

Pathways of Dysregulation: The Influence of Lifetime Poly-Victimization on Therapy-Interfering Psychosocial Impairment in Adolescents Adjudicated for Sex Offenses

by

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Abstract

The preset study examined the relationship between poly-victimization exposure, affective dysregulation, and three negative psychosocial outcomes: externalizing problems, posttraumatic stress, and suicidal behavior. Adolescents adjudicated for sex offenses are a poly-victimized population who display psychosocial impairment tied to maladaptive affective regulatory strategies. If left untreated, functional impairment can interfere with the remediation of illegal sexual behaviors. Participants consisted of 165 adolescent males enrolled in mandated residential treatment following a sex offense. Childhood poly-victimization exposure and affective dysregulation severity were expected to predict psychosocial impairment. Affective dysregulation was also expected to partially mediate the relationships between poly-victimization and externalizing problems, posttraumatic stress, and suicidal behavior. Consistent with the main hypothesis, a significant indirect effect was observed between poly-victimization and all three areas of psychosocial impairment via affective dysregulation. Findings highlight the impact of poly-victimization exposure on functional impairment, as well as the importance of assessing for multiple types of victimization in adolescents who engage in illegal sexual behavior. Clinical implications regarding the use of trauma-informed approaches during sex offender treatment are discussed.

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Introduction

Children experience higher levels of criminal victimization than any other segment of the population (Finkelhor, Turner, Ormrod, & Hamby, 2009; Finkelhor, Turner, Shattuck, & Hamby, 2015). Childhood victimization has long-term consequences on psychosocial development that create functional impairment across the lifespan (e.g., Browne & Finkelhor, 1986; Bryer, Nelson, Miller, & Krol, 1987; Turner, Finkelhor, & Ormrod, 2006). For example, exposure to victimizing or adverse experiences in childhood is associated with adopting health-harming behaviors in adulthood such as smoking, substance use, sexual risk-taking, heavy alcohol consumption, and poor diet (Bellis, Hughes, Leckenby, Perkins & Lowey, 2014). These practices are associated with higher rates of chronic illness, cancer, heart disease, diabetes, and premature death (Bellis et al., 2014). Moreover, recent studies have shown that childhood victimization can compromise the development of key neurological processes including the pleasure and reward centers and impulse control mechanisms (Perry, 2006; Teicher & Samson, 2016). Such changes impact the developmental trajectories of victimized children by permeating the psychosocial processes through which they interact with the world (Pechtel & Pizzagalli, 2011; Perry, 2006).

One developmental consequence of childhood victimization is affective dysregulation (Copeland, Keeler, Angold, & Costello, 2007; Finkelhor, Ormrod, & Turner, 2007a). Affective dysregulation is defined as the impaired ability to regulate or tolerate negative emotional states (Dvir, Ford, Hill, & Frazier, 2014). Victimization exposure is associated with limited access to effective emotion regulation strategies during periods of distress (Tull, Barrett, McMillan, & Roemer, 2007). Maladaptive regulatory processes are evidenced by a heightened emotional reactivity to victimization cues and may represent attempts to dispel, reduce, or recover from the negative affective states elicited by victimization exposure (D'Andrea, Ford, Stolbach, & van der

Kolk, 2012). Although affective dysregulation patterns can be considered potentially adaptive responses to threats of personal harm, these processes often persist long after the threat has subsided (D’Andrea et al., 2012; Heleniak, Jenness, Vander Stoep, McCauley, & McLaughlin, 2016). This inability to regulate emotional arousal can potentiate low distress tolerance in response to age-appropriate stressors (D’Andrea et al., 2012; Tull et al., 2007). For example, research has found that sexually victimized children are more likely than non-victimized peers to report mood lability and inappropriate expression of negative emotion (Lewis, Todd, & Honsberger, 2007; Shipman, Zeman, Penza, & Champion, 2000). Victimized children also display higher rates of exaggerated emotional responses, excessive negative mood, and social withdrawal than non-victimized peers (Aber, Allen, Carlson, & Cicchetti, 1989; Browne & Finkelhor, 1986; Finkelhor et al., 2007a). These maladaptive regulatory strategies have been shown to persist throughout development, with childhood victimization predicting affective dysregulation in adulthood (Tull et al., 2007). If left untreated, affective dysregulation can prolong the negative effects of childhood victimization by compromising the development of adaptive strategies to manage distress.

Affective dysregulation contributes to the development and maintenance of several negative psychosocial outcomes (e.g., D’Andrea et al., 2012; Dvir et al., 2014). First, affective dysregulation is associated with externalizing behavior problems (Browne & Finkelhor, 1986; Cohen, Deblinger, & Mannarino, 2012; Turner, Finkelhor, & Ormrod, 2010). Externalizing problems may correspond to attempts to mitigate potentially victimizing situations through the outward expression of negative emotions (Heleniak et al., 2016). For example, victimized children display higher rates of interpersonal aggression, rule breaking, and defiance than non-victimized children (Maschi, Morgen, Bradley, & Hatcher, 2008; Turner et al., 2010). Over time,

these externalizing patterns can evolve into more extreme risk-taking behaviors (Bellis et al., 2014; Steinberg, 2004). Adolescents and adults with histories of victimization exposure have reported higher involvement in delinquency, risky sexual behavior, and substance use than non-victimized peers (Bellis et al., 2014; Guerra, Ocaranza, & Weinberger, 2016; Messman-Moore, Walsh, & DiLillo, 2010). Relationships have also been observed between childhood victimization exposure and externalizing disorder diagnoses such as, Attention Deficit-Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD), and Conduct Disorder (CD) (Cuevas, Finkelhor, Clifford, Ormrod, & Turner, 2009; Ford, Wasser, & Connor, 2011). Externalizing behaviors have been found to increase in frequency as they are met with reductions in emotional arousal, thus reinforcing these externalizing patterns as an effective method of regulating emotional distress (Heleniak et al., 2016).

