LONGITUDINAL RELATIONS BETWEEN PEER VICTIMIZATION AND DELINQUENCY: THE MEDIATING ROLES OF SADNESS, FEAR, AND ANGER

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LONGITUDINAL RELATIONS BETWEEN PEER VICTIMIZATION AND DELINQUENCY: THE MEDIATING ROLES OF SADNESS, FEAR, AND ANGER

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctorate of Philosophy at Virginia Commonwealth University

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Abstract

LONGITUDINAL RELATIONS BETWEEN PEER VICTIMIZATION AND DELINQUENCY: THE MEDIATING ROLES OF SADNESS, FEAR, AND ANGER

Lisa J. Ulmer, M.S.

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctorate of Philosophy at Virginia Commonwealth University.

Virginia Commonwealth University, 2015

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Peer victimization is a common occurrence among youth, and it has been linked to a number of negative outcomes, including delinquent behaviors (e.g., physical aggression, theft/property damage, and substance use). Several studies examined relations between peer victimization and delinquency, though few have done so longitudinally or examined whether negative emotions are underlying processes that explain associations between
these constructs. The current study’s purpose is to examine whether several negative emotions (i.e., anger, fear, and sadness) mediate relations between several types of peer victimization and delinquency among middle and high school youths. The study’s sample of 318 youths was predominately African American, and was part of a larger study examining the effects of community violence exposure and substance use. Path models showed no significant direct effects between several types of peer victimization and delinquency. Additionally, only anger dysregulation mediated relations between peer victimization and delinquency. These findings, as well as their real-world implications and potential avenues for future research within this area, are discussed.
Peer victimization, or being the target of aggressive behaviors by peers, includes relational (i.e., behaviors designed to damage social relationships) and physical (i.e., threats or the use of physical aggression) victimization subtypes, and unfortunately occurs frequently among adolescents (Crick & Bigbee, 1998; Juvonen & Graham, 2001). Up to 80% of school-aged youths have experienced peer victimization in their lifetimes and around 10% to 15% have experienced chronic victimization (Juvonen & Graham, 2001). The high prevalence rates for peer victimization is troubling, especially as it predicts increases in externalizing behaviors such as delinquency (Reijntjes, Kamphuis, Prinzie, Boelen, van der Schoot, & Telch, 2011), internalizing behaviors including anxiety and depression (Reijntjes, Kamphuis, Prinzie, & Telch, 2010), and also poor academic achievement (e.g., Juvonen, Nishina, & Graham, 2000).

Delinquent behaviors are particularly concerning as, in some cases, they can lead to physical injury, health impairment, incarceration, and may disrupt normative developmental trajectories during adolescence (Moffitt & Caspi, 2001). Several different types of behaviors are included under the broader domain of delinquency. Delinquent behaviors are comprised of law violations committed by youths under the age of 18 (e.g., property damage, theft, and truancy, physical aggression, cigarette smoking and alcohol consumption) (Arnett, 2012). The United States Department of Justice (2005) data underscore the severity of this problem in that 2.1 million adolescent arrests were made in 2005. Additionally, among a sample of high school students, approximately 36% of youths reported engaging in physical aggression in the previous year, and 18% reported
carrying a weapon in the prior 30 days from the time of survey completion (CDC, 2009).
Being arrested as an adolescent can markedly alter a youth’s life trajectory, especially if
delinquent habits previously learned are reinforced and new ones are learned during
incarceration or detention.

Based on the negative consequences associated with delinquency, it is important
to identify modifiable risk factors for these behaviors. According to theoretical models
such as General Strain Theory (GST), strains, or “events or conditions that are disliked by
individuals,” may place youths at-risk for engaging in delinquent behaviors (Agnew,
2006, p. 4). One type of strain is being “treated in an aversive or negative manner by
others” (Agnew, 2006, p. 4). Abusive peer relationships are an example of this type of
strain (Agnew, 2006) and peer victimization falls within this category (Cullen, Unnever,
Hartman, Turner, & Agnew, 2008). Cross-sectional studies have found positive
associations between peer victimization and delinquent behaviors (e.g., Hemphill,
Kotevski, & Herrenkohl, et al., 2011, Nansel, Overpeck, & Piaa, et al., 2001; Sullivan,
Farrell, & Kliwer, 2006; Wallace et al., 2005). For example, Sullivan et al. (2006) found
that both physical and relational victimization by peers was positively associated with
delinquency, physical aggression, and substance use in a predominately African
American sample of middle school students. In a meta-analysis of longitudinal studies
that examined relations between peer victimization and externalizing behaviors (which
consisted of both illegal and non-illegal behaviors), results showed that peer victimization
predicted increased frequencies of externalizing behaviors, including aggression and
norm violations, over timeframes spanning 10 to 24 months (Reijntes et al., 2011).
Studies also found prospective relations between peer victimization and substance use
among adolescents (e.g., Niemela, Brunstein-Klomeck, & Sillanmaki, et al., 2011; Topper, Castellanos, Ryan-Mackie, & Conrad, 2011). Overall, this research suggested that peer victimization is a risk factor for subsequent increases in externalizing behaviors generally, and delinquent behaviors more specifically.

Although significant direct longitudinal effects between peer victimization and delinquent behaviors have been demonstrated (Reijntjes et al, 2011; Topper et al., 2011), little research has addressed underlying processes through which these constructs are linked. This is problematic as it leaves prevention researchers with few avenues to target potential mediators of relations between peer victimization and delinquent behaviors (i.e., physical aggression, theft and property destruction, and substance use). GST (Agnew, 2006) posited that negative emotions mediated relations between peer victimization and delinquent behaviors. More specifically, stressors like peer victimization produce negative emotions that may be resolved or ameliorated by engaging in delinquent behavior (Agnew, 2006). According to this theory, peer victimization may produce negative emotions including anger, depression, and fear that can become difficult for victimized adolescents to successfully regulate. Furthermore, the type of emotion generated by peer victimization experiences has been shown to inform the likelihood of specific delinquent behavior responses. Difficulty regulating anger has been associated with physical aggression and theft and property damage that was retaliatory in nature and used to correct a perceived injustice (Averill, 1982). In contrast, depression was more strongly related to substance use than was anger, and substance use may serve as a mechanism to cope with emotional distress (Jang & Johnson, 2003). Lastly, fear was
more likely to be associated with delinquent behaviors related to avoidance, which could be achieved through substance use (Aseltine, Gore, & Gordon, 2000).

Difficulty in regulating emotions has been examined as a mediator of relations between victimization experiences (including community violence, stressful life events, and peer victimization) and aggression in a few studies (e.g., Herts, McLaughlin, & Hatzenbuehler, 2012; Schwartz & Proctor, 2000). Empirical support for examining this mediational model was provided by studies that demonstrated prospective relations between peer victimization and increased aggression (e.g., Dodge, Lansford, & Burks, et al., 2003) and difficulty in regulating emotions (McLaughlin, Hatzenbuehler, Menin, & Nolen-Hoeksema, 2011). For example, in an ethnically diverse sample of early adolescents, Herts et al. (2012) found that emotion dysregulation mediated relations between peer victimization and aggression over a period of seven months. Some limitations of studies in this area included the lack of separation of specific emotions in constructing measures of emotion dysregulation (e.g., combining sadness and anger dysregulation into a composite measure) and the sole focus on aggression as the externalizing outcome.

GST (Agnew, 2006) also highlighted the potential indirect effects of peer victimization on substance use through internalizing behaviors, including depression and one subtype of anxiety (fear). Both cross-sectional (Hawker & Boulton, 2000) and longitudinal (Reijntjes et al, 2010) studies demonstrated positive relations between peer victimization and internalizing behaviors, including depression and anxiety. Researchers also have found significant relations between depression and anxiety and the increased frequency of substance use among adolescents (e.g., Luk, Wang, & Simons-Morton,
Additionally, a cross-sectional study by Luk and colleagues (2010) found that depression mediated relations between peer victimization and substance use for girls but not boys among a sample of tenth graders.

Several limitations exist in prior studies that have: (a) tested direct relations between peer victimization and delinquent behaviors, and (b) focused on the potential indirect effect of peer victimization on delinquent behaviors through anger dysregulation and internalizing behaviors in adolescent samples. For longitudinal studies addressing direct relations, little attention has been given to potential differential associations between physical and relational victimization and types of delinquent behaviors. The definitions of delinquent behaviors have also varied and some studies included items that are not illegal for youths under the age of 18 (e.g., Sullivan et al., 2006). Studies focusing on the mediating effects of peer victimization on delinquency via emotion dysregulation have primarily used composite measures for this construct that did not specifically test whether relations between peer victimization and delinquent behaviors occur through experiencing specific emotions. Delinquent behaviors, such as theft and property damage, have also not been included in these models. Lastly, to date, only cross-sectional efforts have considered the theoretical mediating effect of peer victimization on substance use via depression, and no studies have addressed whether an indirect effect for peer victimization on substance use exists via fear.

The current study will further the literature by first assessing the degree to which physical and relational subtypes of victimization predict delinquent behaviors, including physical aggression, theft, and property damage, and substance use across a two-year timeframe. Next, specific mediating effects of peer victimization on delinquent behaviors
via emotions, as posited by GST, will be examined. Gender differences in these relations will also be tested. Lastly, few studies assessing relations among these constructs have focused on a predominately

**Literature Review**

The following sections critically review the literature on peer victimization, delinquency, and relations between peer victimization and delinquency in adolescence. The first section focuses on delinquency and peer victimization in adolescence. Classifications and prevalence rates of delinquency and peer victimization are presented, and developmental factors that may influence both of these constructs are detailed. In the next section, empirical evidence is discussed that supports relations between peer victimization and externalizing behaviors more generally, including both illegal and legal norm violating behaviors, and delinquent behaviors more specifically, along with the need to understand indirect effects that may explain connections between these variables.

**Delinquency and Peer Victimization in Adolescence**

This section focuses on delinquency and peer victimization in adolescence. First, classifications of delinquency, prevalence rates, and negative consequences associated with delinquent behaviors are detailed. Moffitt’s (2007) theory of “adolescent-limited delinquency” is discussed to highlight the relevance of studying delinquency during this developmental stage. Next, classifications of peer victimization are presented, with a focus on relational and physical subtypes of victimization. Prevalence rates for peer victimization in adolescence are then discussed, along with developmental trends and gender differences in these rates. Lastly, the influence of developmental factors on peer victimization is presented.
Delinquency in adolescence. Classifications of delinquency have included a range of behaviors encompassing assault (i.e., putting a person in fear of unlawful physical contact) and battery (i.e., engaging in unlawful physical contact), property damage or theft, sexual assault, substance use, and school-related offenses of academic cheating and truancy (Epstein, 2008; Lynam et al., 2000; Moffitt, 1990; Patterson, Dishion, & Yoeger, 2000; Sullivan et al., 2006; Swartz, Reyns, Henson, & Wilcox, 2010). The exact behaviors that comprise delinquency have been a matter of debate among researchers. However, a concise definition of delinquency was formulated by Arnett (2012), who stated that delinquent behaviors include those that are illegal for youths under the age of 18 to perform, according to United States law. For example, Lynam et al. (2000) defined delinquent behaviors in terms of vice and drug offenses, theft, and violence. Defining delinquency in terms of illicit behaviors for underage youth excluded some behaviors included by some researchers, such as academic cheating, that are not illegal. However, this definition of delinquency created a consistent framework for examining these behaviors that has been supported by a number of studies (Cullen et al., 2008; Lynam et al., 2000; Swartz et al., 2010). Additionally, the construct of “delinquency” was further divided into three facets of physical aggression, theft/property damage, and substance use because research has indicated that these areas constitute three separate areas within the larger construct of delinquency (Farrell, Kung, White, & Valois, 2000).

Following this definition and research, the current study considers three types of delinquency: substance use, theft and property damage, and physical aggression to determine the extent to which peer victimization has an indirect effect on these variables
via specific negative affective states. Moffitt (2007) highlighted that many adolescents engage in “adolescent-limited delinquency” and that, for these youths, delinquent behaviors may begin and end during this developmental period. These youths tend to have unremarkable childhoods and may initiate delinquent behaviors because of the “maturity gap” (Moffitt, 2007). According to Moffitt (2007), the “maturity gap” is when youths engage in delinquent behaviors in order for adolescents to behave like the adults they have begun to physically resemble following puberty, and to demonstrate autonomy and social maturity, as well as to impress their peers (Moffitt, 2007).

Prevalence rates for substance use (e.g., alcohol, tobacco, and cannabis use), theft and property damage, and physical aggression show that these behaviors are not uncommon in adolescence. For example, in a national survey of drug use over a 12-month period, more than eight million adolescents reported drinking alcohol, four million smoked at least one cigarette, and five million used at least one type of illicit drug (SAMHSA, 2010). Among a national sample of ninth through twelfth graders, 12% engaged in physical aggression over a 12-month period, and youths under the age of 18 were arrested for approximately 14% of all violent crimes and 23% of all property crimes during that 12 months (CDC, 2012). In addition, 17% of high school students reported bringing a weapon to school in the previous 30 days (CDC, 2012). Theft, or taking another person’s or organization’s property, was also common, with more than 400,000 cases brought to juvenile courts in 2009 (U.S. Department of Justice, 2012). The United States Department of Justice (2005) underscored the prevalence of adolescent delinquency through their finding that 2.1 million adolescent arrests were made in 2005.
Overall, these findings highlight the high rate of delinquent behaviors among adolescents, and the need to determine risk factors associated with these outcomes.

