0.65 | 0-2.8 | 1.30 | 0.69 |
| Hostile Attribution Bias | 0-0.5 | 0.07 | 0.14 | 0-0.75 | 0.08 | 0.14 |
| Outcome Expectation | 1.0-3.9 | 2.62 | 0.62 | 1.0-4.0 | 2.60 | 0.58 |
| **Externalizing Outcomes** | | | | | | |
| Aggression | -1.5-2.1 | 0.02 | 0.93 | -1.6-2.5 | 0.04 | 0.92 |
| Conduct Problems | -1.9-1.9 | -0.12 | 0.97 | -1.9- 2.7 | 0.02 | 0.98 |

| | Females | | | | | |
|---|---|---|---|---|---|---|
| | Age 13 | | | Age 14 | | |
| | **Range** | **Mean** | **SD** | **Range** | **Mean** | **SD** |
| **SIP Mechanisms** | | | | | | |
| Affective Dysregulation | 0-2.4 | 0.98 | 0.49 | 1.0-2.3 | 1.00 | 0.62 |
| Behavioral Dysregulation | 0.1-2.4 | 1.15 | 0.66 | 0.1-2.4 | 1.03 | 0.57 |
| Hostile Attribution Bias | 0-0.5 | 0.07 | 0.14 | 0-0.8 | 0.12 | 0.20 |
| Outcome Expectation | 1.0-4.0 | 2.53 | 0.58 | 1.0-4.0 | 2.50 | 0.57 |
| **Externalizing Outcomes** | | | | | | |
| Aggression | -1.5-2.5 | 0.07 | 1.03 | -1.8-2.5 | -0.05 | 0.96 |
| Conduct Problems | -1.6-2.0 | 0.08 | 0.93 | -1.9-2.5 | 0.01 | 0.96 |

**Table 2b.**

*Descriptive Statistics for SIP Mechanisms and Externalizing Outcomes in Current Study for Males*

| | Males | | | | | |
|---|---|---|---|---|---|---|
| | Age 11 | | | Age 12 | | |
| | **Range** | **Mean** | **SD** | **Range** | **Mean** | **SD** |
| **SIP Mechanisms** | | | | | | |
| Affective Dysregulation | 0-2.7 | 0.96 | 0.63 | 0-3.0 | 1.00 | 0.63 |
| Behavioral Dysregulation | 0-3.0 | 1.17 | 0.69 | 0-3.0 | 1.23 | 0.66 |
| Hostile Attribution Bias | 0-1.0 | 0.09 | 0.14 | 0-1.0 | 0.10 | 0.17 |
| Outcome Expectation | 1.1-4.0 | 2.62 | 0.59 | 1.0-4.0 | 2.58 | 0.61 |
| **Externalizing Outcomes** | | | | | | |
| Aggression | -1.6-2.5 | 0.14 | 0.94 | -1.6- 2.7 | 0.14 | 0.91 |
| Conduct Problems | -1.9- 2.9 | 0.04 | 0.97 | -1.8- 3.4 | 0.18 | 0.93 |

| | Males | | | | | |
|---|---|---|---|---|---|---|
| | Age 13 | | | Age 14 | | |
| | **Range** | **Mean** | **SD** | **Range** | **Mean** | **SD** |
| **SIP Mechanisms** | | | | | | |
| Affective Dysregulation | 0-2.4 | 0.95 | 0.60 | 0-2.4 | 0.87 | 0.62 |
| Behavioral Dysregulation | 0-2.9 | 1.23 | 0.62 | 0-2.5 | 1.13 | 0.60 |
| Hostile Attribution Bias | 0-0.5 | 0.07 | 0.14 | 0-0.8 | 0.11 | 0.20 |
| Outcome Expectation | 1.0-4.0 | 2.56 | 0.55 | 1.0-4.0 | 2.51 | 0.59 |
| **Externalizing Outcomes** | | | | | | |
| Aggression | -1.6-2.5 | 0.09 | 0.88 | -1.6-2.5 | 0.02 | 0.92 |
| Conduct Problems | -1.8-3.1 | 0.25 | 0.95 | -1.8-3.8 | 0.22 | 0.98 |