Second, affective dysregulation is a key component of most psychological disorders (e.g., Browne & Finkelhor, 1986; Cohen, Deblinger, Mannariono, & Steer, 2004; Dvir et al., 2014; Ford et al., 2011). Many psychopathological symptoms develop from the inability to manage the emotional sequelae of a victimizing event (Nurius, Green, Logan-Green, & Borja, 2015). Most notably, research has found numerous associations between childhood victimization and Posttraumatic Stress Disorder (PTSD) (e.g., American Psychiatric Association, 2013; Browne & Finkelhor, 1986; Cohen et al., 2004). PTSD develops following direct or witnessed exposure to a traumatic event and causes significant impairment across multiple domains of functioning (APA, 2013). In addition to affective dysregulation, PTSD symptoms include intrusive thoughts, dreams, and flashbacks of a trauma, as well as avoidance of internal and external cues corresponding to a traumatic event (APA, 2013). Traumatic exposure facilitates negative alterations in cognitions and mood such as, negative self-evaluation, self-blame, detachment

from others, and diminished interest in preferred activities (APA, 2013). PTSD is also characterized by other externalizing and internalizing problems including increased hypervigilance, reduced concentration, risk-taking behavior, and verbal and physical aggression (APA, 2013). Approximately one quarter of victimized children develop clinically significant symptoms of PTSD (American Academy of Child and Adolescent Psychiatry, 2010). Victims of childhood physical abuse (e.g., Bryer et al., 1987), peer victimization (e.g., Turner et al., 2006), community violence (e.g., Boney-McCoy & Finkelhor, 1995), and sexual abuse (e.g., Browne & Finkelhor, 1986) have been found to display clinical levels of posttraumatic stress for months to years after the victimization has ended (Browne & Finkelhor, 1986; Cohen, Mannarino, & Deblinger, 2012). Youth diagnosed with PTSD require immediate therapeutic intervention to reduce symptoms and foster adaptive regulatory strategies to cope with their posttraumatic stress symptoms (Cohen et al., 2004; Cohen, Mannarino, Kliethermes, & Murray, 2012).

Third, affective dysregulation can potentiate engagement in suicidal behavior (Brodsky & Biggs, 2012). Suicidal behavior includes suicidal ideation (i.e., thoughts of ending one's life), suicide attempt (i.e., engagement in potentially self-injurious behavior that does not result in death), and completed suicide (Liu, Fang, Gong, Cui, & Meng et al., 2017). Individuals who experience childhood victimization report higher rates of suicidal ideation than non-victimized peers (Brodsky, Mann, Stanley, Tin, & Oquendo et al., 2008; Guerra et al., 2016). Specifically, childhood maltreatment, including physical abuse, sexual abuse, and neglect, are associated with suicidal ideation and attempt in young adulthood (Brown, Cohen, Johnson, & Smailes, 1999). Childhood victimization, particularly maltreatment, is believed to indirectly influence suicidal behavior through affective dysregulation (Liu et al., 2017; Brown et al., 1999). Research has found substantial evidence that childhood adversity impacts the neurobiological systems related

to emotion regulation (Brodsky & Biggs, 2012). Affective dysregulation contributes to impulsivity and poor distress tolerance, which increases the likelihood of suicidal behavior (Briere & Jordan, 2009). In a sample of adult women, childhood victimization was independently associated with past suicide attempts, as well as the likelihood of future attempts, when controlling for the confounding effects of psychological distress and drug use (Clements-Nolle & Bargmann-Losche, 2009). Findings indicate that the affective instability created by victimization exposure potentiates an elevated risk for suicidal behavior throughout the lifespan (Briere & Jordan, 2009; Clements-Nolle & Bargmann-Losche, 2009). Overall, the functional impairment associated with childhood victimization exposure has extensive consequences on psychosocial well-being that, without intervention, can potentiate long-term engagement in harmful behaviors.

Poly-Victimization

According to Hamby and colleagues (2004), victimized children rarely experience one form of victimization, but are often exposed to multiple types of victimization, or poly-victimization (Finkelhor, Hamby Ormrod, & Turner, 2005; Finkelhor, Ormrod, Turner, & Hamby, 2005; Finkelhor et al., 2007a; Hamby, Finkelhor, Ormrod, & Turner, 2004). Poly-victimization is relatively common, with 66% of youth ages two to seventeen reporting exposure to two or more types of victimization, 30% to five or more types, and 10% to eleven or more types over their lifetimes (Hamby et al., 2004; Finkelhor, Ormrod, & Turner, 2009). Poly-victimization emphasizes different forms of victimization to signal a more generalized vulnerability to distress beyond that explained by a single type of victimization (Finkelhor et al., 2005a). Poly-victimization research asserts that victimization risks are inter-correlated and that children exposed to multiple victimizations are more likely to report psychosocial impairment than children with fewer victimizations (Copeland et al., 2007; Finkelhor et al., 2005a; Finkelhor

et al., 2009). Children who have experienced more than one type of victimization appear to be at increased risk for impairment across multiple domains of functioning, including psychological symptoms, cognitive deficits, and externalizing behavior problems (Finkelhor et al., 2005a; Turner et al., 2006; Finkelhor et al., 2011). Poly-victimization is also associated with increased exposure to additional forms of victimization and non-victimization adversities, suggesting that previous victimization exposure is an important predictor of future victimization exposure (Alexander, Serrano-Amerigo, & Harrelson, 2018; Cuevas, Finkelhor, Clifford, Ormrod, & Turner, 2010; Cuevas et al., 2009). Poly-victimization is believed to compound the functional impairment of multiple victimization exposures to potentiate negative psychosocial outcomes throughout development (Finkelhor et al., 2011; Turner et al., 2006).

Despite the prevalence of poly-victimization, most trauma screening instruments focus on one form of victimization (e.g., sexual abuse, maltreatment) and do not inquire about other forms (e.g., peer violence, community violence) (Finkelhor et al., 2005a; Hamby & Finkelhor, 2000). This assessment method may fail to identify poly-victimized children within victimized samples who may be at elevated risk for psychosocial impairment (Finkelhor et al., 2005a; Finkelhor et al., 2007a; Hamby & Finkelhor, 2000). Researchers and mental health professionals could also come to erroneous conclusions about the developmental impact of certain types of victimization if they are not aware of a child's complete victimization history (Finkelhor et al., 2005a; Finkelhor et al., 2005b; Hamby & Finkelhor, 2000). Thus, poly-victimization appears fundamental to understanding the maladaptive developmental outcomes of childhood victimization and the functional impairment experienced by victimized youth (Finkelhor et al., 2005a; Finkelhor et al., 2011).

The Juvenile Victimization Questionnaire (JVQ). The Juvenile Victimization Questionnaire (JVQ) was developed as a comprehensive approach to assessing childhood poly-victimization (Hamby et al., 2004; Finkelhor et al., 2005a). The JVQ uses simple language and behavior-specific questions to clearly define the types of victimizations experienced by children (Hamby & Finkelhor, 2000; Turner et al., 2006). The JVQ assesses 34 types of youth victimization across five aggregate categories: Conventional Crime, Child Maltreatment, Peer and Sibling Victimization, Sexual Victimization, and Indirect Victimization (Finkelhor et al., 2005b; Hamby et al., 2004). These aggregates map onto official victimization categories used by law enforcement for the purposes of investigation and intervention (Finkelhor et al., 2005b; Hamby & Finkelhor, 2000). All victimizations in each aggregate have been studied individually as traumas, adverse childhood experiences, or threats to child welfare (Finkelhor et al., 2007a; Hamby et al., 2004; Hamby & Finkelhor, 2000).