**Peer victimization in adolescence.** Several different subtypes of peer victimization exist (e.g., physical, verbal, overt, relational, and cyber), and the current study focuses on two of these: physical and relational victimization. Although composite measures of peer victimization that combine several victimization subtypes have been frequently used (e.g., Lopez & DuBois, 2005; Paul & Cillessen, 2003), some researchers highlighted the importance of distinguishing between physical and relational forms of peer victimization (Crick, Casas, & Nelson, 2002; Sullivan et al., 2006). Physical victimization includes being physically harmed (e.g., being hit, pushed, or shoved) or being threatened with physical harm. Thus, physical victimization carries with it the imminent possibility or actuality of being physically injured. In contrast, relational victimization is comprised of behaviors that are intended to harm the victim’s social relationships. Examples of these behaviors have included social exclusion, rumors, gossip, and directly threatening to withhold friendship unless the victim complies with a peer’s requests (Crick et al., 2002).

Another factor distinguishing physical and relational victimization is that girls and boys tended to perceive the degree to which these two peer victimization subtypes are hurtful and harmful differently (Galen & Underwood, 1997; Paquette & Underwood, 1999). For example, in a study of seventh and eighth graders, boys reported similar levels of negative affect following both subtypes of peer victimization ($d = -.01$), but girls endorsed significantly higher levels of negative affect than boys following relational victimization ($d = 0.71$) (Paquette & Underwood, 1997). Another study (Galen &
Underwood, 1997) found significant gender differences in that boys perceived physical victimization as more harmful than social victimization ($d = 0.29$), while girls rated social victimization as being more harmful than boys did ($d = -0.69$) (Galen & Underwood, 1997); these results that were consistent with those presented in a review article (Crick et al., 2002). Crick and Zahn-Waxler (2003) suggested that these gender differences may reflect the importance of social bonds for girls. It has also been argued that girls’ social relationships are characterized by higher levels of intimacy, which may make girls more vulnerable to negative affect following acts of relational victimization. Overall, these findings demonstrated the relevance of considering gender differences in relations between these subtypes of peer victimization and adjustment difficulties (Crick & Zahn-Waxler, 2003).

Peer victimization, including relational and physical victimization, is unfortunately commonplace among school-aged youth (Juvonen & Graham, 2001). Approximately 830,000 incidents of peer victimization were reported nationally in 2010 (Roberts, Zhang, Truman, et al., 2012), and peer victimization happens more frequently in adolescence than during any other developmental stage (Eisenberg & Aalsa, 2005; Rosen, Beron, & Underwood, 2012). For example, Bradshaw, Waadrop, and O’Brennan (2013) reported prevalence rates of relational and physical victimization in the past month for an ethnically diverse sample of 11,408 middle and 5,790 high school students. Mean rates of relational victimization were 23% and 31% for middle school and 22% and 25% for high school boys and girls, respectively. Mean rates for physical victimization were 29% and 22%, and 25% and 15%, for middle and high school boys and girls,
respectively. More generally, risk for peer victimization has been found to occur at the greatest frequency during middle school (Williams & Guerra, 2007).

Some researchers noted that a developmental shift may occur regarding the type of peer victimization experienced, with physical victimization becoming less common, and relational victimization more common, as adolescents transition to high school (Sutton, Smith, & Swettenham, 1999). This may be explained in part by the continued development of social-cognitive processes, such as meta-cognition, perspective-taking, and abstract reasoning (Yoon, Barton, & Taiariol, 2004). Research on gender differences in relational and physical victimization showed mixed results, and some study findings supported higher levels of physical victimization in boys (Crick & Bigbee, 1998; $d = -0.22$, Prinstein, Boerger, & Vernberg, 2001; $d = .28$, Sullivan et al., 2006). Higher rates of relational victimization among girls have been found in some studies (Crick & Bigbee, 1998), but not in others, especially in studies employing samples of older middle school ($d = .16$, Sullivan et al., 2006) and high school students ($d = -0.22$, Prinstein, Boergers, & Vernberg, 2001).

Several developmental and contextual changes may contribute to the high prevalence of peer victimization in adolescence. Adolescents spend relatively more time with peers as compared to family members and other adults (Akers & Jensen, 2006; Larson & Richards, 1991), and depend on peers to a greater extent for companionship, esteem, and emotional support (Berndt, 2004) than they do during earlier developmental periods. Thus, adolescent friendships are characterized by increased sharing of private information (Siegal, LaGreca, & Harrison, 2009) which may be used positively to facilitate pro-social coping or negatively to damage peer relationships via gossip and
spreading rumors (Siegal, LaGreca, & Harrison, 2009; Prinstein, Boergers, & Vernberg, 2001).

Issues related to social status, reputation, and image become particularly salient during the transitions to middle and high school. During these transitions, youths move to new schools and encounter new peers, and social hierarchies are disrupted and must be reformed. In doing so, adolescents must define themselves and one way to do this is through their peer group affiliations. The reputation of victimized youth often suffers in comparison to their non-victimized peers, and adolescents befriend victimized adolescents significantly less frequently for fear that they will become victimized as well ($d = -.64$, Boulton, 2013). Additionally, some adolescents may use peer victimization to establish and maintain social status with peers (Brown, 2004; Espelage, Holt, & Henkel, 2003; Pardini, Loeber, & Stouthamer-Loeber, 2005). Peer victimization may also be used to reinforce the norms within social groups by excluding those who do not conform to group standards (Brown, 2004).

**Relations between Peer Victimization and Delinquency**

This section reviews the empirical literature on relations between peer victimization and delinquent behaviors (i.e., substance use, physical aggression, and theft and property damage). Cross-sectional studies are reviewed first, and these are divided into those that measured externalizing measures that incorporated behaviors that are not illegal, used a composite measure of delinquency, or and those that addressed specific aspects of delinquent behaviors. Longitudinal studies are then considered using the same organizational framework. Finally, gender differences between peer victimization and delinquency are addressed.
Cross-sectional studies. Peer victimization is a stressful experience that has been consistently and positively related to composite measures of delinquency in cross-sectional studies (Cullen et al., 2008; Graham, Bellmore, & Juvonen, 2003; Prinstein et al., 2001; Sullivan et al., 2006; Weiner et al., 2004). For example, in two ethnically diverse samples of middle school students, composite measures of peer victimization (i.e., verbal, physical, and relational) and delinquency (i.e., physical aggression and property damage) were positively related (Cullen et al., 2008; Graham et al., 2003). A significant positive relation was also found between relational victimization and delinquency (i.e., physical aggression, weapon-carrying, and property damage) among eighth through twelfth graders (Weiner et al., 2004). In a predominately African American sample of 276 youths, physical and relational victimization were associated with higher rates of delinquent and norm violating behaviors (i.e., academic cheating, truancy, theft, and property damage) (Sullivan et al., 2006). Lastly, in an ethnically diverse sample of ninth through twelfth graders, overt ($d = .51$), but not relational ($d = .18$), victimization was related to higher levels of self-reported delinquency (i.e., theft and aggression), compared to youths who did not experience victimization (Prinstein et al., 2001). In one exception to the majority of studies, no significant relations were found between composite measures of peer victimization (i.e., overt and covert) and delinquency/norm violating behaviors (i.e., physical aggression and “rule violating behaviors,” such as theft) among a ninth grade Finnish sample (Ranta, Kaltiala-Heino, Pelkonen & Marttunen, 2009).

Concurrent studies have also found positive associations between peer victimization and one or more facets of delinquent behaviors (e.g., Brady et al., 2009;
Luk et al., 2010). For example, physical and relational victimization were associated with higher frequencies of physical aggression in several studies of adolescents (Schwartz, Chang, & Farver, 2001; Sigfusdoittier et al., 2012; Sullivan et al., 2006). Researchers also have found positive relations between peer victimization and substance use with adolescent samples (Brady et al., 2009; Espelage et al., 2012; Reid et al., 2006; Tharp-Taylor, Haviland, & D’Amico, 2009; Sullivan et al., 2006; Weiner, Pentz, & Skara, 2004). For example, in a sample of late adolescent Latino and Caucasian youth, a peer victimization composite (i.e., physical and relational victimization) was related to higher frequencies of both alcohol and drug use (Brady, Tschann, & Pasch, et al., 2009). Some studies indicated that relational, but not physical, victimization was significantly related to higher levels of substance use (Reid et al., 2006; Weiner et al., 2004), while others showed that these relations existed for both peer victimization subtypes. Espelage et al. (2012), however, found that both physical ($d = 2.03$) and relational ($d = 1.99$) victimization were significantly related to substance use, as did Sullivan et al. (2006) and Tharp-Taylor et al. (2009). Some mixed findings were discovered regarding the relative strength of associations between relational and physical victimization and substance use (e.g., Brady et al., 2009; Reid et al., 2006; Weiner et al., 2004). Overall, these findings provide evidence that peer victimization is positively related to several components of delinquent behaviors including substance use, physical aggression, and property theft and damage.

**Longitudinal studies.** A recent meta-analysis examined the degree to which peer victimization predicted subsequent increases in externalizing generally and delinquent behaviors more specifically (Reijntjes et al., 2011). The ability of peer victimization
(peer-, teacher-, or self-report) at Time 1 to predict externalizing behaviors (e.g., aggression and behavior problems) at Time 2 was examined in 10 studies featured in this meta-analysis (Reijntjes et al., 2011). Results of these studies showed that higher levels of peer victimization led to increased frequencies of externalizing behaviors over a 10- to 24-month timeframe ($r = .14$). One limitation of this meta-analysis was that, based on the way study constructs were assessed (e.g., using composite measures), it was not possible to discern longitudinal relations between facets of peer victimization and delinquent behavior. Future prospective research is needed to address the extent to which physical and relational victimization may differentially predict components of delinquent behaviors.

Another limitation of this meta-analysis was that a broad age range was included for selected studies, ranging from early childhood to late adolescence (Reijntjes et al., 2011). Six of the ten studies employed adolescent samples (Hodges, Boivin, Vitaro, & Bukowski, 1999; Khatri, Kuperschmidt, & Patterson, 2000; Kim et al., 2006; Rusby, Forrester, & Biglan, et al., 2005; Schwartz, McFadyen-Ketchum, & Dodge, 1998). In a sample of 393 fourth and fifth graders, victimization (peer-nominated) led to increased teacher-reported externalizing behaviors for those children without a best friend (Hodges & Perry, 1999). Kim et al. (2006) found that Korean seventh and eighth graders who were aggressive-victims were at greatest risk for increased externalizing problems over a 10-month period. In addition, among 223 U.S. middle school students, verbal victimization predicted antisocial behavior and physical victimization led to higher rates of antisocial behavior and aggression in high school (Rusby et al., 2005). Victimization (peer-nominated) among a late elementary school sample was also found to predict
externalizing behaviors and attention dysregulation two years later in middle school (Schwartz et al., 1998). Self-reported peer victimization was also significantly related to externalizing behaviors among a late elementary school-aged sample ($d = .19$). In contrast, in a sample of third to seventh graders, victimization (peer-nominated) did not predict changes in externalizing behaviors (i.e., aggression, argumentativeness, dishonesty, and disruptiveness) across a 1-year period ($d = .05$) (Hodges & Perry, 1998). Thus, the majority of studies within this meta-analysis that focused on adolescent samples found significant longitudinal relations between peer victimization and externalizing behaviors (Reijntjes et al., 2011).

Several other studies have examined longitudinal relations between peer victimization and specific facets of delinquency (Niemela, Brunstein-Klomek, Sillanmaki, Helenius, Piha, & Kumpulainen et al., 2011; Rusby et al., 2005; Topper, Castellanos-Ryan & Mackie, et al., 2011). In most of these studies, self-, teacher-, and parent-reported peer victimization predicted different aspects of externalizing behaviors, including aggression and substance use, among adolescents over a 3-month to 10-year timeframe. These relations were significant for both late childhood/early adolescent samples, and early adolescent samples. One study that did not reflect significant relations between the constructs utilized a broader age range of youth (from middle childhood to early adolescence) (Hodges & Perry, 1998). Only one study (i.e., Kim et al., 2006) examined longitudinal relations between peer victimization and a composite of aggression specifically (which included behaviors that were not illegal), and did not find significant relations between peer victimization and aggression. Additional longitudinal
studies are needed to determine if these differential relations found in cross-sectional studies are also supported in prospective studies.