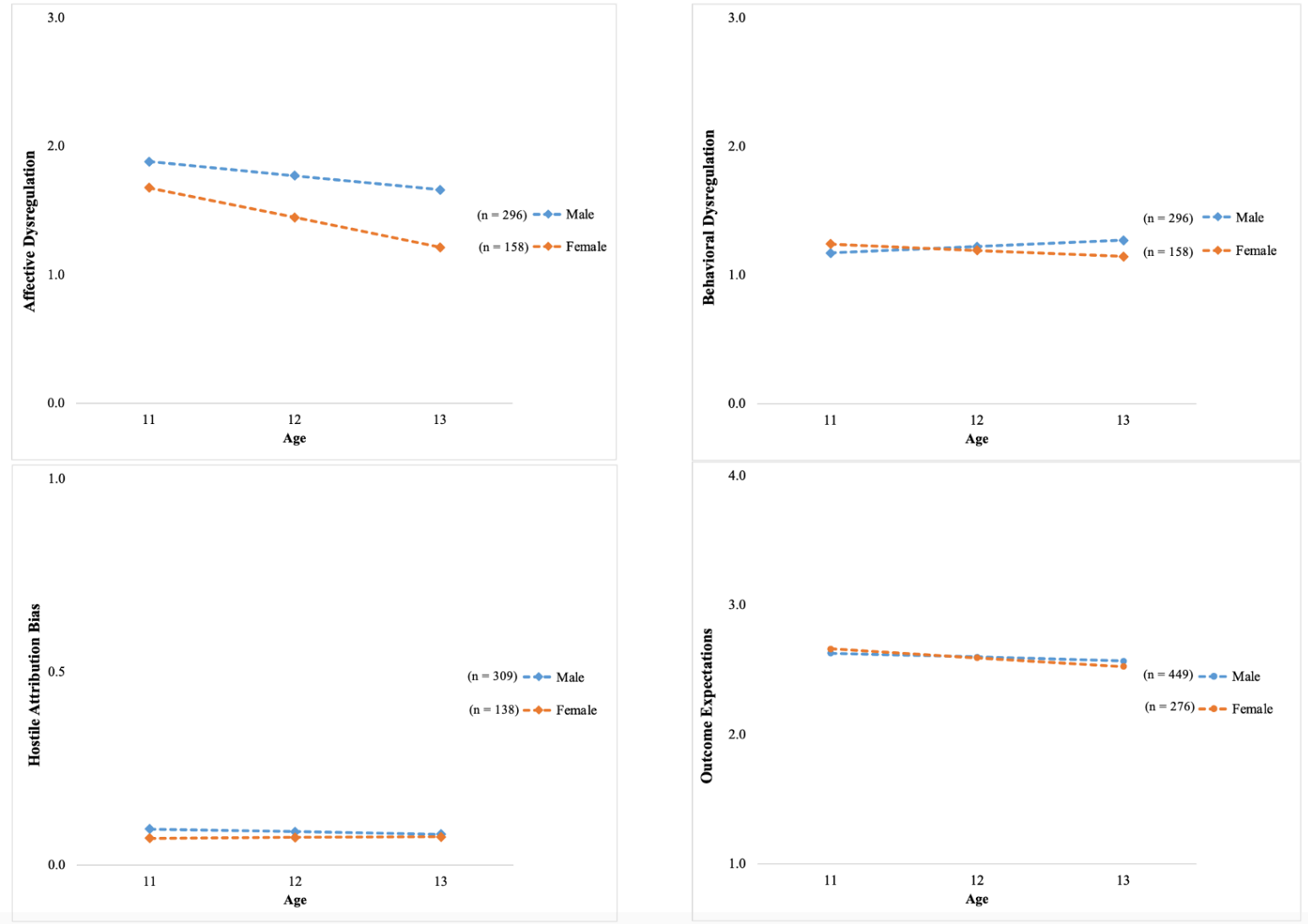
**Table 3.**

*Harmonized Data Across 8 Randomized Control Trials*

| | Studies | $N_{students}$ | $J_{schools}$ | Waves |
|---|---|---|---|---|
| 1 | Lochman & Wells (2002, 2003, 2013) | 245 | 17 | 6 |
| 2 | Lochman & Wells (2002, 2004) | 246 | 12 | 7 |
| 3 | Lochman (2006, 2014) | 241 | 9 | 5 |
| 4 | Thomas, Bradshaw (2021) | 516 | 11 | 3 |
| 5 | Bradshaw (2017) | 709 | 40 | 3 |
| 6 | Lochman (2017) | 97 | 8 | 3 |
| 7 | Department of Justice | - | - | - |
| 8 | Office of Juvenile Justice and Delinquency Prevention | - | - | - |

**Figure 1.**

*SIP Trajectories by Sex*




Affective Dysregulation: $X^2 = 0.84$; Behavioral Dysregulation: $X^2 = 2.35$; Hostile Attribution Bias: $X^2 = 0.73$; Outcome Expectation: $X^2 = 0.40$

$*p < .05$, $**p < .01$, $***p < .001$.