The JVQ measures past-year and lifetime poly-victimization exposure in youth ages two to seventeen-years-old (Finkelhor et al., 2005a; Finkelhor et al., 2011). The designated poly-victimization assessment period depends upon the research or clinical objective of the administrators (Hamby et al., 2004; Finkelhor et al., 2011). Past-year poly-victimization establishes a standardized timeframe to inform immediate environmental risk and treatment needs (Finkelhor et al., 2005a; Finkelhor et al., 2007a); whereas, lifetime measurement provides a developmental context to victimization exposure that may aid in the conceptualization of psychosocial functioning (Finkelhor et al., 2009a; Finkelhor et al., 2011). Lifetime poly-victimization is characterized by greater quantities of victimizations, as well as higher frequencies of violent victimizations (Finkelhor et al., 2009a).

The JVQ has demonstrated acceptable psychometric properties for both past-year and lifetime poly-victimization exposure. Mean test-retest reliability for past-year exposure ranges from 0.79-1.00 for each item (Finkelhor et al., 2005b). Internal consistency for all 34 items is very good ($\alpha = .82$ for past-year and $\alpha = .84$ for lifetime) and ranges from weak to moderate for each aggregate (Finkelhor et al., 2005a). Both past-year and lifetime JVQ total scores are significantly correlated with total scores on the Lifetime Incidence of Traumatic Events scale (LITE; Greenwald & Rubin, 1999; $r = 0.21, p < 0.001$), which measures exposure to potentially traumatic life events and interpersonal violence (Finkelhor et al., 2005b). For more information on the psychometric properties of the JVQ, please refer to Finkelhor et al., (2005a; 2005b).

Poly-victimization classification. Poly-victimization research has identified a group of youth with considerably high levels of victimization exposure called “poly-victims.” For past-year measurement, this classification extends to youth who have experienced four or more types of victimization within a one-year period (Finkelhor et al., 2005b; Finkelhor et al., 2007a). For lifetime measurement, poly-victim criteria are defined as JVQ total scores that fall in the top tenth percentile of the score distribution in a given sample (Finkelhor et al., 2009a; Finkelhor et al., 2011; Turner et al., 2010). Because opportunity for victimization exposure increases as a function of age, a set threshold for lifetime poly-victims could undermine the psychosocial impairment experienced by young victimized children (Finkelhor et al., 2009a; Finkelhor et al., 2011). In a sample of 1,500 respondents ranging from ages two to seventeen-years-old, Finkelhor and colleagues (2009) established a poly-victim threshold of 11 or more types of victimization over the lifespan. However, higher cutoffs are required in residential treatment and clinical samples characterized by high rates of victimization exposure (Harrelson, Alexander, Morais & Burkhart, 2017; Pereda, Abad, & Guilera, 2015; Segura, Pereda, Guilera, & Abad, 2016).

Poly-victims are characterized by considerably more types of victimization and non-victimization adversities than less-victimized peers (Finkelhor et al., 2005a; 2005b; Finkelhor et al., 2007a; Finkelhor et al., 2009a). Their victimizations are more likely to include an injury, weapon, caregiver perpetrator, and sexual assault than those of non-poly-victims (Finkelhor et al., 2005b; Finkelhor et al., 2011). Poly-victims are at higher risk of re-victimization through more severe, violent types of victimization (Finkelhor Ormrod & Turner, 2007b). Poly-victims are also more likely to be older than non-poly-victims and have higher rates of comorbid adverse life events (Finkelhor et al., 2005b; Finkelhor et al., 2009). The poly-victim classification identifies a special population of children who are at a substantially high risk for re-victimization and psychosocial impairment (Finkelhor et al., 2005b; Finkelhor et al., 2007b; Finkelhor et al., 2011).

Poly-victimization and Affective Dysregulation

Poly-victimization has been found to predict the maladaptive affective regulatory patterns associated with childhood victimization exposure (Finkelhor et al., 2005b; Finkelhor et al., 2007a). First, poly-victimization totals (i.e., total number of victimization types that occurred over a given time period) for past-year and lifetime measurements are strongly associated with anger and aggression, as measured by the Trauma Symptoms Checklist for Children (TSCC) and Trauma Symptoms Checklist for Young Children (TSCYC) (Finkelhor et al., 2005b). In a national sample of 1,500 youth, poly-victimization total was a more important predictor of anger and aggression than other adverse life experiences including serious illness, accidents, homelessness, and family conflict, as well as the death, unemployment, abuse, or imprisonment of family members (Finkelhor et al., 2005a; 2005b). Similarly, Turner and colleagues (2010) found that children classified as lifetime poly-victims, operationalized as a minimum total score

of 11 on the JVQ, scored three to five times higher on anger and aggression outcomes than children who did not meet these criteria. Poly-victimization is also predictive of internalizing dysregulation patterns associated with childhood victimization. Total past-year and lifetime poly-victimization have been found to predict anxiety and depression scores on the TSCC, TSCYC, Screen for Anxiety Related Emotional Disorders (SCARED; Birmaher et al., 1997), and Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erdbaugh, 1961) beyond other non-victimization adversities (Finkelhor et al., 2005b; Finkelhor et al., 2009a; Turner et al., 2010). In a national sample of 1,500 youth, past-year poly-victims comprised 80% of the adolescents with clinical levels of anxiety symptoms and 86% of the adolescents with clinical levels of depression symptoms (Finkelhor et al., 2007a). Lifetime poly-victims also scored between two and five times higher on the depression scales of the TSCC and TSCYC, and were five times more likely to report anxiety and depression symptoms on the Youth Self Report (YSR; Achenbach, 1991) than youth with fewer victimizations (Alvarez-Listerr et al., 2014; Segura et al., 2016; Turner et al., 2006). Poly-victims are also more likely to have comorbid internalizing disorder diagnoses such as, Major Depressive Disorder (MDD), Generalized Anxiety Disorder (GAD), and Social Anxiety Disorder (SAD) than children who do not meet these criteria (Cuevas et al., 2009). Together, research has found promising connections between poly-victimization exposure and the experience of affective dysregulation throughout development.