**Gender differences in relations between peer victimization and delinquency.**

Several studies indicated that boys and girls respond differently to experiences of peer victimization. Of the 22 studies that examined relations between peer victimization and delinquency discussed in this study, only five assessed gender differences in these relations. All five studies were cross-sectional, and two examined peer victimization using a composite measure. One study of middle school students found significant relations between peer victimization and a composite of delinquent behaviors (i.e., substance use, aggression, and property damage and theft), and that the strength of these relations did not differ for boys and girls (Cullen et al., 2008). However, in this study, as well as one other, significant relations were found between peer victimization and illicit substance use for boys but not girls (Cullen et al., 2008; Luk et al., 2010). Finally, peer victimization (peer-nominated) among 471 early adolescents predicted subsequent increases in norm-violating behaviors, several of which were not illegal (e.g., lying, cheating, fire setting, preoccupation with sexual thoughts) for girls but not boys over a one-year period (Khatri et al., 2000). These studies broadly indicate that peer victimization may be related to different types of delinquent behaviors for boys and girls.

The influence of gender on relations between peer victimization subtypes and delinquency was also examined. One study of ethnically diverse ninth through twelfth graders found that overt, but not relational, victimization was positively associated with self-reported externalizing behaviors, with no gender differences found in these relations (Prinstein et al., 2001). In one other study, Sullivan et al. (2006) examined relations
between physical and relational victimization and physical aggression, delinquency, and substance use among a sample comprised primarily of African American eighth graders. At high levels of physical victimization, boys reported higher frequencies of delinquent behaviors and alcohol use than girls. In contrast, at higher levels of relational victimization, girls reported higher frequencies of physical aggression and marijuana use than boys. Overall, these studies highlighted mixed findings with regard to relations between peer victimization and delinquent behaviors. They do, however, indicate that clarifying gender differences in relations between peer victimization and delinquency is important, especially given that physical and relational victimization appear to be perceived as differentially hurtful for males and females.

In summary, the majority of the empirical evidence has supported concurrent and longitudinal relations between peer victimization and delinquent behaviors encompassing substance use, aggression, and property theft and damage. Mixed findings were present with regard to the strength of relations between physical/overt and relational victimization and substance use. For example, some studies found pathways between only relational victimization and substance use (Reid et al., 2006; Weiner et al., 2004) while others found significant relations between both physical and relational victimization and this outcome (Sullivan et al., 2006). Study findings also revealed several limitations and directions for future research. For longitudinal studies, few examined relations between peer victimization and types of delinquency separately, most focused on combined samples of late elementary and middle school youth, and none considered potential gender differences in relations between peer victimization and delinquent behaviors. In addition, relatively fewer studies incorporated substance use into
models testing relations between peer victimization and delinquent behaviors (e.g., Sullivan et al., 2006). One additional limitation is that few studies (e.g., Sullivan et al., 2006) have tested relations between aspects of peer victimization and delinquency in a predominantly African American sample, and this is an important area for future longitudinal studies.

A number of researchers have acknowledged that peer victimization is a risk factor for delinquent behaviors, but stress the importance of better understanding the underlying mechanisms that may explain why victimization experiences lead to different components of delinquent behavior. One potential explanation is that peer victimization generates negative emotional states such as anger, sadness, and fear that then place adolescents at-risk for engaging in various facets of delinquent behaviors (e.g., Agnew, 2006). In the next section, several theories are reviewed that support connections between peer victimization experiences and negative affect and between negative affect and delinquent behaviors.

**Theoretical Models of Relations between Peer Victimization and Delinquency**

In this section, theories that identify potential mediating factors in longitudinal relations between peer victimization and delinquency are described. These theories review how stressors like peer victimization may lead to negative emotions, and how these emotions could then result in delinquent behaviors (i.e., physical aggression, theft and property damage, or substance use). An overview of each model will first be given, along with a detailed explanation of how the model explains potential underlying mechanisms in the progression from peer victimization to delinquent behaviors.
**General Strain Theory.** GST, according to Agnew (2006, p. 4) asserted that strains, or “events or conditions that are disliked by individuals,” are important factors leading to the commission of delinquent behaviors. This theory includes three types of strains: (a) losing a valued asset, (b) maltreatment, and (c) inability to reach one’s goals. Peer victimization meets the criteria of being a form of maltreatment by others (Agnew, 2006). What makes peer victimization an especially potent strain is that being treated unfairly in this way feels unjust, which increases the negative feelings experienced by the victim. Additionally, peer victimization is generally considered to be undeserved and a violation of social norms for the person being victimized. The characteristics of strains such as peer victimization (i.e., that they are unjust, intended to harm, and are violations of social norms) create various negative emotions within adolescents, and these emotions may then lead to various aspects of delinquency (see Figure 1).

![GST emotional mediation model](image)

*Figure 1. GST emotional mediation model. Formulated from text from *Pressured into Crime*, by R. Agnew, 2006, p. 39. Copyright 2006 by Roxbury Publishing Company.*

As noted, peer victimization may prompt a negative emotional reaction from victims. One emotion that peer victimization may create is anger, and this anger may increase to the extent that some youths experience anger dysregulation (difficulty managing one’s anger in a socially acceptable way). Anger dysregulation may lead to delinquent behaviors, such as physical aggression and theft/property and damage because it may decrease youths’ inhibitions against engaging in retaliatory acts. Retaliatory acts
are instances of physical aggression engaged in following victimization and are enacted by victims in an attempt to rectify the wrongs that have affected them. Retaliatory acts may also be perceived as a way to alleviate these uncomfortable feelings (Agnew, 2006). For example, when adolescents ignore those who victimize them, the subsequent feelings of anger may persist, so adolescents may believe that hitting the person who is victimizing them represents an effective way of ending the negative emotions and possibly the victimization itself (Agnew, 2006). This may also take the form of discharging that emotion by behaving aggressively towards someone else. Anger dysregulation also decreases coping abilities by making it difficult for adolescents to think clearly, make sound judgments, and effectively express themselves in a non-violent manner (Agnew, 2006). Adolescents’ ability to accurately understand social situations may also be impaired when experiencing anger dysregulation, which can lead to misunderstandings and a greater likelihood of aggressive responses or property theft or damage (Agnew, 2006).

Peer victimization can also lead to feelings of sadness or fear among adolescents (Agnew, 2006). Youths may experience these feelings because they perceive that they lack the power or influence to right the wrongs done to them (Agnew, 2006). When youths feel unable to rectify the unjust experiences, they are generally less likely to seek revenge (Agnew, 2006). Instead, sadness may place adolescents at greater risk for initiating passive strategies to relieve their negative emotions, such as using drugs or alcohol (Agnew, 2006). Fear can also result from peer victimization and create the desire for youths to flee uncomfortable situations (Agnew, 2006). This reaction may cause youths to avoid places or situations in which they may be victimized, including schools.
or certain classes (Agnew, 2006). Youths may also engage in substance use as a way to diminish or escape feelings of fear. Thus, fear and sadness resulting from peer victimization can lead to substance use as a coping mechanism.

In summary, GST asserts that youths who are targeted by peer victimization may engage in delinquent behaviors based on difficulties in effectively coping with negative emotions (e.g., difficulties in problem-solving, negotiating effective solutions, and seeking social support) and thus may opt to use delinquent behaviors in part to obtain relief from negative emotional states (Agnew, 2006). Engaging in delinquent behaviors following peer victimization may be a relatively quick way to alleviate the negative emotions stemming from peer victimization, but GST suggests that it is not an effective long-term method of coping with stressors. Although it may provide more immediate relief to retaliate physically, damage or steal the perpetrator’s possessions, or to emotionally escape by using alcohol or drugs, these actions can detract from academic and pro-social goals and may result in involvement with the juvenile justice system.

**Stress and Coping Theory.** Lazarus and Folkman’s (1984) stress and coping theory explained how experiencing stressors leads to threat appraisals and coping responses which subsequently may result in adapting one’s behaviors. This model has been reformulated and updated (Lazarus, 2006), and it is described below. The antecedents, processes, and outcomes of stressful experiences are the focus of the model.

The antecedents of the model are represented in two interrelated components: those related to the person and to the environment (Lazarus, 2006). Person-related antecedents refer to individual goals, beliefs about one’s self and the external world, and resources (e.g., emotional management and problem-solving abilities). Environmental
antecedents include the individual’s experiences of losses, harm by others, and threats or challenges, along with any strengths or advantages that one might have (e.g., social support).

When dealing with stressors, the person-environment relationship is created by the interaction between the individual’s characteristics and environmental stressors (Lazarus, 2006). The dynamics of the person-environment relationship influence threat appraisal (i.e., the perception that one may face a negative experience) processes. Adolescents examine their personal values and resources coupled with the environmental supports and challenges they are facing, and work to understand whether the event(s) occurring affect their belief system, values, and goals, and are consistent with desired outcomes (Lazarus, 2006). In this way, the relational meaning, or the “personal significance” of a situation is constructed. More specifically, an event that occurs within a certain environment must be construed as threatening to one’s self, which causes stress. A situation may only be stressful under certain circumstances, such as when the demands of the situation are perceived to be greater than individual and environmental resources. Negative emotions can arise when individuals perceive that they may not be able to obtain a desired outcome nor cope effectively with the situation (Lazarus, 2006). For example, an individual may not be able to ensure that a perpetrator is punished as he/she would like, or may have difficulty moving on after experiencing an unpleasant situation. Individuals attempt to deal with stressors by using different types of coping strategies (e.g., active problem-solving or emotion-focused) to regulate negative emotions. Relational meaning is then revised to be consistent with the state of events following efforts to cope.
Lazarus (2006) noted that the experience of negative emotions, followed by attempts to cope with these emotions, is an iterative process that can continue for some time. For example, a teenage girl might initially deal with being victimized by ignoring it; however ignoring may not resolve her feelings about the issue, creating additional stress from these unresolved feelings, and subsequent efforts to cope through use of other methods, such as alleviating the stress through substance use. Relational meaning is revised following initial efforts to cope, such that individuals’ feelings about an event change, and they will experience emotions both immediately and over time. Lazarus (2006) also noted that, as part of the process of continuing to cope with negative emotions, social functioning, morale, and health can be affected by this process. A person may cope with negative emotions by engaging in ineffective methods of coping (e.g., engaging in risk-taking behaviors such as substance use and physical aggression).

Overall, this model provides a detailed analysis of the process by which stressful events may produce strong negative emotions with which youths subsequently try to cope. Some methods of coping with negative emotions (e.g., alcohol and drug use, aggression) may aide in coping in the short-term, but result in more problems and negative emotions than were originally experienced as a result of the stressor (Lazarus, 2006).

**Aggression-Frustration Hypothesis.** Originally formulated by Dollard, Doob, Miller, Mowrer, and Sears in 1939, this hypothesis examines how undergoing an experience that interferes with one’s goals can lead to aggression (Berkowitz, 1989). The Aggression-Frustration Hypothesis posits that those events that are considered frustrations (i.e., those that interfere with achieving one’s goals) lead to negative affect and subsequently to aggression either directed towards the perpetrator, or displaced and
directed towards someone uninvolved in the situation (e.g., Berkowitz, 1989; Sprague, et al., 2011). Based on the Aggression-Frustration Hypothesis, the links between the stressor and anger and frustration will first be examined, followed by those between anger and frustration and the expressed aggressive behaviors.

A wide variety of stressors can lead to feelings of anger and be considered frustrations, including examples as diverse as experiencing pollution, foul odors, uncomfortably warm or hot temperatures, physical pain, or interpersonal conflict (Berkowitz, 1990). According to the Anger-Frustration Hypothesis, stressful experiences that prevent one from achieving a goal result in negative affect, which most often consists of anger (Denson, Pedersen, & Miller, 2006). For example, if an adolescent desires to be well-liked by everyone, or does not want to have any difficulties with peers, being victimized would interfere with those goals and may create negative affect (Berkowitz, 1989; Berkowitz, 1990, Sprague et al., 2011). Additionally, it is theorized that this negative affect may continue to be experienced for some time, especially if individuals ruminate on aspects of the stressor (Denson et al., 2006). Moreover, the level of arousal elicited by the negative event is thought to be influenced by individual factors, such as one’s thoughts and memories (Berkowitz, 1990). Some negative events are more likely to result in negative affect, with interpersonal stressors, and specifically, being harmed by another person, being the most likely to elicit feelings of anger (Sprague et al., 2011).

The Aggression-Frustration Hypothesis states that frustrations will likely lead to different levels of negative affect across individuals because of individual factors (e.g., appraisal of the extent to which the event is negative) (Berkowitz, 1990). Negative feelings may be intensified through rumination about the stressor, which strengthens
relations between cognition and arousal such that one is primed to engage in aggression (Denson et al., 2006). Individuals’ reactions to the experience of negative affect can influence towards whom they direct their aggression. Those who initially inhibit their angry feelings are likely to later displace their anger by behaving aggressively towards others (Denson et al., 2006). Others however, who have difficulty regulating their anger, may be more likely to immediately behave aggressively towards the person(s) who behaved aggressively towards them (Denson et al., 2006).

Several studies have tested the Aggression-Frustration Hypothesis. In one study of primarily Caucasian female undergraduates who wrote either about their negative feelings or about something unrelated after receiving a negative evaluation, those who ruminated on their feelings (i.e., by writing about their negative affect) exhibited more aggression than those who did not ($d = 1.02$, Denson et al., 2006). In another study comprised primarily of Caucasian community- and college-based adults, however, researchers found that stressors had an indirect effect on aggressive behaviors via anger/hostility only among those with lower versus higher levels of executive functioning (Sprague et al., 2011). Overall, these studies indicate that “frustrations” or negative life events can, if the frustration is deemed bad enough, lead to negative affect, which is relieved by engaging in aggression.