**Figure 2a.**

*Cross-Lagged Effects Between Affective Dysregulation and Aggression for Females (n = 345)*

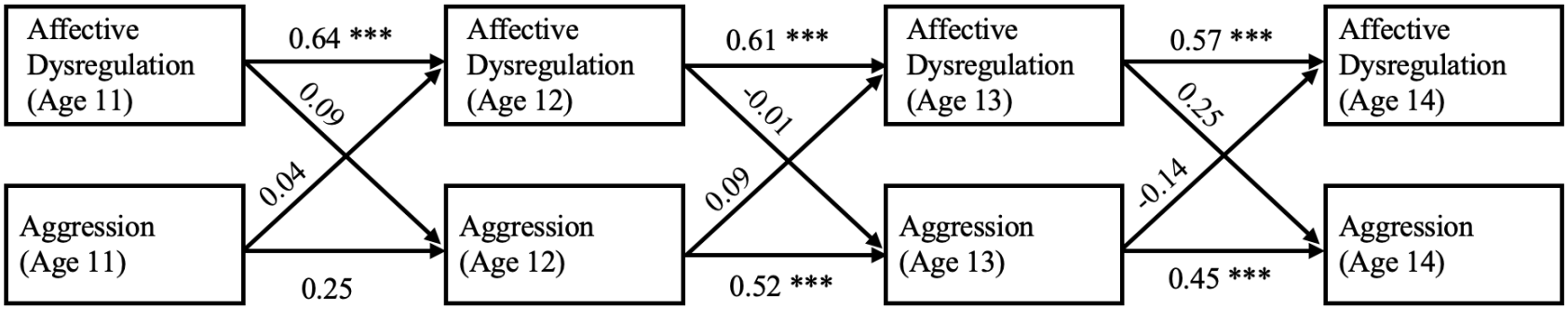
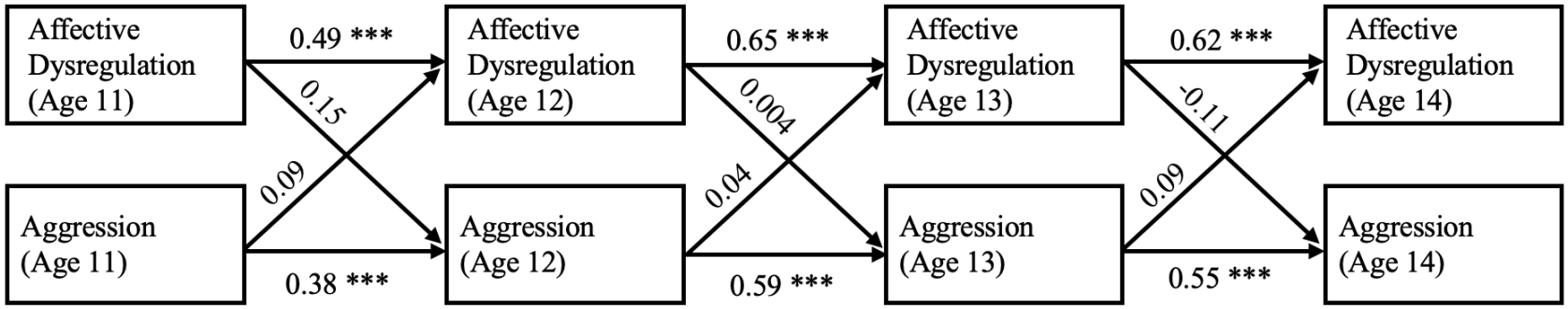



**Figure 2b.**

*Cross-Lagged Effects Between Affective Dysregulation and Aggression for Males (n = 576)*




*Note.* Although not depicted, the relationship between variables at the same time point were estimated. This model also controlled for sex, race, and family income.
*$p < .05$, **$p < .01$, ***$p < .001$.

**Figure 3a.**

*Cross-Lagged Effects Between Behavioral Dysregulation and Aggression for Females (n = 345)*