Advantages of poly-victimization assessment. There are several advantages of using poly-victimization to assess affective dysregulation patterns that extend beyond the typical characteristics emphasized by other trauma screening instruments (Hamby & Finkelhor, 2000; Finkelhor et al., 2005a). First, the inclusion of past-year and lifetime poly-victimization into

analyses of affective dysregulation symptoms either eliminates or greatly reduces the predictive power of individual types of victimization (Cyr, Chamberland, Clément, Lessard, & Wemmers et al., 2013; Finkelhor et al., 2007a; Finkelhor et al., 2011). In a national sample of 1,500 youth, all five victimization aggregates were independently associated with anxiety, depression, aggression, and anger scores on the TSCC and TSCYC (Finkelhor et al., 2005a; Finkelhor et al., 2007a). When lifetime and past-year JVQ total scores were added to each model, the relationships between dysregulation symptoms and the Sexual Victimization, Conventional Crime, and Indirect Victimization aggregates dropped below significance for all outcome variables (Finkelhor et al., 2007a; Turner et al., 2010). The regression coefficients for the remaining aggregates were reduced over 80% (Finkelhor et al., 2007a; Turner et al., 2010). Findings were replicated when items corresponding to the aggregates onto which poly-victimization was being regressed were removed from the JVQ total scores, indicating that items within these aggregates do not account for the relationship between poly-victimization and affective dysregulation (Finkelhor et al., 2007a). Lifetime poly-victimization also accounted for most of the explained variance in all dysregulation symptom variables, ranging from 5% for anxiety to 19% for anger (Cyr et al., 2013). The reduced predictability of victimization type on symptom presentation suggests that much of the presumed influence of a particular victimization on affective dysregulation may be attributed to the underlying compounded effect of poly-victimization (Cyr et al., 2013; Finkelhor et al., 2005b; Finkelhor et al., 2007a; Turner et al., 2010).

Poly-victimization is also more predictive of affective dysregulation than victimization frequency (Finkelhor et al., 2007a; Finkelhor et al., 2011; Turner et al., 2010). Research has found that chronic victimization exposure, or multiple episodes of one type of victimization, is

associated with self-reported emotion regulation difficulties and long-term psychosocial impairment (Cohen et al., 2012b; Finkelhor et al., 2007a). However, past-year poly-victims had significantly higher anxiety, depression, and anger scores on the TSCC and TSCYC when compared to single-type, chronic victims (Finkelhor et al., 2007a). Lifetime poly-victims also reported higher levels of affective dysregulation than those who experienced chronic levels of a single victimization, but no exposure to additional types of victimization (Turner et al., 2010). These relationships were observed across aggregates, with lifetime poly-victims reporting substantially more affective dysregulation than those who experienced chronic frequencies of serious victimizations (Turner et al., 2010). For example, exposure to multiple sexual victimizations was not associated with as much anger, anxiety, aggression, or depression as exposure to any sexual victimization in combination with several other types of victimization (Finkelhor et al., 2011; Turner et al., 2010). Findings suggest that poly-victimization contributes more meaningful variance to the affective regulatory processes associated with childhood victimization than repeated exposure to a single, even serious, type of victimization (Turner et al., 2010).

Gaps in the clinical utility of poly-victimization. Although findings suggest that poly-victimization can inform the level of affective dysregulation in victimized youth, its utility for clinical purposes would be enhanced by the ability to predict the psychosocial impairment associated with childhood victimization exposure. Several studies have found relationships between poly-victimization and maladaptive behavior patterns, including externalizing problems and suicidal behavior. First, lifetime poly-victims report higher rates of rule-breaking behavior, physical fights, and social problems than less-victimized peers (Ford et al., 2011; Guerra et al., 2016; Romano, Babchishin, & Wong, 2016; Segura et al., 2016). Kretschmar and colleagues

(2017) found that rates of self-reported violent behavior (e.g., threatening to harm someone, preemptively hitting someone, reactively hitting someone, beating up someone, and attacking someone with a knife) increased as a function of childhood poly-victimization, with greater poly-victim exposure predicting higher rates of interpersonal violence (Kretchmar, Tossone, Butcher, & Flannery, 2017). Lifetime poly-victim status has also been associated with self-reported delinquency, as well as history of residential treatment and correctional placement (Guerra et al., 2016). Second, risk for suicidal behavior is also believed to increase in individuals who have experienced multiple types of victimization (e.g., Brodsky & Biggs, 2012; Turner, Finkelhor, Shattuck, & Hamby, 2012). Turner and colleagues (2012) found that poly-victimized children were approximately six times more likely to experience suicidal ideation than children who had experienced one type of victimization. These results were replicated after controlling for internalizing disorder diagnosis and past suicidal ideation (Turner et al., 2012). Findings suggest that the cumulative impact of poly-victimization may contribute to the identification of maladaptive and dangerous behavior patterns that can follow childhood victimization exposure.

Poly-victimization is also associated with self-reported posttraumatic stress symptoms. Research has found that children diagnosed with PTSD are more likely to have experienced multiple types of victimizations across a broad range of categories than children who do not meet PTSD diagnostic criteria (Hamby & Finkelhor, 2000; Cohen et al., 2012b; Cuevas et al., 2009). In a sample of school-aged children receiving trauma-informed treatment, lifetime victimization exposure was positively associated with subjective ratings of distress at the beginning of treatment (Cohen et al., 2012b). Specifically, multiple forms of maltreatment were associated with higher numbers of PTSD symptoms in the clinical range (Cohen et al., 2012b; Romano et al., 2016). Given the association between PTSD symptoms and childhood victimization, poly-

victimization likely contributes to the development of posttraumatic stress in children and adolescents.

The clinical utility of poly-victimization is compromised by a limited understanding of the mediating factors that contribute to psychosocial impairment. Although associations have been found between poly-victimization and externalizing problems, posttraumatic stress, and suicidal behavior, poly-victimization exposure alone does not signify these negative outcomes (APA, 2013; Briere, Johnson, Bissada, Damon, Crouch, et al., 2001). Rather, these outcomes correspond to disruptions in the development of affective regulatory strategies to manage emotional distress (APA, 2013; Alvarez-Lister et al., 2014; Briere et al. 2001; Segura et al., 2016). Findings suggest that poly-victimization increases affective dysregulation, which may, in turn, exacerbate negative psychosocial outcomes (Maschi et al., 2008; Shipman et al., 2000). Given the observed relationships between affective dysregulation and several domains of functional impairment, it is conceivable that poly-victimization could predict the onset of externalizing problems, posttraumatic stress, and suicidal behavior (APA, 2013; Cohen, Mannarino, Kliethermes, & Murray, 2010; Cook, Spinazzola, Ford, Lanktree, & Blaustein et al., 2005). However, more research is required to determine the extent to which poly-victimization contributes to the development of psychosocial impairment in children and adolescents.