**Self-Medication Model.** Khantzian (1985) presents a framework explaining how negative emotions may lead to substance use as a method of self-medication or coping. This framework for the self-medication hypothesis contains five parts; the first two address how negative affect is formed and the others explain why these feelings may lead to drug use. According to Khantzian’s (1985) model, early dysfunctional relationships
with a person’s caregivers, and subsequent difficulties engaging with others successfully, result in low self-esteem and either a lack of or an overabundance of emotion (Ostrowsky, 2009). Further, because successful and mutually beneficial ways to interact with others were not learned, relationships with others throughout development are unsuccessful. This further decreases self-esteem (Ostrowsky, 2009). In addition, according to this model, poor childhood relations with caregivers prohibit youths from learning adequate coping mechanisms, which makes coping with stressors legally difficult (Ostrowsky, 2009).

The next part of Khantzian’s (1985) framework concerns coping through drug use. His model suggests that individuals choose different types of drugs to combat certain negative feelings and difficulties in regulating certain emotions. Khantzian (1985) hypothesized that specific types of drugs are chosen to alleviate certain types of emotional distress (Ostrowsky, 2009). For example, a depressant would be used to induce a calming effect, and a stimulant would be used if one was experiencing too little emotional input. The fourth part of this model indicates that the use of substances temporarily causes a decrease in emotional distress, but that the distress soon begins to return and increase, and continues to do so as long as substances are used (Khantzian, 1985; Ostrowsky, 2009). For example, the use of alcohol temporarily improves one’s self-esteem and ability to relate to others (Ostrowsky, 2009). However, alcohol use eventually exacerbates one’s initial problems because it may interfere with the development of adaptive coping responses. In the last part of the model, Khantzian (1985) noted that the use of certain types of drugs may lead to violent behavior.
Specifically, stimulants will increase the likelihood that the user would commit violent acts, while depressants will decrease it.

Ostrowsky (2009) noted that several factors can influence how this model works, and may make adolescents more prone to engage in substance use. Because of hormonal changes, adolescents experience mood swings that can result in depressive symptoms, which may be expressed as irritation or frustration (Ostrowski, 2009). In addition, given the increased freedom and mobility that generally accompany adolescence, youths are more readily able to access drugs and alcohol, especially if they interact with other youths engaging in substance use (Ostrowsky, 2009). The role of gender may also be important, with paths between depression and anxiety, and substance use being stronger for females, while those between emotion dysregulation and aggression are stronger for males (Ostowsky, 2009). In conclusion, the Self-Medication model supports pathways between experiencing negative feelings and substance use. Some research also highlights the importance of considering the role of gender in anticipating how females and males will cope with specific emotions.

In summary, GST, Stress and Coping Theory, the Aggression-Frustration Hypothesis, and the Self-Medication model all offer ways to explain why peer victimization may lead to delinquency. GST, Stress and Coping Theory, and the Aggression-Frustration Hypothesis generally assert that one experiences some type of stressor, such as peer victimization, which is followed by experiencing emotional distress, and subsequently, one engages in coping via engaging in delinquent behaviors. The Self-Medication Model helps explain how negative feelings can lead to coping through the use of substances. These theories indicate overall that negative and stressful
events, such as peer victimization, can create negative feelings, which, in turn, youths may deal with by engaging in delinquent behaviors.

**Mediators of Relations between Peer Victimization and Delinquency**

This section examines the indirect effects of peer victimization on delinquency via three potential mediators: sadness, fear, and anger dysregulation. Mediation, however, has several requirements that must be met, including significant relations between the predictor and mediator and between the mediator and outcome variables (MacKinnon, 2008). These relations are examined within the literature in the following section, first in reference to sadness and fear, and then anger dysregulation.

**Peer victimization’s indirect effect on delinquent outcomes, especially substance use, via internalizing symptoms.** This section explores the literature on the ways in which peer victimization has an indirect effect on delinquency via internalizing symptoms, with an emphasis on substance use. Gender differences in these relations are discussed as the studies are presented. First, studies examining relations between peer victimization and internalizing behaviors are reviewed. Then, research addressing relations between internalizing behaviors and substance use will be examined. Next, studies that test the mediating effect of peer victimization on substance use through internalizing symptoms will be presented. Lastly, limitations of these studies will be addressed.

Numerous studies link peer victimization to internalizing symptoms in adolescence (Hawker & Boulton, 2000; Reijntjes, Kamphuis, Prinzie, & Telch, 2010). Results of one meta-analysis of cross-sectional studies showed significant relations between peer victimization and higher rates of internalizing problems (i.e., anxiety and
depression) among children and adolescents ($r = .29$ in relations between peer-rated victimization and depression; $r = .45$ for relations between self-rated victimization and depression) (Hawker & Boulton, 2000). This meta-analysis included 12 cross-sectional studies dating from 1978 through 1997. Most studies focused on early adolescent samples, with some incorporating youths in late childhood. Peer victimization was measured using both peer- and self-report, and several subtypes of victimization were included (e.g., physical and verbal) within the studies. Results offered substantial evidence of positive associations between peer victimization and internalizing symptoms and highlighted the need to examine prospective relations between these constructs.

Another meta-analysis examined longitudinal relations between self-, peer-, and teacher-reported peer victimization and internalizing behaviors (e.g., depression, loneliness, and anxiety) Studies in this meta-analysis included youths ranging from 5 to approximately 14 years-old (Reijntjes et al., 2010). Results indicated that peer victimization predicted subsequent increases in internalizing behaviors, such as anxiety and depression, over timeframes ranging from 6- to 24-months ($r = .18$). In summary, findings from meta-analytic studies offer support for concurrent and prospective relations between peer victimization and internalizing behaviors.

Several studies not included in these meta-analyses found significant relations between peer victimization and sadness and depression. In an international study of more than 90,000 adolescents (ages 13 to 15) who represented 19 countries, peer victimization was associated with higher frequencies of episodes of sadness over a 1-year period (Fleming & Jacobsen, 2009). In two studies of ethnically diverse early adolescents, peer victimization predicted sadness over a period of three to seven-months (Herts et al., 2012;
Moreover, Sincalir, Cole, Dukewich, Felton, Weitlauf, and Maxwell, et al. (2012) found that peer victimization predicted depressive symptoms a year later among a sample comprised mostly of Caucasian third through sixth graders. These findings underscore the significant links between peer victimization and sadness.

Several studies focus more specifically on relations between peer victimization and fear. In ethnically diverse samples of youths ranging in age from early to late adolescence, peer victimization was associated with heightened fear of later victimization and of locations where youths were commonly victimized at school (Esbensen & Carson, 2009; Randa & Wilcox, 2010, Randa & Wilcox, 2012). In a longitudinal study primarily composed of Caucasian seventh graders, peer victimization predicted a greater fear of being victimized at school over four years (Swartz, Reyns, Henson, & Wilcox, 2010). In contrast, a longitudinal study of Latino adolescents found that peer victimization was unrelated to subsequent fears of experiencing physical victimization at school (Melde & Esbensen, 2009). Only one study examined whether gender moderated relations between peer victimization and fear of later peer victimization, and found no significant gender differences (Swartz et al., 2010). Overall, these findings demonstrate evidence of positive associations between peer victimization and fear and some evidence that peer victimization predicts fear of being victimized at school.

Internalizing symptoms and substance use. Both cross-sectional and longitudinal studies have found positive relations between fear/anxiety and substance use in adolescents (Buckner, Schmidt, Lang, Small, Schlauch, & Lewinsohn, 2008; Hollist, Hughes, & Schaible, 2009; Perron & Howard, 2009; Marmorstein, White, Loeber, &
Two cross-sectional studies found positive relations between general anxiety and substance use among early and mid-adolescents (Holлист et al., 2009; Perron & Howard, 2009). In a sample of Caucasian high school students, anxiety predicted substance use over a four year period (Wolitzky-Taylor et al., 2012). Generalized and social anxiety also led to earlier initiation of alcohol and tobacco use, and generalized anxiety predicted earlier initiation of marijuana use as well as the transition to “problem marijuana use” in a sample of 504 boys (Marmorstein et al., 2010). In addition, social anxiety disorder during late adolescence resulted in increased dependence on marijuana and alcohol dependence in emerging adulthood (Buckner et al., 2007).

There is evidence that the emotions of fear and anxiety are related to substance use, and several studies also examined relations between sadness/depressive symptoms and substance use among adolescents. In a longitudinal effort with a U.S. sample comprised predominantly of Caucasian adolescents, depressive symptoms predicted substance use (Gallerani, Garber, & Martin, 2010). However, Wolitzky-Taylor, Bobova, Zinbarg, Mineka, and Craske (2012) examined substance and alcohol use separately among a sample of early adolescent youths, and found that depressive mood predicted only later alcohol use. Moreover, these authors found that relations between depressive symptoms and substance use were significantly stronger for girls than for boys. These studies offer some support that depressive symptoms predict substance use, and that this relation may be stronger for girls as compared to boys.

The studies above offer evidence of significant relations between peer victimization and internalizing behaviors, and between internalizing behaviors and
substance use. Only one cross-sectional study was identified that tested the mediating role of internalizing behaviors on relations between peer victimization and substance use (Luk et al., 2010), and these authors found that an indirect relation between peer victimization and substance use through depression among a sample of tenth graders for girls but not boys.

Several limitations are noted in the above studies. Several do not specify a timeframe when asking about internalizing behaviors (e.g., symptoms within the last two weeks) which leaves this open to participants’ interpretations (Esbensen & Carson, 2009; Randa & Wilcox, 2010). Another common issue is the use of single-items to measure constructs, which may make it difficult to measure multi-faceted constructs like peer victimization or internalizing behaviors (e.g., Fleming & Jacobson, 2009; Randa & Wilcox, 2010). Several studies also use very specific samples (e.g., children of depressed mothers and juvenile offenders) that, while valuable, may not extend to the general population (Gallerani et al., 2010; Perron & Howard, 2009).

The indirect effect of peer victimization on delinquency via anger dysregulation. This section reviews the empirical literature on relations between peer victimization, anger dysregulation, and delinquent behaviors. First, relations between peer victimization and anger dysregulation are examined. A discussion of studies follows, examining relations between anger dysregulation and delinquent behaviors, with gender differences in these relations being considered in each case. Studies testing the indirect effect of peer victimization on delinquent behaviors through anger dysregulation are then reviewed. Lastly, limitations of these studies are presented.
Qualitative, cross-sectional, and longitudinal studies found significant relations between high rates of peer victimization and anger dysregulation. Among a sample of South Korean eighth graders, physical victimization was related to higher levels of intense anger and difficulty regulating these feelings (Moon, Blurton, & McCluskey, 2007). In a longitudinal study of predominantly African American middle school youths, peer victimization predicted increased emotion dysregulation (including items assessing anger dysregulation) across a four-month timeframe (McLaughlin et al., 2009). Studies examining gender differences in these relations showed mixed results. In a longitudinal study of youths in early- to mid-adolescence, a composite of overt and relational peer victimization predicted increases in anger dysregulation for girls, but not boys, across a three-month timeframe (Spence, De Young, Toon, & Bond, 2009). In contrast, McLaughlin et al. (2009) found no significant gender differences in the strength of relations between peer victimization and emotion dysregulation. Overall, these findings offer some evidence that peer victimization may result in subsequent increases in anger dysregulation.

Youth who are easily angered are at risk for delinquent behaviors. One cross-sectional study that included a national sample in which African American adolescents were oversampled showed that anger dysregulation was positively associated with physical aggression; both minor (e.g., disobeying school rules) externalizing behaviors and more severe (e.g., vandalism and theft) delinquent behaviors, as well as substance use (a composite of alcohol, marijuana, and tobacco use) (Hollist, Hughes, & Schaible, 2009). A longitudinal study revealed that, among a sample primarily comprised of Caucasian adolescents, anger dysregulation predicted physical aggression but not a
general composite of non-violent delinquency (e.g., theft and driving while intoxicated) or marijuana use (Aseltine, et al., 2000). No studies have been found, however, that examined whether the strength of these relations differed by gender. Thus, these findings highlight cross-sectional relations between anger dysregulation and several facets of delinquent behaviors, and longitudinal relations between anger dysregulation and aggression.

Few studies examined the indirect effect of peer victimization on delinquent behavior via emotion dysregulation. One qualitative study, focusing on approximately 100 African American youths with low socio-economic status, found that victims progressed from peer victimization to dysregulated anger, and then to physical aggression (Lockwood, 1997). Participants in this study described incidents during which their peers threaten to, or actually, physically victimize them. Around 62% of the sample felt angry following victimization experiences. Twenty-one percent of youths behaved aggressively towards perpetrators following the victimization experience without specifying a reason for their behavior. However, approximately 7% of youths note that they behaved aggressively towards perpetrators because of their inability to regulate their anger (Lockwood, 1997). Thus, this qualitative study found that for over half of participants, peer victimization led to feelings of anger, which subsequently resulted in aggressive responses among some youths.