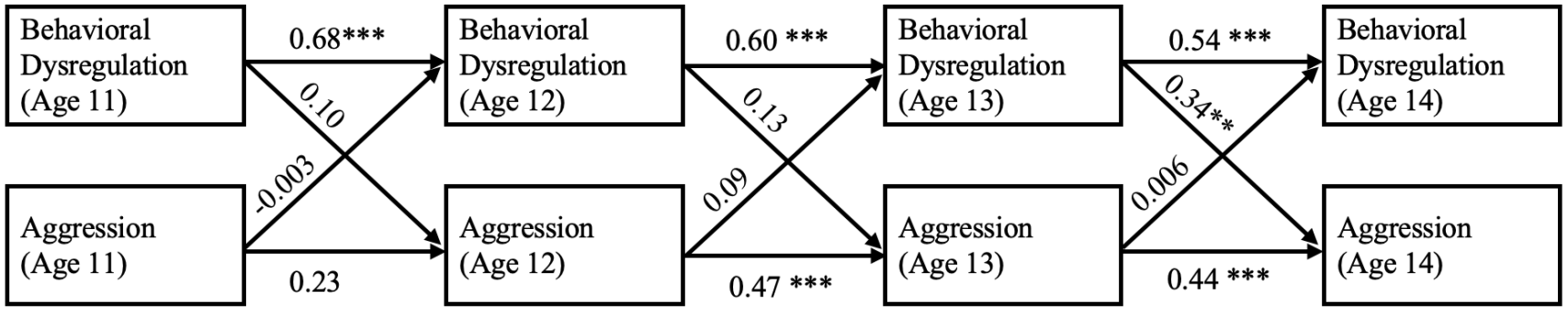
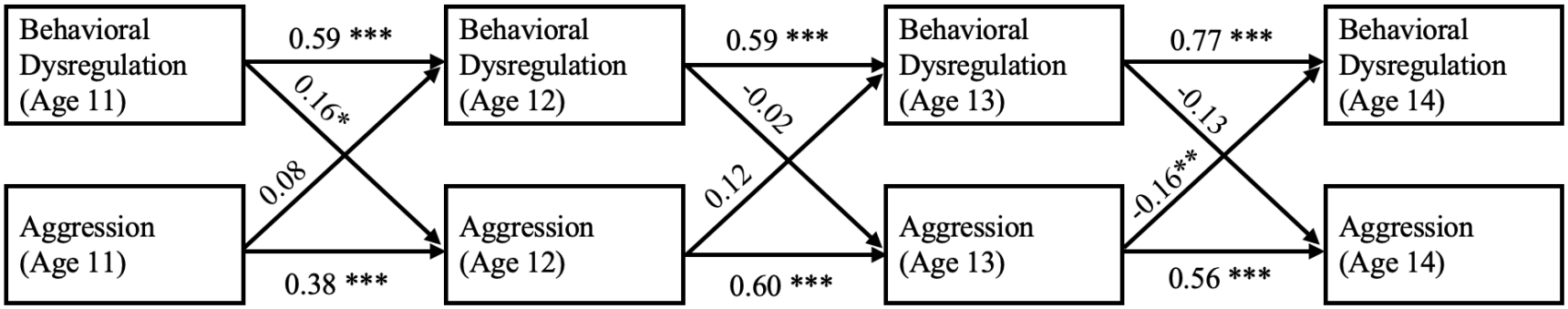



**Figure 3b.** *Cross-Lagged Effects Between Behavioral Dysregulation and Aggression for Males (n = 576)*




*Note.* Although not depicted, the relationship between variables at the same time point were estimated. This model also controlled for sex, race, and family income.
*$p < .05$, **$p < .01$, ***$p < .001$.

**Figure 4a.**

*Cross-Lagged Effects Between Hostile Attribution Bias and Aggression for Females (n = 341)*

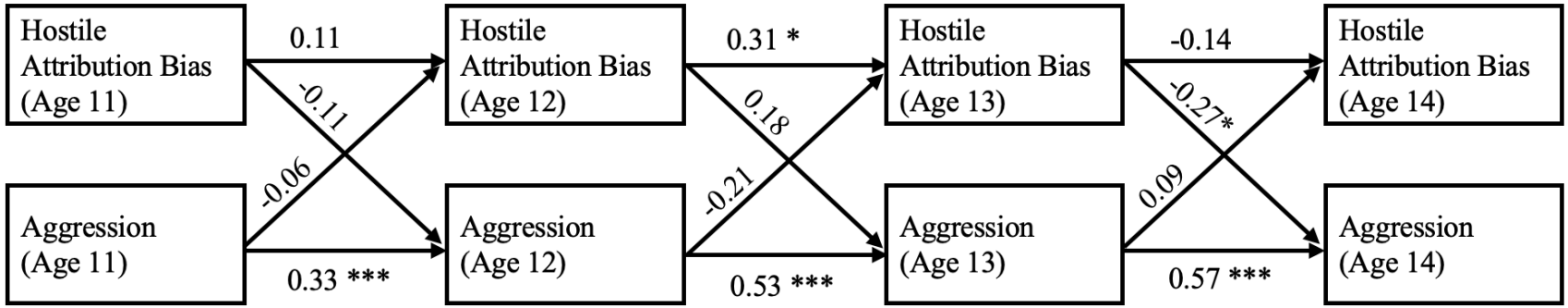
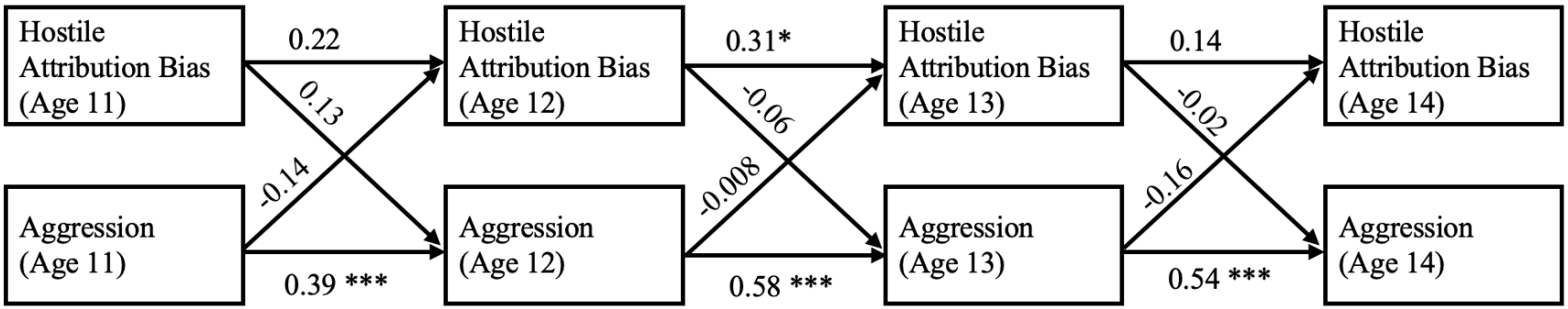