Adolescents with Illegal Sexual Behavior

Adolescents adjudicated for illegal sexual behavior are characterized by high rates of poly-victimization (Harrelson et al., 2017; Levenson, Willis, & Prescott, 2014; Seto & Lalumière, 2010). Research has found that juvenile justice populations experience more than double the total number of lifetime victimizations reported by national community samples (Harrelson et al., 2017; Pereda et al., 2015) Pereda and colleagues (2015) found that 65% of

incarcerated adolescents had experienced over nine types of victimization in their lifetimes, compared to 10.6% of peer-aged youth in a community sample (Finkelhor et al., 2009a). Juvenile justice-involved youth also report greater exposure to more chronic, violent types of victimization than non-delinquent peers (Ford, Grasso, Hawke, & Chapman, 2013). Adolescents with illegal sexual behaviors are characterized by high rates maltreatment, including physical and sexual victimization, as well as peer and community victimization (Harrelson et al., 2017; Leenarts, McReynolds, Vermeiren, Doreleijers, & Wasserman, 2013; Newman, Falligant, Thompson, Gomez, & Burkhart, 2018). In a study of adolescents in treatment for illegal sexual behavior, the average quantity of victimization experiences reported by participants ranged between 8 and 10 types at the beginning of treatment (Harrelson et al., 2017). Another study found that youth with illegal sexual behavior had been exposed to an average of 5.5 Criterion A traumatic events prior to their sex offense adjudications (Newman et al., 2018). Thus adolescents who engage in illegal sexual behavior are a highly victimized population that is considered vulnerable to the negative psychosocial outcomes associated with childhood victimization exposure (Harrelson et al., 2017; Leenarts et al., 2013; Levenson et al., 2014; Newman et al., 2018).

Many adolescents with illegal sexual behavior display disorganized affective processes that prevent them from regulating emotional distress (Burk & Burkhart, 2003; Jones, Joyal, Cisler, & Bai, 2016). Maladaptive regulatory patterns can potentiate psychosocial impairment in these adolescents through externalizing problems, posttraumatic stress, and suicidal behavior, in addition to sexual offending (e.g., Boonmann, VanVugt, Janson, Colins, Doreleijers, et al., 2015; Burk & Burkhart, 2003; Leenarts et al., 2013; Seto and Lalumiere, 2010). First, adolescents with illegal sexual behavior have been found to display externalizing behavior problems during

periods of emotional distress, including interpersonal aggression, rule breaking, and defiance (Driemeyer, Yoon, & Briken, 2011; Seto and Lalumiere, 2010). Externalizing problems often extend to the educational environment, with adolescents self-reporting disruptive classroom behaviors, truancy, and school suspensions (Seto & Lalumiere, 2010). Further, adolescents with sexual offending histories are more likely to be diagnosed with Conduct Disorder (CD) and Oppositional Defiant Disorder (ODD) than non-delinquent peers (Boonman et al., 2015).

Second, many adolescents with illegal sexual behavior display symptoms of posttraumatic stress that stem from childhood trauma exposure (Newman et al., 2018; Seto & Lalumiere, 2010). In a sample of trauma-exposed adolescents with illegal sexual behaviors, 54% met criteria for a PTSD diagnosis at the beginning of residential treatment (Newman et al., 2018). An additional 44% of youth reported subclinical posttraumatic stress symptoms in response to at least one Criterion A traumatic event (Newman et al., 2018). The onset of illegal sexual behavior in adolescence has also been tied to complex trauma and victimization exposure during childhood (Burk & Burkhart, 2003; Ford, Chapman, Connor, & Cruise, 2012). Finally, adolescents with illegal sexual behavior report more suicidal behavior than other delinquent youth (Boonman, Grisso, Guy, Colins, Mulder, & Vahl et al., 2016; Leenarts et al., 2013). In a sample of youth with illegal sexual behavior, approximately 43% reported active suicidal ideation (Newman et al., 2018). Suicidal behavior has also been associated with the manifestation of problematic sexual behavior during and other risky behavior patterns during childhood (Boonman et al., 2016a; Leenarts et al., 2013). From the documented prevalence of affective dysregulation in adolescents with illegal sexual behavior, it is possible that these areas of functional impairment could be exacerbated by the cumulative impact of poly-victimization exposure (Burk & Burkhart, 2003; Boonmann et al., 2015; Newman et al., 2018).

In many United States jurisdictions, adolescents adjudicated for sexual offenses are mandated to receive psychological treatment for their illegal sexual behaviors (Schmidt, Bonner, & Chaffin, 2012). Empirical evidence provides support for the legal practice of mandated treatment, as adolescents who receive evidence-based interventions have lower rates of sexual recidivism compared to those who do not receive treatment for illegal sexual behaviors (e.g., Reitzel & Carbonell, 2006; Schmidt et al., 2012; Silovsky, Hunter, & Taylor, 2019). Successful treatment completion is often contingent, at least in part, upon the affective stability of the adolescent (Boonmann, et al., 2015; Reitzel & Carbonell, 2006). However, the frequency of poly-victimization in this population suggests the presence of significant maladaptive behavior patterns and psychological symptoms that could interfere with treatment success (Burk & Burkhart, 2003; Jones et al., 2017). Adolescents who display therapy-interfering behaviors during treatment, including externalizing problems, posttraumatic stress, and suicidal behavior, have lower levels of treatment engagement and adherence than adolescents without these behaviors (Burk & Bukhart, 2003; Boonmann et al., 2015; Levenson et al., 2014; Reitzel & Carbonell, 2006; Seto & Lalumière, 2010). Low therapeutic engagement can compromise treatment completion, which can increase post-treatment risk of sexual recidivism (Levenson et al., 2014; Reitzel & Carbonell, 2006).

Trauma-informed therapeutic interventions, such as Trauma-Focused Cognitive-Behavioral Therapy (TF-CBT; Cohen et al., 2012a) have been found to reduce affective dysregulation related to victimization exposure in adolescents with illegal sexual behavior (Cohen et al., 2012a; Levensen et al., 2014; Newman et al., 2018). Trauma-informed interventions facilitate the development of emotion regulation skills that enable youth to process, organize, and overcome childhood victimization (Cohen et al., 2004; Cohen et al., 2012a;

2012b). Completion of evidence-based, trauma-informed interventions is associated with reductions in posttraumatic stress symptoms, as well as increased affective regulation strategies (Cohen et al., 2012a; Levenson et al., 2014). Adolescents who complete a trauma-informed program before undergoing treatment for illegal sexual behavior have been found to display higher levels of treatment engagement than adolescents treated without a trauma-informed approach (Newman et al., 2018; Silovsky et al., 2019). This suggests that trauma-informed interventions facilitate development of the coping strategies necessary to reduce negative psychosocial outcomes that can interfere with treatment for illegal sexual behavior (Cohen et al., 2012a; Newman et al., 2018; Silovsky et al., 2019). Thus, trauma-informed interventions may mitigate therapy-interfering barriers caused by affective dysregulation in adolescents with sex offense adjudications.