Several quantitative studies also investigated the indirect effect peer victimization on delinquent behaviors via emotional or anger dysregulation. Herts, et al. (2012) found a significant indirect effect of peer victimization on aggression via emotional dysregulation over a timespan of seven months among an early adolescent sample comprised
predominately of Latino youths. Results of this study indicated no gender differences in
the strength of these relations. Another cross-sectional study examined the indirect effect
of physical and relational peer victimization on physical aggression through anger
dysregulation among a primarily Caucasian, female sample of around 2000 sixth through
twelfth graders (Wallace et al., 2005). Results indicated that physical and relational
victimization partially mediated the relation between physical aggression via anger
dysregulation (Wallace et al., 2005). One weakness of this study is that physical and
relational victimization are represented by one item each, and thus the full domain of
these constructs may not be represented. Additionally, as Wallace et al.'s (2005) study is
cross-sectional, the findings can only indicate theoretical mediation. These findings
demonstrate some support for a significant indirect effect of peer victimization on
aggression via anger dysregulation.

Several studies examined relations between peer victimization and anger
dysregulation, and anger dysregulation and different aspects of delinquent behavior.
Studies assessing the potential indirect effect of peer victimization on delinquent
behaviors via anger dysregulation primarily focused on aggression. This is one limitation
of the current literature, and additional research is needed to examine the possible indirect
effect of peer victimization on other aspects of delinquent behaviors (i.e., theft and
property damage and substance use) via anger dysregulation. Also, few studies
considered potential differences in relations between physical and relational subtypes of
peer victimization, anger dysregulation, and delinquent behaviors. The measures used in
some studies to assess peer victimization were also problematic as they consisted of very
few items. Lastly, given the mixed findings in the current literature, additional research is needed to clarify possible gender differences in these relations.

**The Present Study**

Adolescent delinquency is a serious public health concern that occurs frequently and has serious individual (e.g., arrests that can influence employment prospects) and societal (e.g., the tremendous cost of incarceration) consequences. As such, the prevention of delinquency is an important area to consider. Longitudinal studies have found that peer victimization predicted different facets of delinquent behaviors including physical aggression, theft and property damage and substance use (Reijntjes et al., 2011; Rusby et al., 2005; Topper et al., 2011). Although cross-sectional studies highlight some differential associations between physical and relational victimization and these components of delinquent behaviors (e.g., Weiner et al., 2004; Sullivan et al., 2006), few studies examined these relations across time. Additionally, little research in this area focused on African American adolescents. The present study added to the literature by employing a sample comprised predominantly of African American youths and examined longitudinal relations between physical and relational victimization and three aspects of delinquency (i.e., physical aggression, theft and property destruction, and substance use) across a two-year period.

A better understanding of the processes that link peer victimization to delinquent behaviors during adolescence is also important to inform prevention and intervention efforts. General Strain Theory (Agnew, 2006) posits that peer victimization is a strain representing maltreatment that leads to negative emotions (i.e., anger, fear, and sadness) that youth then cope with by engaging in different types of delinquent behaviors.
Researchers found significant relations between peer victimization and negative emotions (Herts et al., 2012; McLaughlin et al., 2009; Sinclair et al., 2012), and between negative emotions and facets of delinquent behaviors (Buckner et al., 2007; Hollist et al., 2009; Moon et al., 2007). Additionally, a few cross-sectional (e.g., Luk et al., 2010) and short-term longitudinal (e.g., Hollist et al., 2009) studies found a significant indirect effect of peer victimization on delinquent behaviors through negative emotions. However, few studies tested theoretical models such as General Strain Theory (Agnew, 2006). The present study examined whether a significant indirect effect exists between physical and relational victimization and components of delinquency (i.e., physical aggression, theft and property destruction, and substance use) via negative emotions (i.e., anger dysregulation, fear, and sadness) across three waves of data spanning twenty-four months. Based on studies that indicated the hurtful and harmful nature of physical and relational victimization differs for boys and girls (Galen & Underwood, 1997) and that outcomes of these subtypes of victimization may also vary by gender (e.g., Prinstein et al., 2001), relations between study variables were tested for gender differences. Additionally, age was controlled to guard against outcomes being affected by maturation, and pubertal status was included as a covariate because research has indicated that youths who have progressed farther through puberty are more likely to engage in delinquency (Moffitt, 2007). The present study included the following aims and hypotheses.

**Aim 1.** The present study tested longitudinal relations between self-reported physical and relational victimization at Time 1, negative emotions (i.e., fear, sadness, and anger) at Time 2, and physical aggression at Time 3 (see Figure 2).
Ia. I hypothesized that adolescents who reported higher levels of physical victimization at Time 1 would report higher levels of physical aggression at Time 3 as compared to youths who reported lower levels of physical victimization at Time 1. I also anticipated that this direct effect would be stronger for boys than girls.

Ib. I anticipated that a significant indirect effect would be found for relations between physical but not relational victimization at Time 1 and physical aggression at Time 3 via anger dysregulation at Time 2. I also hypothesized that this indirect effect would be stronger for boys as compared to girls. Lastly, I expected no indirect effects between physical or relational victimization at Time 1 and physical aggression at Time 3 via sadness or fear at Time 2.
Aim 2. Another aim of the present study was to examine longitudinal relations between physical and relational victimization at Time 1, negative emotions (i.e., fear, sadness, and anger) at Time 2, and theft and property damage at Time 3 (see Figure 3).

2a. I hypothesized that adolescents who reported higher levels of physical victimization at Time 1 would report higher levels of theft and property damage at Time 3 as compared to youths who reported lower levels of physical victimization at Time 1. I also anticipated that this direct effect would be stronger for boys than girls.

2b. I hypothesized that a significant indirect effect would be found for relations between physical but not relational victimization at Time 1 and theft and property
damage at Time 3 via anger dysregulation at Time 2. I also anticipated that this indirect effect would be stronger for boys than for girls. Finally, I expected no significant indirect effects between physical or relational victimization at Time 2 and theft and property damage at Time 3 through sadness or fear at Time 2.

**Aim 3.** The present study explored longitudinal associations between physical and relational victimization at Time 1, negative emotions (i.e., fear, sadness, and anger) at Time 2, and substance use at Time 3 (see Figure 4).
3a. I hypothesized that adolescents who reported higher levels of relational victimization at Time 1 would report greater increases in rates of substance use at Time 3 as compared to youths who reported lower levels of relational victimization at Time 1. I also expected that this direct effect would be stronger for girls than boys.

3b. I hypothesized that indirect effects would be found between relational but not physical victimization at Time 1 and substance use at Time 3 via both sadness and fear at Time 2. I anticipated that these indirect effects would be stronger for girls than for boys. I expected no significant indirect effects on relations between physical or relational victimization at Time 1 and substance use at Time 3 via anger dysregulation at Time 2.
Method

Setting and Participants

The 318 participants at Time 1 represented two cohorts of sixth (Cohort 1) and ninth (Cohort 2) graders who lived in inner city neighborhoods in Richmond, Virginia that were characterized by high rates of poverty and violence based on United States Census data and police statistics (DeNavas-Walk, Proctor & Lee, 2005). Secondary data analyses were conducted using data from a larger study on longitudinal relations between community violence exposure and substance use that included four waves of data.
collected 12-months apart, and spanned June, 2005 to December, 2009. Recruitment occurred through community events and agencies, and by giving out flyers in neighborhoods, and the recruitment rate was 63% (which was calculated by determining the percentage of families that enrolled out of the total number of fliers given out). Most youths in the sample identified themselves as African-American (91%), while 3% reported being European-American, or Native American, less than 1% endorsed being Asian-American, and 2% reported an “Other” racial/ethnic background. Fifty-seven percent of the sample was female. Of these students, 318 completed the study measures at Time 1 – 2006, 267 at Time 2 – 2007, and 248 at Time 3 - 2008, spanning a two-year timeframe. Approximately 94% of youths reported living with a female caregiver, while 43% reported living with a male caregiver most of the time (participants were permitted to choose more than one response). Forty-four percent of youths reported living in a two parent household (with a male and female caregiver). Approximately 6% of families earned less than $100 weekly, while 9% earned between $101-$200, 14% earned between $201-$300 per week, 15% earned between $301-$400, 9% earned between $401-$500, 11% earned between $501-$600 and $601-$700, 7% earned between $701-$800, 6% earned between $801-$900, and 14% earned more than $901 weekly, according to the female caregivers’ report (the total exceeds 100% due to rounding).

Procedure

All study procedures were approved by the Virginia Commonwealth University Institutional Review Board (VCU IRB). Study measures were completed in families’ homes or other areas within the community based on each family’s preference. Active youth assent and parental permission was obtained prior to data collection. The youths’
families received a $50 gift card in appreciation of their time and effort each time they participated in data collection activities. Surveys were completed mostly through use of interviews in which interviewers read the questions and all possible answers to the participant. If a participant passed a reading screener, they read and answered some of the more sensitive questions on their own. Students and their primary caregivers typically completed the surveys within two-and-a-half hours. The study took place over 24-months, such that youths were assessed approximately every 12-months.

Measures

**Children’s Anger Management Scale** (CAMS; Zeman, Shipman, & Suveg, 2002). The CAMS is a self-report scale divided into three subscales: Anger Inhibition (four items), Anger Dysregulated-Expression (three items), and Anger Emotion Regulation Coping (five items; only four were included in the larger study, and it is not known why one item was excluded). To measure anger, the Anger Dysregulated-Expression subscale was initially considered, but it lacked adequate reliability. By the recommendation of the scale’s author, this was combined with the Anger Emotion Regulation Coping subscale, which was reverse coded. Within the combined subscale, one item markedly decreased the reliability of the scale (“I can stop myself from losing my temper”) and was deleted from the scale to achieve an alpha coefficient of .61 at Time 2. Thus, the combined scale measured youths’ ability to regulate anger and included six items (e.g., “I attack whatever is making me angry”). Students endorsed the frequency with which each item occurred using a three-point response scale that ranged from 1 = *Hardly Ever* to 3 = *Often*. In the data set utilized for current study, this measure was not included at Time 1.
**Children’s Depression Inventory** (CDI; Kovas, 1981). This 27-item self-report scale measured the extent to which children experienced depressive symptoms in the past two weeks prior to completing the survey. The CDI included the following five subscales: Negative Mood, Anhedonia, Negative Self-Esteem, Ineffectiveness, and Interpersonal Problems. The six-item Negative Mood subscale was used in the current study and measured youths’ feelings of sadness and negativity (e.g., “How often do I feel sad?”, “How often do things bother me?”). Students endorsed how frequently they experienced these feelings using a 3-point response scale: 1 = *Never or Rarely*, 2 = *Sometimes*, and 3 = *All of the time*. The alpha coefficient for this scale was .61 at Time 1 is .65 at Time 2.

**Revised Children’s Manifest Anxiety Scale** (RCMAS; Reynolds & Richmond, 1978). The RCMAS is a self-report, 28-item measure containing three subscales: Physiological Anxiety, Worry and Oversensitivity, and Fear and Concentration. The nine-item Fear and Concentration subscale was used in the current study. This subscale measured the extent to which youths experienced feelings of fear and had difficulty with focus and concentration (e.g., “I am afraid of a lot of things”). Students endorsed the presence or absence of these feelings and behaviors (0 = *No*, 1 = *Yes*). The alpha coefficient for this subscale was .76 at Time 1 and .71 at Time 2.

**Problem Behavior Frequency Scale** (PBFS: Farrell, Kung, White & Valois, 2000; Miller-Johnson, Sullivan, Simon, & MVPP, 2004). This 35-item scale contained eight subscales that measured overt and relational victimization, physical, nonphysical, and relational aggression, drug use, delinquency, and effective nonviolent behavior using self-report data. This study used the delinquency, physical aggression, and substance use
subscales. Students reported how frequently they engaged in each behavior in the past 30-days using a six-point response scale that ranged from 0 – Never to 5 – 20 or more times.

The delinquency subscale was comprised of eight-items measuring the number of times students engaged in theft (e.g., “Stolen something”), property damage (“Written or sprayed paint on walls, sidewalks, or cars where you were not supposed to”), or violated school rules (e.g., “Cheated on a test”). Three items (i.e., “Skipped school,” “Cheated on a test,” and “Been on suspension”) were excluded from the scale so that the measure would be consistent with the definition of delinquency as actions that are illegal either in general or specifically for minors. The coefficient alpha was .78 at Time 2 and .71 at Time 3. The physical aggression subscale included six items that measured the frequency youths had hurt or threatened to hurt another student (e.g., “Thrown something at someone to hurt them”). One item (“Been in a fight in which someone was hit”) was removed from the subscale because the reporter could be either a victim or perpetrator. The alpha coefficient for this subscale was .81 at Time 2 and .78 at Time 3. Finally, the drug use subscale was comprised of six items measuring the frequency of tobacco (i.e., “I smoked cigarettes”), alcohol (e.g., “I have drunk wine or wine coolers”), and marijuana use (i.e., “I used marijuana”) in the past 30 days. The alpha coefficient for this subscale was .85 at Time 2 and is .82 at Time 3.