**Figure 4b.**

*Cross-Lagged Effects Between Hostile Attribution Bias and Aggression for Males (n = 575)*




*Note.* Although not depicted, the relationship between variables at the same time point were estimated. This model also controlled for sex, race, and family income.
*$p < .05$, **$p < .01$, ***$p < .001$.

**Figure 5a.**

*Cross-Lagged Effects Between Outcome Expectation and Aggression for Females (n = 345)*

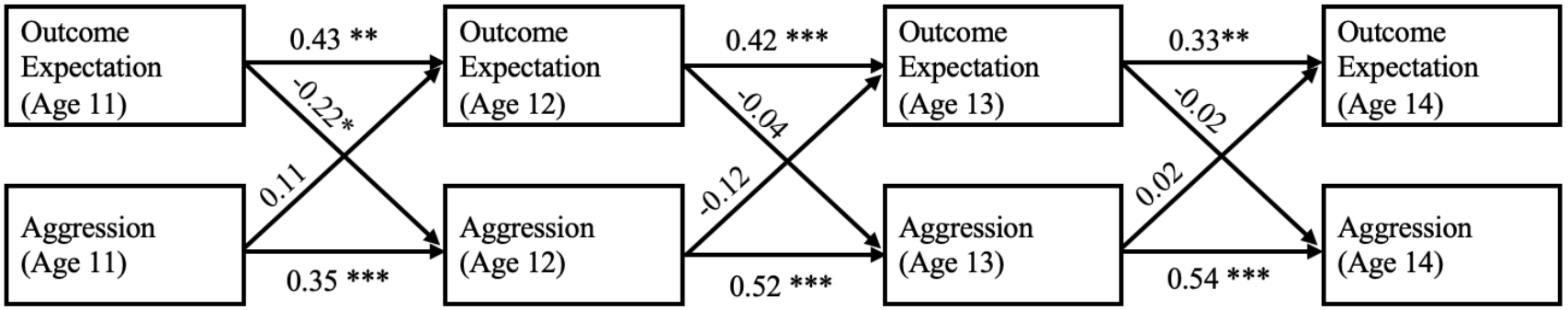
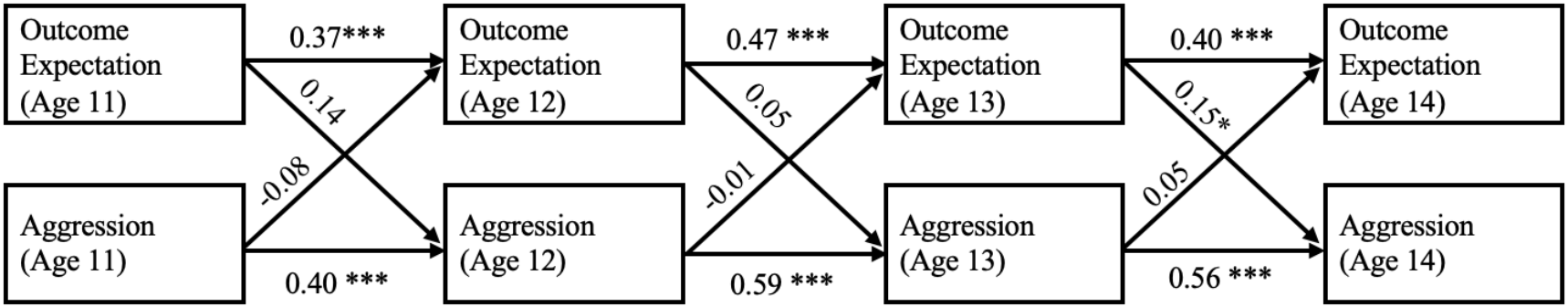



**Figure 5b.**

*Cross-Lagged Effects Between Outcome Expectation and Aggression for Males (n = 575)*




*Note.* Although not depicted, the relationship between variables at the same time point were estimated. This model also controlled for sex, race, and family income.
*$p < .05$, **$p < .01$, ***$p < .001$.