Despite the benefits of incorporating trauma-informed intervention into treatment for illegal sexual behavior, inclusion criteria for most trauma-focused therapies are limited to a diagnosis of PTSD (Blaustein & Kinniburgh, 2018; Cohen et al., 2012a; Newman et al., 2018). DSM-5 diagnostic criteria for PTSD require the experience of pervasive psychosocial impairment (i.e., intrusive thoughts, distress, affective dysregulation, and avoidance) from at least one traumatic event (APA, 2013; Cohen et al., 2012a). However, poly-victimization research suggests that the cumulative impact of multiple types of victimization may uniquely contribute to psychosocial impairment (Finkelhor et al., 2005a; Turner et al., 2010). Thus, evaluating psychosocial functioning on the basis of a single type of victimization may underestimate the affective instability of poly-victimized youth (Browne & Finkelhor, 1986; Finkelhor et al., 2005a; Turner et al., 2010). For adolescents with illegal sexual behavior, ignoring the cumulative influence of poly-victimization exposure on affective dysregulation

could lead to the exclusion of some victimized adolescents from trauma-informed therapy due to a lack of exposure to certain, high-severity victimizations (Blaustein & Kinniburgh, 2018; Finkelhor et al., 2005a; Finkelhor et al., 2009a). Untreated affective dysregulation could then compromise engagement in treatment for illegal sexual behavior, thus increasing risk for sexual recidivism (Boonman et al., 2015; Caldwell, 2007; Reitzel & Carbonell, 2006). More research is required, however, to determine the role of childhood poly-victimization exposure in predicting the negative psychosocial outcomes caused by affective dysregulation in adolescents with illegal sexual behavior.

Present Study

The current study examined the construct validity of poly-victimization, as measured by the JVQ-R2, in predicting psychosocial impairment in adolescents receiving mandated treatment following a sex offense adjudication. The first objective of the present study was to determine the extent to which childhood poly-victimization informs the level of affective dysregulation in adolescence. Research has identified poly-victimization as a more salient predictor of maladaptive regulatory patterns, such as anxiety, depression, anger, aggression, than victimization type and frequency (Finkelhor et al., 2007; Finkelhor et al., 2011; Turner et al., 2010). Based upon the extant literature on poly-victimization and emotion regulation, the current study hypothesized that lifetime poly-victimization exposure, measured using the JVQ-R2 total score, would uniquely predict self-reported affective dysregulation severity in adolescents with illegal sexual behavior.

The present study also assessed the relationship between poly-victimization and the psychosocial impairment that can interfere with engagement in treatment for illegal sexual behavior. Specifically, this study examined the therapy-interfering outcomes of externalizing

problems, posttraumatic stress, and suicidal behavior. Each of these behaviors can be conceptualized as a maladaptive response to victimization exposure (e.g., Brodsky et al., 2008; Cohen et al., 2012; Turner et al., 2010). Given the prevalence of externalizing problems, posttraumatic stress, and suicidal behavior in this highly victimized population (Jones et al., 2016), it is possible that poly-victimization may exacerbate these areas of functional impairment during the sexual behavior treatment process (e.g., Boonman et al., 2015; Newman et al., 2018). Thus, it was hypothesized that lifetime poly-victimization exposure would uniquely predict self-reported externalizing problems, posttraumatic stress, and suicidal behavior in adolescents with illegal sexual behavior.

The final objective of the present study was to identify variables that mediate the relationship between poly-victimization and psychosocial impairment. Research indicates that childhood victimization exposure compromises the development of regulatory strategies to manage negative emotions (e.g., Blaustein & Kinniburgh, 2018; Cohen et al., 2012a; Herman, 2015). Given that externalizing problems, posttraumatic stress, and suicidal behavior can be conceptualized as maladaptive attempts to regulate distress (e.g., Brodsky et al., 2008; Cohen et al., 2012; Herman, 2015; Turner et al., 2010), these outcomes likely signify pervasive affective dysregulation. Based on poly-victimization research, the increase in affective dysregulation that accompanies poly-victimization exposure may also correspond to an increase in the severity of psychosocial impairment. Therefore, the current study hypothesized that lifetime poly-victimization exposure would indirectly affect self-reported externalizing problems, posttraumatic stress, and suicidal behavior via affective dysregulation in adolescents enrolled in residential treatment for illegal sexual behaviors.

Method

Participants

Participants were 162 adolescent males enrolled in mandated treatment for illegal sexual behavior. Average participant age was 15.88 years ($SD = 1.53$ years) and ranged from 11 to 19-years-old. Demographic information indicates that 54.1% of participants identified as European American, 40.5% identified as African American, and 5.4% identified as belonging to other ethnic and racial groups. Exclusionary criteria included an inability to read at a 4th grade level, as determined by a measure of academic achievement.

Setting

Data were collected from a 72-bed residential treatment program for adolescents with illegal sexual behaviors located in Montgomery, Alabama. The program provides comprehensive assessment and trauma-informed treatment using a multimodal treatment approach that includes individual and group-based therapy, academic study, and shared community activities. Average length of treatment is approximately 10 months.

Beginning in 1999, the state of Alabama passed legislation requiring that all adolescents adjudicated for a sexual offense receive treatment. In order to meet state requirements, the Department of Youth Services (DYS) sought partnerships with organizations willing to provide comprehensive psychological services to adolescents with illegal sexual behavior, including the Department of Psychology at Auburn University and the School of Social Work at the University of Alabama. Together, the Accountability Based Sex Offender Program (ABSOP) was established and has continued to develop and evolve into a second iteration referred to as ABSOP-II. Guided by principles of community safety, holism, and empiricism, the goal of the ABSOP-II program is to conduct comprehensive assessment and best-practice treatment for each adolescent with illegal sexual behavior. Assessment facilitates the identification of each

adolescent's therapeutic goals and needs, as well as his individual strengths and weaknesses. In residential treatment, adolescents are exposed to a multimodal treatment approach including individual and group-based therapy, education, dormitory activities, and shared community activities (e.g., music, art, and sports). The ABSOP-II treatment model utilizes components of the Good Lives Model (Yates, Prescott, & Ward, 2010) to address illegal sexual behavior, as well as emphasize positive psychology and rehabilitation. Beginning in 2015, ABSOP-II established a trauma-informed treatment program for adolescents who met criteria for PTSD at the beginning of residential treatment (Newman et al., 2018). The program provides evidence-based, trauma-informed intervention using Trauma-Focused Cognitive Behavioral Therapy (TF-CBT; Cohen et al., 2012a) in addition to mandated treatment for illegal sexual behavior. Adolescents enrolled in the trauma-informed treatment program complete TF-CBT prior to initiating treatment for their illegal sexual behavior.