The Pubertal Development Scale (PDS: Peterson, Crockett, Richards, & Boxer, 1988) is a self-report, 10-item measure of pubertal development. Five questions are directed at boys (e.g., “Has your voice started to deepen?”) and five towards girls (“Have you grown much taller very fast?”). Response options ranged from 1 – Has not yet begun to 4 – Growth or development is complete. However, a girl-focused item regarding
menarche used a response scale different than this one. As such, it could not be analyzed together with the other items, and had to be excluded from the analysis. The alpha coefficient at Time 1 for the male subscale is .83, and is .60 for the female subscale.

**Social Experiences Questionnaire** (SEQ; Crick & Grotpeter, 1996). The SEQ is a self-report, 26-item measure containing three subscales: Overt/Physical Victimization, Relational Victimization, and Non-Confrontational Victimization. Physical and relational victimization subscales were used in this study. Four items were removed from the Overt/Physical victimization subscale that did not involve actual or threatened physical harm to form the Physical Victimization subscale. Students endorsed their frequency of victimization in the past 30 days using a six-point response scale, ranging from 0 – *Never* to 5 – *20 or more times*.

The four-item physical victimization subscale measured the frequency with which peers directly harmed or threatened to harm the respondent (e.g., “How many times have you been hit by another kid?” “How many times has another student threatened to hit or physically harm you?”). The internal consistency for this scale at Time 1 was .75. The six-item relational victimization scale measured the frequency of behaviors aimed at harming peers’ social relationships (e.g. “How many times has someone spread a false rumor about you?” “How many times has a kid tried to keep others from liking you by saying mean things about you?”). The internal consistency for this scale at Time 1 was .82.

**Data Analysis**
Data were analyzed using M-Plus Version 6.11 (Muthen & Muthen, 2013). Prior to exporting the data into M-Plus, it was cleaned in SPSS Version 21 (IBM, 2012). The ranges for each study variable were examined to assure that the minimum and maximum item and scale values were within the possible ranges for each item and scale. For all variables, higher values indicated higher levels of the variable (e.g., higher levels of aggression indicate more aggression, higher values for pubertal status indicate that youths’ bodies are more developed). Next, the skewness and kurtosis of each scale was examined. Variables with absolute values greater than or equal to 3.00 when tested for skewness indicated that the variable was skewed, while variables with absolute values greater than or equal to 3.00 when tested for kurtosis indicated that the variable was kurtotic, which is consistent with Kline’s (2005) guidelines. Based on this criterion, several variables were negatively skewed with a positive kurtosis including physical and relational victimization at Time 1, and drug use, property damage/theft, and physical aggression at Time 3. Because several variables were skewed and kurtotic, the MLR (maximum likelihood estimation with robust standard errors) was used for the Mplus analyses (Satorra & Bentler, 1992). These are parameter estimates for continuous data that are not normally distributed that includes full-information maximum likelihood estimations to account for item-level missing data. After the data were cleaned, it was exported to M-Plus. Descriptive statistics were calculated for each variable including means, standard deviations, and correlations among variables. To determine if the frequencies of study variables differed for boys and girls, each study variable was regressed on gender.
Several longitudinal path models were run to test study hypotheses. Three models were run that examined relations between peer victimization T1 and delinquency components at T3, and the mediating effects of negative emotions at T2. Covariates included the focal aspect of delinquent behavior for each model at Time 2 (i.e., physical aggression, theft/property destruction, or substance use), fear and sadness at Time 1, and age and pubertal development at Time 1. Anger dysregulation could not be included as a covariate because it was not assessed at Time 1.

Multiple group analyses were run to examine potential gender differences in the strength of relations between paths for each model. Competing models were tested by comparing fit indices for an unconstrained model in which all parameters were allowed to vary by gender to a constrained model where the path coefficients were constrained to be equal across gender. The unconstrained models were saturated and thus had zero degrees of freedom, CFI = 1.00, and RMSEA = 0.00.

Fit indices for the constrained model were first examined including the comparative fit index (CFI) and the root mean square error of approximation (RMSEA). Models with a CFI of .95 or greater (Dattalo, 2013) and RMSEA below .08 (Browne & Cudeck, 1993) were considered to adequately fit the data. The \( \chi^2 \) difference test was used to compare the constrained and unconstrained models. Because there were several non-normally distributed continuous variables, a scaling factor correction based on the MLR estimate was used to compare \( \chi^2 \) values for the two models (Satorra & Bentler, 1999). The Bayesian Information Criterion (BIC) was also used to compare the constrained and unconstrained models, and value differences of ten or more favored the model with the lower value as being the most parsimonious (Raferty, 1993). The delta method was used
to provide an estimate of the indirect effect and uses the formula for the Sobel test along with an added covariance term for the predictor to mediator and mediator to outcome estimates (MacKinnon, 2008).

Results

Descriptive Statistics and Preliminary Analyses

For each variable, the total sample mean, standard deviation, and range is reported, along with the mean and standard deviation for boys and girls (see Table 1).

With the exception of theft/property damage, the rates of study variables did not vary by gender. Boys reported significantly higher frequencies of theft/property damage at Time 2 ($\beta = -0.06, p < 0.05, d = .41$) and Time 3 ($\beta = -0.07, p < 0.05, d = .32$) than did girls.

Table 1.

Means and standard deviations for study variables

<table>
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<tr>
<th>Measure</th>
<th>Total Mean</th>
<th>Total SD</th>
<th>Females Mean</th>
<th>Females SD</th>
<th>Males Mean</th>
<th>Males SD</th>
<th>Range</th>
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<tr>
<td>Age (T1)</td>
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<td>1.63</td>
<td>13.16</td>
<td>1.64</td>
<td>13.06</td>
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<td>2.85</td>
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<td>3.79</td>
<td>4.17</td>
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<td>3.83</td>
<td>3.36</td>
<td>4.84</td>
<td>0-25</td>
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<td>Fear (T1)</td>
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<td>2.11</td>
<td>1.94</td>
<td>2.13</td>
<td>1.90</td>
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<td>1.71</td>
<td>1.61</td>
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<td>2.09</td>
<td>1.90</td>
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Note: n = 318
Correlations among variables. Correlations among study variables represented at each time point are reported in Table 2. A \( p < .001 \) per-test significance rate was established using a Bonferroni correction with a familywise Type I error rate of \( p < .10 \). Age and pubertal status, were only significantly correlated with each other (\( r = .43 \)). All variables assessed at more than one time point were significantly correlated, showing stability across time. Physical victimization at Time 1 was significantly correlated with all variables (\( rs \) ranged from .22-.65) except Fear at Time 2 and substance use at Times 2 and 3. Relational victimization at Time 1 was positively associated with fear and sadness at Times 1 and 2 (\( rs \) ranged from .22-.48). Fear at Time 2 was associated with sadness at Time 1 (\( r = .48 \)) and Time 2 (\( r = .58 \)). Sadness at Time 2 was associated with anger dysregulation at Time 2 and theft/property damage and physical aggression at Times 2 and 3 (\( rs \) ranged from .22 to .28). Anger dysregulation at Time 2 was positively related to theft/property damage at Times 2 and 3 and physical aggression at Times 2 and 3 (\( rs \) ranged from .22 to .36). Physical aggression at Time 3 was significantly associated with theft/property damage (\( r = .38 \)) and substance use (\( r = .23 \)) at the same time point. Substance use at Time 3 was related to theft/property damage (\( r = .32 \)) and physical aggression. (\( r = .36 \)) at Time 2. Lastly, theft/property damage at Time 3 was significantly correlated with physical aggression (\( r = .32 \)) at Time 2.
Table 2.

Intercorrelations among victimization, negative emotions, and facets of delinquency

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<td>-.09</td>
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<td>.32*</td>
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<td>11. Substance Use (T2)</td>
<td>--</td>
<td>.40*</td>
<td>.16</td>
<td>.76*</td>
<td>.11</td>
<td></td>
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<tr>
<td>12. Physical Aggression (T2)</td>
<td>--</td>
<td>.32*</td>
<td>.36*</td>
<td>.41*</td>
<td></td>
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<tr>
<td>13. Theft and Property Damage (T3)</td>
<td>--</td>
<td>.19</td>
<td>.38*</td>
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<tr>
<td>14. Substance Use (T3)</td>
<td>--</td>
<td>.23*</td>
<td></td>
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<tr>
<td>15. Physical Aggression (T3)</td>
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Note: A multistage Bonferroni correction was conducted with a family-wise Type 1 error rate of $p < .10$. The per-test significance level was $p < .001^*$

$N = 318$
Longitudinal Relations between Peer Victimization and Negative Emotions, and Physical Aggression

Multiple group models were first run to determine the extent to which relations between paths in the models differed for boys and girls. The unconstrained and constrained models assessing longitudinal relations between peer victimization, negative emotions, and physical aggression were compared. No significant differences were found in the chi-square values for the unconstrained versus constrained model $\chi^2(22; N = 318) = 17.1, p = 0.76$. The constrained model fit the data well; CFI = 1.00 and RMSEA = 0.00. Comparison of the BIC values also supported the constrained model (15,101.4) as being more parsimonious than the unconstrained model (15,121.5). Overall, these findings supported the constrained model as best fitting the data.

Results from the constrained model were examined to determine the degree to which relations between physical and relational victimization at Time 1 and physical aggression at Time 3 were mediated by anger dysregulation at Time 2 (see Figure 6). Physical victimization at Time 1 was significantly related to both anger dysregulation and sadness at Time 2, indicating that higher levels of physical victimization at Time 1 were related to higher rates of anger dysregulation and sadness at Time 2. Anger dysregulation at Time 2 was positively associated with physical aggression at Time 3, such that higher levels of anger dysregulation at Time 2 led to higher frequencies of physical aggression at Time 3.

The total, direct, and indirect effects for relations among victimization, negative emotions, and physical aggression are presented in Table 3. The total effects of physical and relational victimization at Time 1 on physical aggression at Time 3 were not
significant, and direct or non-mediated effects were also not significant. For the specific indirect effects, the relation between physical victimization at Time 1 and physical aggression at Time 3 was mediated by anger dysregulation at Time 2. No other significant specific indirect effects were found.
Figure 5. Longitudinal relations between peer victimization, negative emotions, and physical aggression.

*\( p < .05 \)
**Longitudinal Relations between Victimization, Negative Emotions, and Theft and Property Destruction**

Initially multiple group models were first run to determine how the path models differed by gender. The unconstrained and constrained models assessing longitudinal relations between peer victimization, negative emotions, and theft and property destruction were compared. Significant differences were not found in the chi-square values for the unconstrained versus constrained model $\chi^2 (22; 318) = 18.84, p = .66$. Additionally, the constrained model fit the data well; CFI = 1.00, and RMSEA = 0.00. BIC values, when examining both the constrained and unconstrained models supported the constrained model (14,082.00) as being more parsimonious than the unconstrained model (14,186.05). Taken together, these results indicated that the constrained model best fit the data.

Results from the constrained model were examined to determine the degree to which relations between physical and relational victimization at Time 1 and theft/property damage at Time 3 were mediated by anger dysregulation at Time 2 (see Figure 7). Sadness at Time 2 was positively associated with theft/property damage at Time 3 such that higher levels of sadness at Time 2 led to higher frequencies of theft/property damage at Time 3.

Table 3 contains the total, direct, and indirect effects for relations among victimization, negative emotions, and physical aggression. None of these effects were found to be significant.
Figure 6. Longitudinal relations between peer victimization, negative emotions, and theft/property damage.

*p < .05
Longitudinal Relations between Victimization, Negative Emotions, and Substance Use

In order to determine whether relations between paths differed for boys and girls, multiple group models were again run. The constrained and unconstrained models for the longitudinal relations between peer victimization, negative emotions, and substance use were compared, and no significant differences were found in the chi-square values for the unconstrained versus constrained models, $\chi^2 (22; N = 318) = 25.67, p = 0.27$. The constrained model again exhibited good fit; CFI = 0.99 and RMSEA = 0.03. Comparing the BIC values also indicates that the constrained model (15032.07) was a better fit than the unconstrained model (15124.57).

Results of the constrained model were examined to determine whether relations between physical and relational victimization at Time 1 and substance use at Time 3 were mediated by fear or sadness at Time 2 (see Figure 8). Neither anger dysregulation, fear, nor sadness at Time 2 were significantly related to substance use at Time 3.

The total, direct, and indirect effects for relations among peer victimization, negative emotions, and substance use are presented in Table 3. The total effects of physical and relational victimization at Time 1 on substance use at Time 3 were not significant, neither were the direct or indirect effects.
*Figure 7. Longitudinal relations between peer victimization, negative emotions, and substance use.*

*p < .05
Table 3.

Indirect, direct, and total effects for relations between physical and relational victimization and physical aggression, theft/property damage, and substance use.