**Figure 6a.**

*Cross-Lagged Effects Between Affective Dysregulation and Conduct Problems for Females (n = 345)*

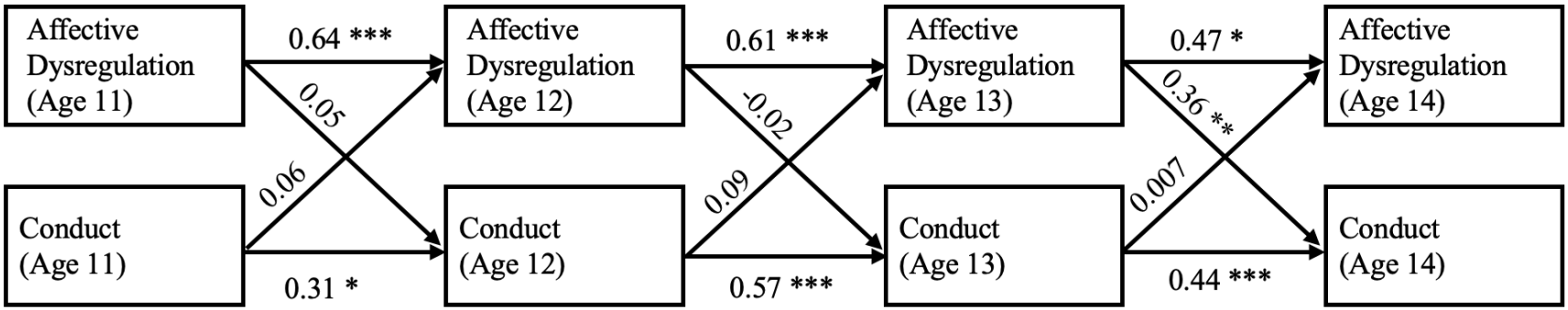
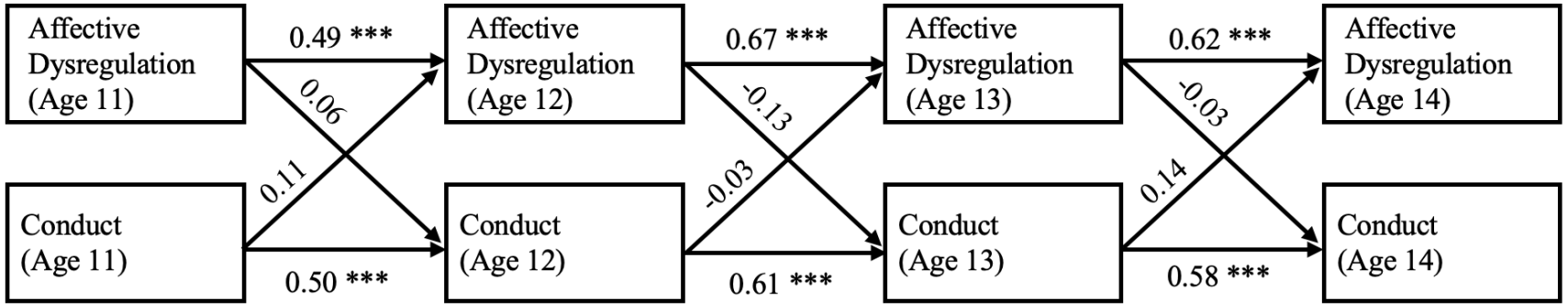



**Figure 6b.**

*Cross-Lagged Effects Between Affective Dysregulation and Conduct Problems for Males (n = 576)*




*Note.* Although not depicted, the relationship between variables at the same time point were estimated. This model also controlled for sex, race, and family income.
*$p < .05$, **$p < .01$, ***$p < .001$.

**Figure 7a.**

*Cross-Lagged Effects Between Behavioral Dysregulation and Conduct Problems for Females (n = 345)*