Procedure

The current study was approved by the Institutional Review Board of Auburn University and by the Alabama Department of Youth Services. All youth provided their informed assent for participation in the present study and the Department of Youth Services, acting as the participants' legal guardian, provided consent for each participant. Participants were informed that although the evaluation is a necessary part of their treatment protocol, the inclusion of their data in this study was voluntary. Participants were informed that they could withdraw their data from the study without penalty at any point during their treatment.

Data were gathered from a comprehensive pre-treatment psychological evaluation completed within two weeks of program admission. The evaluation consisted of the semi-structured clinical interview and self-report measures. Together, these sources address indices of

exposure to environmental stressors, social and developmental history, family and criminal history, as well as psychiatric functioning. During this pre-treatment evaluation, youth were also screened for victimization history and clinical symptoms indicative of trauma exposure. Screening measures included the semi-structured clinical interview, JVQ, and other self-report assessments of psychopathology. If this initial screening indicated that the participant had experienced a traumatic event or further investigation is warranted, as determined by the director of the trauma services program, consent was again obtained and the youth was administered the UCLA PTSD-RI by a trained TF-CBT therapist or graduate clinician within two weeks of intake. If the youth obtained a total UCLA PTSD-RI score of 38 or above, TF-CBT was recommended unless contraindicated due to clinical factors (e.g., active suicidal ideation), in which case treatment was suspended until stabilization (Newman et al., 2018). Additionally, youth who screen positive for a traumatic event, but receive a total score of less than 38 on the UCLA PTSD-RI, were recommended for the TF-CBT program if they displayed evidence of symptom suppression, psychological distress, or functional impairment associated with victimization exposure (Newman et al., 2018). Youth recommended for TF-CBT were assigned TF-CBT therapists, provided with their UCLA-PTSD-RI results, given information about TF-CBT, and asked if they wished to receive TF-CBT. All participants began treatment upon the completion of this evaluation.

Measures

Semi-structured clinical interview. Demographic data was collected via a 90-minute semi-structured interview that obtains general demographic information (e.g., date of birth, ethnicity), sexual developmental history (e.g., age of first sexual experiences, age of first masturbation), an assessment of living conditions (e.g., family structure, history of abuse),

evaluation of psychological functioning, and a history of delinquency and illegal sexual behavior.

The Juvenile Victimization Questionnaire – 2nd Revision (JVQ-R2; Hamby et al., 2004). The JVQ-R2 was used to assess childhood poly-victimization. The JVQ-R2 ($\alpha = 0.90$) obtains reports on 34 forms of youth victimization that cover five aggregate categories: Conventional Crime ($\alpha = 0.81$), Child Maltreatment ($\alpha = 0.77$), Peer and Sibling Victimization ($\alpha = 0.52$), Sexual Victimization ($\alpha = 0.69$), and Indirect Victimization ($\alpha = 0.73$) (Finkelhor et al., 2005b; Hamby et al., 2004). For the purposes of this study, each item endorsed on the JVQ-R2 corresponded to a different type of victimization experienced over the lifetime (Finkelhor et al., 2009). Some items assess relatively common but lower severity types of victimization (e.g., theft of personal property), while other items assess infrequent and higher severity types of victimization (e.g., witnessing an explosion). The JVQ-R2 has moderate correlations with measures of psychological symptoms (e.g., Ford et al., 2011), affective dysregulation (e.g., Finkelhor et al., 2009a; Finkelhor et al., 2011), and internalizing and externalizing behavior problems (Alvarez-Listerr et al., 2014; Guerra et al., 2016). The JVQ-R2 produces scores for each aggregate category, as well as a total score. This study defined poly-victimization as endorsing more than one type of victimization on the JVQ-R2, with higher JVQ-R2 total scores corresponding to higher levels of poly-victimization (Finkelhor et al., 2009a; Turner et al., 2010).

Millon Adolescent Clinical Inventory (MACI; Millon, Millon, Davis, & Grossman, 2006). The MACI is a 160-item self-report measure that assesses a broad range of psychological problems and psychosocial functioning among adolescents. The MACI is commonly used among adolescents in inpatient and outpatient settings for assessment of symptoms and intervention planning (Millon, 1993). The MACI possesses moderate internal consistency ($\alpha = 0.73-0.91$) and

reliability (0.57-0.92; Millon & Davis, 1993). The MACI has 3 validity scales to assess attitudes toward self-disclosure and eliminate invalid responses, 12 scales to evaluate personality patterns, 8 scales to identify adolescent expressed concerns, and 7 scales to identify the clinical symptoms of emotionally disturbed adolescents (Millon et al., 2006). Three of the 31 MACI scales were used as outcome variables based on theoretical or empirical connection to victimized, delinquent populations. First, the Borderline Tendency scale (21-items) measured personality patterns of affective dysregulation. This scale assesses personality features marked by disturbances in perception of self, relationship to others, and regulation of affect such as intense mood fluctuations and tumultuous personal relationships. Strong correlations have been found between base rate scores of the Borderline Tendency Scale and measures of social skills, emotional control, impulse regulation, and aggression (McCann, 1999; Thompson, 2014). Elevated scores on this scale typically represent adolescents who are experiencing significant emotional turmoil and instability, as indicated by shifting periods of anxiety, anger, depression, happiness, and irritability (McCann, 1999). Relationships have also been found between Borderline Tendency elevations and childhood trauma exposure (Thompson, 2014) and perpetration of illegal sexual behavior (Burton, Duty, & Leibowitz, 2011).

The Impulsive Propensity scale (24 items) measured clinical symptoms of externalizing problems. This scale assesses a continuum of externalizing behaviors ranging from relatively acceptable adolescent behaviors (e.g., “I prefer to act first and think about it later) to more extreme, upsetting behaviors that are outside the bounds of societal regulation (e.g., “Punishment never stopped me from doing whatever I wanted”). High scores on this scale reflect poor control over sexual and aggressive impulses (Millon et al., 2006). Adolescents characterized by an impulsive propensity become easily excited over minor matters and may discharge urges in a

risky manner (Millon et al., 2006). The Impulsive Propensity scale demonstrates high internal consistency ($\alpha = 0.75-0.79$) and test-retest reliability (0.78) (Millon, 1993).