<table>
<thead>
<tr>
<th></th>
<th>Physical Aggression</th>
<th>Theft/Property Damage</th>
<th>Substance Use</th>
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<tbody>
<tr>
<td><strong>Indirect Effects</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Via Anger</td>
<td>0.05*</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Via Fear</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Via Sadness</td>
<td>0.01</td>
<td>0.05</td>
<td>0.02</td>
</tr>
<tr>
<td><strong>Total Indirect Effect of Emotions</strong></td>
<td>-0.06</td>
<td>0.06*</td>
<td>0.02</td>
</tr>
<tr>
<td><strong>Direct Effect of Physical Victimization</strong></td>
<td>0.03</td>
<td>0.01</td>
<td>0.04</td>
</tr>
<tr>
<td><strong>Total Effect of Physical Victimization</strong></td>
<td>0.09</td>
<td>0.07</td>
<td>0.06</td>
</tr>
<tr>
<td><strong>% of Indirect Effect</strong></td>
<td>67%</td>
<td>86%</td>
<td>33%</td>
</tr>
</tbody>
</table>

|                     |                     |                       |               |
| **Indirect Effect** |                     |                       |               |
| Via Anger           | -0.01               | 0.00                  | 0.00          |
| Via Fear            | 0.00                | 0.00                  | 0.00          |
| Via Sadness         | 0.00                | 0.01                  | 0.00          |
| **Total Indirect Effect of Emotions** | -0.01               | 0.01                  | 0.00          |
| **Direct Effect of Relational Victimization** | 0.03                | -0.07                 | -0.03         |
| **Total Effect of Relational Victimization** | 0.02                | -0.05                 | -0.03         |
| **% of Indirect Effect** | 50%                 | 20%                   | 0%            |

*Note: Standardized coefficients were used in this table. *p < .05
Discussion

This study examined longitudinal relations between peer victimization and three facets of delinquency (i.e., physical aggression, theft/property damage, and substance use) and whether indirect relations between these variables existed via negative emotions (i.e., anger dysregulation, fear, and sadness) over a two-year timeframe. No direct effects were found between physical or relational victimization and any of the components of delinquency two-years later. Physical, but not relational victimization, predicted subsequent increases in anger dysregulation and sadness across a one-year time period. Anger dysregulation was associated with increased physical aggression one-year later, and sadness was related to increased theft/property damage over the same timeframe. One specific indirect effect was found; physical victimization at Time 1 and physical aggression at Time 3 via anger dysregulation at Time 2.

The current study contributes to the literature in several ways. Some studies found direct longitudinal relations between peer victimization and delinquency components (Reijntjes et al., 2011; Topper et al., 2011); however, no longitudinal studies to my knowledge examined direct relations between peer victimization and theft/property damage. Given that this aspect of delinquency is comprised of illegal behaviors that may result in adolescents’ involvement with the juvenile justice system, it is important to identify potential malleable risk factors for this outcome, like peer victimization. More generally, few studies have tested theoretical models of underlying mechanisms that may explain relations between peer victimization and delinquency components. The present study drew from several theoretical models (i.e., GST, stress and coping theory, the aggression-frustration hypothesis, and the self-medication model) to test whether there
was a significant indirect effect of peer victimization on delinquency via several negative emotion. It also examined gender differences in these associations and tested physical and relational subtypes of peer victimization separately given research that suggested that boys and girls perceive and experience these subtypes of victimization differently (e.g., Paquette & Underwood, 1999). Thus, the strength of relations between peer victimization subtypes, mediators, and outcomes by vary by gender. Finally, this study focused on urban, African American adolescents who have been underrepresented in the peer victimization literature.

Contrary to hypotheses, no direct longitudinal effects were found between physical or relational victimization and any aspects of the delinquency two years later. The lack of direct effects was inconsistent with some longitudinal studies that showed significant relations between peer victimization and composite measures of externalizing behaviors generally (e.g., Kim et al., 2006) and aggressive behaviors (Rusby et al., 2005), and substance use (e.g., Niemela et al., 2011; Topper et al., 2011) more specifically. In contrast, other studies found no significant direct associations between peer victimization and externalizing behaviors (e.g., Hodges & Perry, 1998) and substance use (e.g., Cullen et al., 2008) over time. Thus, mixed findings typify this area of the peer victimization literature.

There are several potential explanations for these mixed findings. First, the definition and measurement of peer victimization and delinquency components varied greatly across studies, with some adopting more global, composite measures (e.g., Hodges & Perry, 1998; Schwartz et al., 1998) while others assessed specific aspects of peer victimization and/or delinquency (e.g., Topper et al., 2011; Rusby et al., 2005). No
studies were found that examined longitudinal relations between peer victimization and theft/property damage, and few tested relations between peer victimization and aggression across time (e.g., Kim et al., 2006). More studies examined relations between peer victimization and substance use (e.g., Niemela et al., 2001; Rusby et al., 2005; Topper et al., 2011). However, these studies had several limitations and/or differences from the current study that make comparison of the direct effects more difficult. One study (Niemela et al., 2001) used only a single item to measure the frequency of peer victimization. It is possible that this item was unable to capture the domain of peer victimization fully. Two other studies that examined these relations longitudinally (Rusby et al., 2005; Topper et al., 2011) focused on outcomes of alcohol and alcohol and cigarette use, respectively, which differed from the present study’s substance use scale that assessed a composite of alcohol, cigarettes, marijuana, and excessive alcohol use (i.e., been drunk).

Other methodological issues may partially explain differences in findings across longitudinal studies examining relations between peer victimization and delinquency components. Several studies conducted with adolescent samples found that significant longitudinal associations between peer victimization and delinquency components relied on peer- versus self-report (Niemela et al., 2011; Rusby et al., 2005; Topper et al., 2012). Thus, victimization experiences were reported from different perspectives and may have resulted in different rates of peer victimization endorsed. This indicates that future studies may benefit from collecting data from multiple reporters.

Second, some studies focused on youths in early to late childhood as compared to adolescents (e.g., Niemela et al., 2011) or included broader age ranges from middle
childhood to adolescence (e.g., Topper et al., 2011). Developmental changes occurring during adolescence, including social cognitive development, changes in the dynamics of peer relationships, and also contextual changes during the transition to middle and high school may impact the frequency and strength of relations between peer victimization and delinquency components. During this time, youths’ cognitive development enables them to engage in more complex social interactions, such as using peer victimization as a means of social advancement, which becomes more important as youths age (Boulton, 2013; Brown, 2004; Espelage, et al., 2003; Pardini, et al., 2005). For this reason, the rates and types of peer victimization utilized by youths may differ across childhood and adolescence, with victimization in adolescence taking a more covert and subtle form. Additionally, many studies examining these relations did so over a much shorter period of time than is represented in the current study (i.e., between 3 to 12 months). The only studies that examined relations between peer victimization and delinquency over 24-months included samples that were in middle to late childhood at Time 1, and in late childhood to early adolescence at Time 2 (Hanish & Guerra, 2000; Hanish & Guerra, 2002), and thus may not be directly comparable to the present study.

Another explanation for the lack of direct effects may be that moderators of relations between aspects of peer victimization and delinquency existed but were not assessed (MacKinnon & Fairchild, 2009). For example, longitudinal relations between peer victimization and delinquency components may only be present only for youth who associate to a greater versus lesser extent with deviant peers (e.g., Akers & Jensen, 2006; Beaver, Mancini, DeLisi, & Vaughn, 2010; Haynie & Piquero, 2006; Dishion, Andrews, & Crosby, 1995; Stoolmiller, 1994). Additionally, adolescents’ beliefs about engaging in
delinquency can influence whether they actually commit delinquent behaviors once victimized (Akers & Jensen, 2006). Finally, victimized youths who think that they may be rewarded for engaging in delinquency (e.g., by achieving a higher social status) may be more likely to engage in these behaviors (Juvenon & Galván, 2001). Therefore, it is possible that peer victimization and delinquency are significantly related to a greater degree for youths who, for example, associate with delinquent peers or believe that delinquent behaviors will be rewarded. Thus, there may be variables that moderate effects between peer victimization and delinquency that were not examined in the current study.

As anticipated, direct effects were found between: (a) physical victimization and higher rates of anger dysregulation, and (b) anger dysregulation and increased frequencies of physical aggression. Furthermore, a significant indirect effect was found for relations between physical victimization and physical aggression through anger dysregulation. This significant indirect effect replicated findings by two studies (i.e., Herts et al., 2012; Wallace et al., 2005). Wallace et al. (2005) found a significant indirect effect of peer victimization on physical aggression via anger dysregulation in a cross-sectional study among a primarily European American sample. Herts et al. (2012) showed that, for a sample comprised primarily of Latino youths, there was a significant indirect effect of peer victimization on aggression through emotion dysregulation over several months. These findings are consistent with several theories (i.e., the aggression-frustration hypothesis, stress and coping theory, and GST) that explain relations between peer victimization and aggression in terms of youths engaging in aggression following peer victimization experiences as a means to alleviate feelings of anger dysregulation elicited by those victimization experiences (Agnew, 2006; Berkowitz, 1990; Denson et
al., 2006; Lazarus, 2006; Sprague et al., 2011). These findings not only support the theories discussed, but also extend the literature in this area by focusing on an urban, adolescent sample that was primarily African American.

Contrary to expectations, direct effects were found between: (a) physical victimization and increased sadness, and (b) sadness and higher frequencies of theft/property damage. No significant indirect effect was found on relations between physical victimization and theft/property damage via sadness. The longitudinal relation between physical victimization and sadness was consistent with a meta-analysis examining prospective relations between peer victimization and internalizing behaviors (Reijntjes et al., 2010). This finding is also supported by studies that assessed longitudinal relations between overt forms of victimization (e.g., being “bullied,” being struck) and internalizing symptoms (e.g., Sweeting, Young West, & Der, 2010). For example, overt victimization at age 11 predicted depressive symptoms at age 13 among a sample of Scottish youths (Sweeting et al., 2010). Additionally, two studies found significant relations between sadness and theft/property damage among adolescent samples, although both studies were cross-sectional (Ramli, Adlina, Suthahar, Edariah, Ariff, Narimah, et al., 2008; Ritakallo, Kaltiala-Heino, Kivivuori, Luukkaala, & Rimpela, 2006). Several theories (e.g., GST, stress and coping theory) also support these findings as they note that sadness is related to more passive coping strategies, such as substance use (Agnew, 2006; Lazarus, 2006). However, it is possible that theft/property damage maybe be more of a passive method of delinquent coping. These behaviors are more covert and surreptitious forms of delinquency, as youth generally do not engage in them while in the public eye, and in doing so will likely not physically hurt another person.
Theft/property damage could thus be considered a more passive method of coping, indicating that the significant relations found between sadness and theft/property damage are both consistent with previous research as well as GST and stress and coping theory, which hypothesize such relations. As this is a more indirect method of coping, youths may consider it a more passive method as well.

The hypothesized direct effect between anger dysregulation and the increased frequencies of theft/property damage one year later was not supported. This finding was not consistent with studies that found concurrent relations between anger and theft/property damage (e.g., Moon et al., 2007), and also a short-term longitudinal study that revealed a significant indirect effect of peer victimization on theft/property damage via anger (Hollist et al., 2009). However, the current study sample differed from Hollist et al.’s (2009) sample of youths who were more ethnically diverse, of higher SES, and mostly lived in two-parent households, and from Moon et al.’s (2007) sample of eighth grade South Korean youths. Additionally, as theft/property damage may be more of a passive method of coping, it would be inconsistent with both GST and stress and coping theory for anger dysregulation to be related to theft/property damage. Both of these theories indicate that anger would be related to active methods of coping, such as aggression. Another possibility is that peer processes could be another mechanism to consider in examining how peer victimization would lead to theft/property damage and may partially account for a lack of mediation. Based on Social Learning Theory (Akers & Jensen, 2006), adolescents may model delinquent behaviors that other youths enact. This theory indicates that youths may engage in theft/property damage as a method of coping with anger if their peers have modeled these types of delinquent behaviors. One study
that lends credence to this assertion showed an indirect effect between peer victimization and theft/property crime via associations with delinquent peers for adolescents (Wen-Hsu, Cochran, & Mieszkowski, 2011). These findings indicate the importance of peer models in engaging in delinquent behaviors, and that the impact of these types of delinquent associations may play an important role in whether youths engage in theft/property damage.

No direct effects were found between relational victimization and sadness and fear over a 12-month period. Relatively few longitudinal studies assessed associations between relational and physical/overt subtypes of peer victimization and internalizing behaviors (e.g., Ranta, Kaliala-Heino, Frojd, & Marttunen, 2013; Siegel, LaGreca, & Harrison, 2009; Storch, Masia-Warner, Crisp, & Klein, 2005). Relational victimization predicted anxiety across gender in one study (Storch et al., 2005) and for girls only in others (e.g., Ranta et al., 2013; Siegel et al., 2009). In contrast, several studies highlight significant longitudinal relations between overt victimization and internalizing behaviors (e.g., Hanish & Guerra, 2002; Ranta et al., 2013; Sweeting et al., 2006). One exception was a study of middle school students where neither overt nor relational victimization predicted increased depressive symptoms over a one-year period (Tran, Cole, & Weiss, 2013). Overall, it may be that physical/overt victimization is a stronger predictor than relational victimization of internalizing behaviors over time. Regarding the lack of longitudinal associations between relational victimization and fear, it is possible that the way that fear was measured in the current study resulted in it being less comparable to prior studies. Previous research centered on relations between peer victimization and fear
of later victimization (e.g., Esbensen & Carson, 2009; Randa & Wilcox, 2012) instead of the general measure of fear that is represented in the current study.