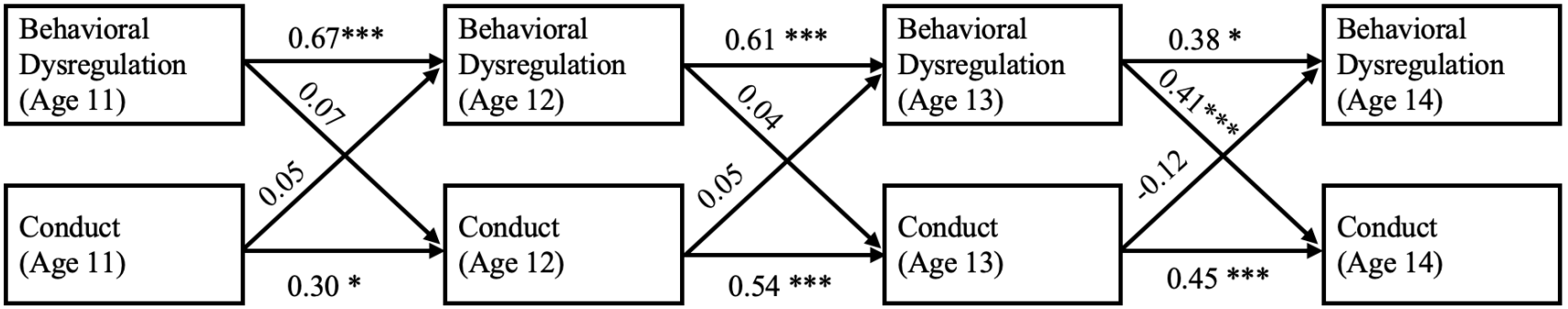
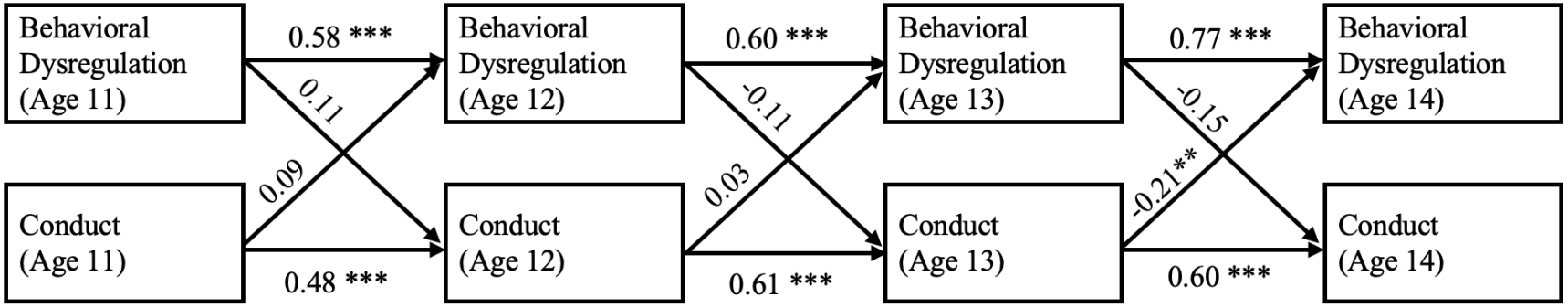



**Figure 7b.**

*Cross-Lagged Effects Between Behavioral Dysregulation and Conduct Problems for Males (n = 576)*




*Note.* Although not depicted, the relationship between variables at the same time point were estimated. This model also controlled for sex, race, and family income.
*$p < .05$, **$p < .01$, ***$p < .001$.

**Figure 8a.**

*Cross-Lagged Effects Between Hostile Attribution Bias and Conduct Problems for Females (n = 341)*

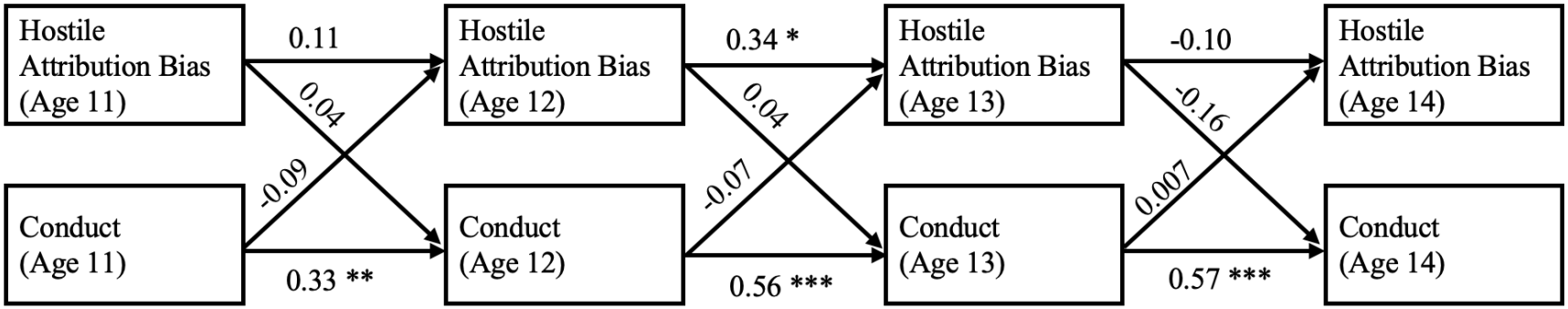
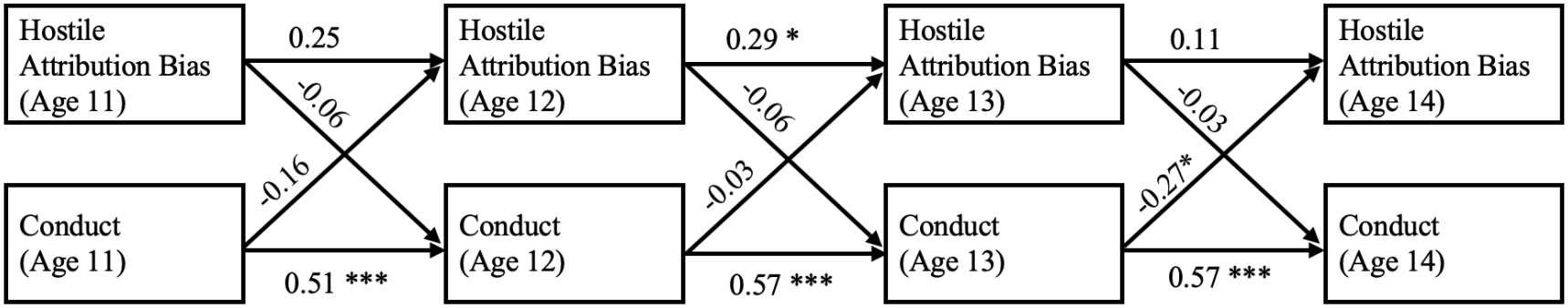



**Figure 8b.**

*Cross-Lagged Effects Between Hostile Attribution Bias and Conduct Problems for Males (n = 575)*




*Note.* Although not depicted, the relationship between variables at the same time point were estimated. This model also controlled for sex, race, and family income.
*$p < .05$, **$p < .01$, ***$p < .001$.

**Figure 9a.**

*Cross-lagged Effects Between Outcome Expectation and Conduct Problems for Females (n = 345)*

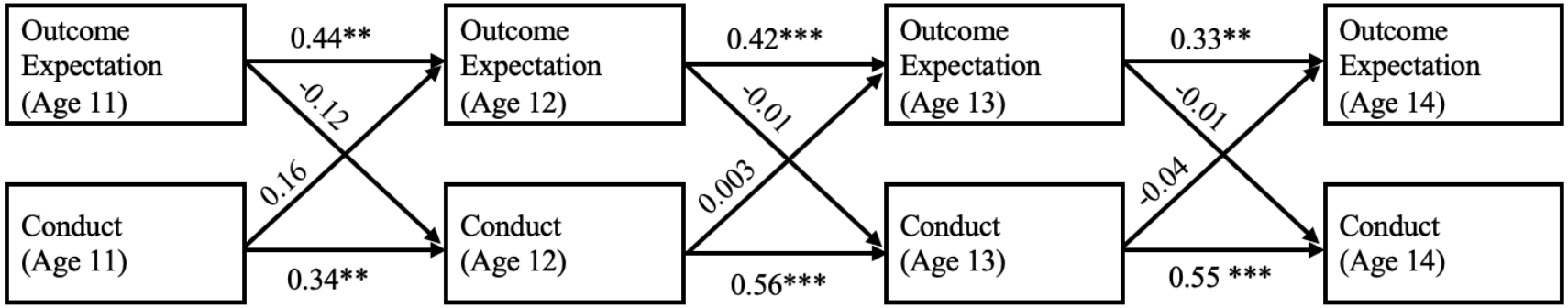
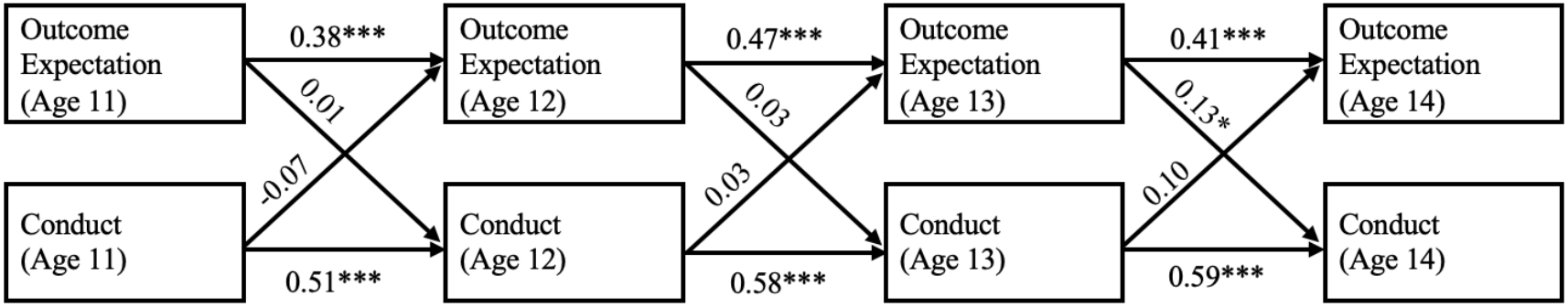



**Figure 9b.**

*Cross-lagged Effects Between Outcome Expectation and Conduct Problems for Males (n = 575)*




*Note.* Although not depicted, the relationship between variables at the same time point were estimated. This model also controlled for sex, race, and family income.
*$p < .05$, **$p < .01$, ***$p < .001$.