The anticipated prospective relations between sadness and fear and substance use were not found; there was no significant indirect effect of peer victimization on substance use via either sadness or fear over two years. It is possible that relations between sadness and fear and substance use may be present, but only for specific types of substances (e.g., alcohol versus other drugs and gateway versus illicit drugs). Thus, having several substances represented in a composite measure may obfuscate differing relations between sadness and fear and specific substances. For example, Marmorstein et al. (2010) found significant relations between generalized anxiety and tobacco and alcohol use, but not marijuana use, and Wolitzky-Taylor et al. (2012) found that depressive mood predicted alcohol use specifically, but not substance use generally. Additionally, only one cross-sectional study was found that examined the indirect effect of peer victimization on substance use via internalizing behaviors among tenth graders (Luk et al., 2010). Given the concurrent nature of this study, it was not possible to assess the direction of these relations. It is plausible that substance use may instead predict peer victimization, with this relation mediated by internalizing behaviors. Luk et al. (2010) also sampled tenth graders, which is a contrast from the early to mid-adolescent sample used in the present study. Patterson, Dishion, and Yoerger (2000) noted that youths begin to increase substance use in eighth grade, and thus many of the youths in the current study may not have engaged in substance use to the same extent as those in Luk et al’s (2010) sample. Lastly, GST indicates that fear and sadness may promote avoidance behaviors, as youths may engage in more passive methods of relieving these emotions, such as using drugs or
alcohol (Agnew, 2006). This seems to indicate that some delinquent behaviors that were not assessed in this study, such as truancy, could also be a method of engaging in avoidant coping, which would be consistent with GST (Agnew, 2006). One study tested this hypothesis and found that victimized youths engaged in truancy to avoid peer victimization (Berkowitz & Benbenishty, 2012).

The strength of relations between study variables for each hypothesized model did not differ by gender. Few studies examined gender differences within similar models. In contrast to the current study’s findings, two studies found that relational victimization predicted anxiety over and above the contribution of overt victimization (Ranta et al., 2013; Siegel et al., 2009) for girls but not boys. Luk et al. (2010) also found a significant indirect effect of peer victimization on substance use via depressive symptoms for girls as compared to boys. However, the indirect effect of peer victimization on aggression through emotion dysregulation was consistent across gender (Herts et al., 2012). One potential reason for the lack of gender differences found in the current study may be based on developmental changes in peer group membership during adolescence. Adolescents progress from same-gender friendships to cross-gender friendships and romantic relationships (Tuval-Mashiach, Walsh, Harel, & Shulman, 2008). These relationships become increasingly intimate in nature, which may result in a decrease in differences in the hurtful and harmful nature of physical and relational victimization by gender. Thus, relations between peer victimization subtypes and mediators and outcomes may become more consistent across gender in adolescence.
Limitations of the Present Study

Although this study has a number of strengths, it is important to discuss several limitations. A few of the scales used in the current study had fairly low reliability coefficients. The subscale that measured feelings of anger by combining two subscales on the CAMS had a relatively low reliability coefficient of .61. Similarly, the CDI Negative Mood subscale had relatively low alpha coefficients at both Time 1 (alpha=.61) and Time 2 (alpha=.65). Thus, although the CDI is a widely used and empirically validated measure, current study findings using these subscales should be interpreted cautiously.

Another limitation concerns the predictor and outcome variables that were examined in the present study, notably peer victimization generally, and substance use, and physical aggression more specifically. As noted, there are many types of peer victimization represented in the literature (e.g., verbal, relational, physical, cyber). This study focused on two subtypes, relational and physical victimization, and in doing so, did not examine how relations between study variables may have differed for other peer victimization subtypes, like cyber or verbal victimization. As these aspects of peer victimization were not examined, study results can only be applied to physical and relational victimization, and other subtypes of peer victimization should be examined in future studies. In addition, the substance use scale represented a composite measure of cigarette, alcohol, marijuana, and advanced alcohol use. It is possible that relations between both peer victimization and fear and sadness and substance use may differ based on the specific types of substances assessed (e.g., perhaps youths who are feeling sad would use a stimulant to feel more alert). Moreover, two items (i.e., “I do things like slam doors when I am mad,” and “I attack whatever makes me mad”) on the anger dysregulation scale
were similar to several physical aggression items (e.g., “Thrown something at someone to hurt them,” or “Hit or slapped another kid”). These behaviors all involve striking out at objects or other persons, so it could be argued that they are measuring similar behaviors. However, by combining two subscales of the CAMS to construct the anger dysregulation scale, this scale included a wider range of items focused on the extent to which one struggles to control feelings of anger.

Further limitations concern several of the study’s measures. For example, the PBFS is generally measured on a scale from 1 to 6, but data for the current study were collected using a scale that ranged from 0 to 5. Because of this difference, this study’s results for the PBFS cannot be directly compared to other studies using the measure. Similarly, the results involving anger dysregulation cannot be directly compared to other findings that used the CAMS Anger Dysregulated Expression subscale as this subscale was combined with the CAMS Anger Regulation Coping subscale for this study.

An additional limitation is that all data was based on self-report. Although self-report is likely the best way to measure emotions, as youths may not openly express their levels of anger, fear, and sadness to others, researchers have used other informants, such as peers and teachers, to measure peer victimization and externalizing behaviors (e.g., Reijntjes et al., 2011). As youths may over or underestimate how often certain events happen to them, or how often they engage in certain behaviors, including only self-report data was a limitation, and excluded other valuable perspectives on these experiences such as parents, teachers, and peers (Reijntjes et al., 2011).

The final two limitations concerned the characteristics of the current study’s sample and the timeframe over which relations between study variables were examined. The
youths who participated were a relatively homogeneous group. Most participants were African American youths living in a low-income urban context. Therefore, this study’s findings may have limited generalization to youth living in different socio-ecological contexts. Additionally, relations between study variables were examined across a 24-month period. While examining relations longitudinally is the only way to examine causal relations, the impact of negative emotions resulting from peer victimization on delinquent behaviors may be harder to examine over such an extended timeframe.

**Implications and Future Research**

The findings of the current study offer several implications and directions for further research. The significant longitudinal relations highlighted that physical victimization predicted both anger dysregulation and sadness. Also, sadness predicted theft/property damage and anger dysregulation predicted physical aggression. As noted above, engaging in delinquent behavior can irreparably derail youths’ life trajectories should they commit serious delinquent acts (e.g., seriously harming someone or attempting to do so), as they could spend years in prison if tried as adults, and have difficulty obtaining gainful employment when re-entering the community. Given the potential severity of adolescent delinquency, it is important to find potential intervention points to prevent youths from engaging in these behaviors. These findings highlight the relevance of sadness and anger dysregulation in that these negative emotions led to increased frequencies of delinquent behaviors. They indicate the importance of intervention and prevention programs incorporating emotion-focused coping skills to resolve feelings of sadness, specifically, into their manuals and curricula to prevent youths from engaging in theft/property damage. Anger management is a topic discussed in several different prevention programs.
(e.g., Second Step), but there is less focus on the ways to manage negative emotions like sadness or fear. Such programs could focus on brief and low-cost interventions, such as distracting one’s self by engaging in pleasant activities, or challenging one’s negative thoughts. Thus, it would likely be helpful for such prevention and intervention programs to incorporate methods to ameliorate internalizing symptoms of sadness and fear.

These findings indicate several other areas of research that should be further explored. A significant indirect effect of physical victimization on physical aggression via anger was found, but the scale as it was constructed for this study has not been psychometrically tested. Future studies could reformulate this scale, first by investigating additional items that may be applicable to measuring the construct, and then administering the items to adolescents such that a confirmatory factor analysis could be performed to examine which items group together, and subsequently the reliability and validity of the revised scale (DeVellis, 2003). This study examined whether negative emotions mediated relations between aspects of peer victimization and delinquency, but it would likely be helpful to better understand whether negative emotions are experienced specifically in response to victimization experiences. Knowing more information about how youths react emotionally, specifically to victimization experiences, would help elucidate the direct effect of peer victimization in terms of leading to negative emotional states and subsequently to delinquent behavior. To this end, future studies could also incorporate assessment methods, such as ecological momentary assessment, to better understand the rates and consequences of peer victimization as they unfold so that researcher’s do not have to depend on youth’s memories of what occurred.
This study’s sample comprised youths across adolescence, and future studies could examine these models among younger children and groups of early, middle, and late adolescents, respectively, to determine whether these findings are consistent across different age groups. Including youths of varying SES, racial/ethnic groups, and suburban and rural contexts in future studies of these relations would also help to assess the generalizability of these findings.
List of References
List of References


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Appendix A

Children’s Anger Management Scale (CAMS; Zeman, Shipman, & Suveg, 2002)
Anger Dysregulation/Anger Emotion Regulation Coping Subscale

Respondents were asked to answer: How much do you agree with the following statements?

1 = Hardly Ever  
2 = Sometimes  
3 = Often  

Anger Emotion Regulation Coping subscale items that were reverse coded (marked with an asterisk):

1 = Often  
2 = Sometimes  
3 – Hardly Ever  

1. I do things like slam doors when I am mad.  
2. I attack whatever makes me mad.  
3. I say mean things to others when I am mad.  
4. When I’m feeling mad, I control my temper. *  
5. I stay calm and keep my cool when I’m mad. *  
6. I try to calmly deal with what’s making me mad. *

**Note:** The Anger Emotion Regulation Coping subscale has five items, but only four were measured as part of the larger community violence project, and an additional item was eliminated to improve reliability.
Appendix B

Children’s Depression Inventory (CDI: Kovacs, 1981)
Negative Mood Subscale

Respondents are asked to circle the number of the sentence that best describes them for the past two weeks.

In the LAST 2 WEEKS, which best describes you . . .

I am sad once in a while.
I am sad many times.
I am sad all the time.

1. How often I am sad
2. Bad things will happen to me
3. Blame on myself
4. Crying
5. Things bother me
6. Making up your mind
Appendix C

Revised Children’s Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978)
Fear and Concentration subscale

Read each question carefully. For each sentence, choose YES if you think it is true about you. Choose NO if you think it is not true about you.

1 = No
2 = Yes

Examples include:

1. Others seem to do things easier than I can
2. It is hard for me to keep my mind on my schoolwork
3. A lot of people are against me
Appendix D


In the last 30 days, how many times have you…

0 = Never
1 = 1-2 times
2 = 3-5 time
3 = 6-9 times
4 = 10-19 times
5 = 20 or more times

Physical Aggression subscale
1. Thrown something at someone to hurt them
2. Threatened to hurt a teacher
3. Shoved or pushed another kid
4. Hit or slapped another kid
5. Threatened to hit or physically harm another kid

Delinquency subscale
1. Stolen something from another student
2. Snuck into someplace without paying, such as into the movies or onto a bus
3. Taken something from a store without paying for it (shoplifted)
4. Written things or sprayed paint on walls, sidewalks, or cars where you were not supposed to
5. Damaged school or other property that did not belong to you

Drug Use subscale
1. Drunk beer (more than a sip or taste)
2. Drunk wine or wine coolers (more than a sip or taste)
3. Smoked cigarettes
4. Been drunk
5. Drunk liquor (like whiskey or gin)
6. Used marijuana (pot, hash, reefer)
Appendix E

Social Experiences Questionnaire (SEQ; Crick & Grotpeter, 1996)

Respondents were directed to answer the following questions using this rating scale:

0 = Never
1 = 1-2 times
2 = 3-5 times
3 = 6-9 times
4 = 10-19 times
5 = 20 or more times

Physical Victimization:

1. How many times have you been hit by another kid?
2. How many times have you been pushed or shoved by another kid?
3. How many times has another student threatened to hit or physically harm you?
4. How many times have you been threatened or injured by someone with a weapon (gun, club, knife, etc.)?

Relational Victimization:

1. How many times have you had a kid say s/he won't like you unless you do what s/he wanted you to do?
2. How many times has someone spread a false rumor about you?
3. How many times have you been left out on purpose by other kids when it was time to do an activity?
4. How many times has a kid tried to keep others from liking you by saying mean things about you?
5. How many times has a kid told lies about you to make other kids not like you anymore?
6. How many times have you had a kid who is mad at you try to get back at you by not letting you be in their group anymore?
Appendix F

The Pubertal Development Scale (PDS: Peterson, Crockett, Richards, & Boxer, 1988)

Participants answered the items using the following scale:

1 = Has not started
2 = Has barely started
3 = Definitely underway
4 = Growth or development is complete

Boys responded to the following items:
1. Have you developed body hair under your arms or down below?
2. Has your voice started to deepen?
3. Has your skin grown oily, greasy, pimply, etc.?
4. Have you grown much taller very fast?
5. Have you started to grow hair on your face?

Girls responded to the following items:
1. Have you developed body hair under your arms or below?
2. Have your breasts started to develop?
3. Has your skin become oily, greasy, pimply, etc.?
4. Have you grown much taller very fast?
Vita

Lisa Jane Ulmer was born on December 1, 1985 in Richmond, Virginia and is an American citizen. She graduated from James Madison University in 2008 with a Bachelor of Arts in Psychology. She received a Master of Science in Psychology at Virginia Commonwealth University in 2011.