The Suicidal Tendency scale (25 items) measured clinical symptoms of suicidal behavior. Items within this scale assess thwarted belongingness, thoughts of death, presence of a suicide plan, and history of a suicide attempt (Millon et al., 2006). High scores on the Suicidal Tendency scale reflect feelings of hopelessness about life and a sense that others would be better off without them (Millon et al., 2006). Elevations on this scale indicate a history of suicide attempt or impending risk for suicidal behavior and require immediate professional attention to mitigate harm (Millon et al., 2006).

The University of California at Los Angeles Post-traumatic Stress Disorder Reaction Index (UCLA PTSD Index)—Adolescent version (UCLA PTSD-RI; Steinberg, Brymer, Kim, Briggs, & Ippen, et al., 2013). The UCLA PTSD-RI assessed posttraumatic stress symptoms. The UCLA PTSD-RI is a self-report questionnaire that screens for exposure to traumatic events and assesses PTSD symptoms in children and adolescents. The instrument is administered in four parts. Responses range from 0 (none of the time) to 4 (most of the time), and can be calculated to map onto DSM-5 criteria (APA, 2013) to yield a clinical cutoff score (38 or higher) and the following subscale scores: Category B (Intrusion), Category C (Avoidance), Category D (Negative Cognitions/Mood), and Category E (Arousal/Hyperactivity). The UCLA PTSD-RI possesses good reliability ($\alpha = 0.95$) and convergent validity (see Steinberg et al., 2013). For the purposes of this study, higher UCLA PTSD-RI total scores corresponded to higher levels of posttraumatic stress symptoms.

All UCLA-PTSD-RI examiners at ABSOP-II have received didactic instruction on the instrument as part of their introductory TF-CBT training and received supplemental training by

the site supervisor (Newman et al., 2018). After completing a half-day didactic, examiners are required to view an administration and be observed providing an administration by an experienced examiner. Given the wide variability in reading levels in these youth, examiners are trained to administer the measure as an interview by reading all assessment items.

Analytic Strategy

The first objective hypothesized that lifetime poly-victimization would uniquely predict affective dysregulation. Simple linear regression analyses were used to measure the strength of poly-victimization in predicting affective dysregulation, where scores from the MACI Borderline Tendency scale were regressed on JVQ-R2 total scores. Linear regression models were used for analyses because of the continuous nature of poly-victimization and affective dysregulation variables (e.g., Finkelhor et al., 2007a; Kline, 2016). To determine the relative contribution of poly-victimization on affective dysregulation beyond that explained by victimization type, the JVQ-R2 aggregate scores were added to each linear regression model. This method of controlling for victimization type is supported by the poly-victimization literature and is considered equally as effective to more complex approaches (Elliott et al., 2009; Finkelhor et al., 2007a; Finkelhor et al., 2009a; Finkelhor et al., 2011; Harrelson et al., 2017).

The second objective hypothesized that poly-victimization would predict the severity of externalizing problems, posttraumatic stress, and suicidal behaviors that interfere with sexual behavior treatment. Three sets of linear regressions analyses were used to test these hypotheses. Specifically, the relationship between poly-victimization and externalizing problems was tested by regressing MACI Impulsive Propensity scores on JVQ-R2 total scores, the relationship between poly-victimization and posttraumatic stress was tested by regressing UCLA-PTSD-RI total scores on JVQ-R2 total scores, and the relationship between poly-victimization and suicidal

behavior was tested by regressing MACI Suicidal Tendency scores on JVQ-R2 total scores (Kline, 2016). All three sets of regression analyses controlled for victimization type using the method described in the first objective (Elliott et al., 2009; Finkelhor et al., 2007a; Finkelhor et al., 2009a; Finkelhor et al., 2011; Harrelson et al., 2017).

The final objective hypothesized that poly-victimization would indirectly affect psychosocial impairment via affective dysregulation. Mediation analyses with a bias-corrected bootstrapping procedure examined the direct and indirect effects of poly-victimization on psychosocial impairment (Hayes, 2013; James, Mulaid, & Brett, 2006; Kline, 2016; Preacher & Hayes, 2008). A few alternatives have been proposed, but simulation research has found bootstrapping to be among the most powerful methods of detecting mediation (Harrelson et al., 2017; Hayes, 2013; Kline, 2016; Muthén & Muthén, 2012; Preacher & Hayes, 2008). The process of bootstrapping creates a large sample from the original data (1000 for this study) through a sampling with replacement strategy (Hayes, 2013; Kline, 2016; Preacher & Hayes, 2008). A 95% confidence interval is constructed around the indirect effect estimate, and the interval must not contain a zero to assume a significant indirect effect (Dubreuil, Laughrea, Morin, Courcy, & Loiselle, 2009; Preacher & Hayes, 2008). Although bootstrapping can be conducted using different statistical frameworks (e.g., Hayes, 2013; Preacher & Hayes, 2008), path analysis was adopted for the current study due to increased parsimony and reduced standard error compared to regression approaches (Gunzler, Chen, Wu, & Zhang, 2013; Iacobucci, Saldanha, & Deng, 2007; James et al., 2006; Kline, 2006; Muthén & Muthén, 2012). Thus, three sets of bootstrapping analyses were conducted in MPlus Version 7.4 corresponding to the three negative psychosocial outcomes assessed in the current study (i.e., externalizing problems, posttraumatic stress, suicidal behavior) (Muthén & Muthén, 2012). The first bootstrapping

analysis in each set provided a baseline model for the indirect effect of poly-victimization on externalizing problems, posttraumatic stress, and suicidal behavior, respectively (see *Figures 1-3*). The remaining bootstrapping analyses in each set examined the indirect and direct effects of poly-victimization on psychosocial impairment, as well as the direct effect of victimization type on psychosocial impairment (see *Figures 4-18*). Based on the analytic strategies highlighted in the previous objectives, JVQ-R2 total scores and JVQ-R2 aggregate scores were exogenous variables that were permitted to correlate, MACI Borderline Tendency scores were the mediators, and MACI Impulsive Propensity, UCLA-PTSD-RI, and MACI Suicidal Tendency scores were endogenous variables (Elliott et al., 2009; Finkelhor et al., 2007a; Finkelhor et al., 2009a; Harrelson et al., 2017) (see *Figures 4-18*). An observed direct effect of JVQ-R2 aggregate on psychosocial impairment corresponded to the unique contribution of victimization type on the negative psychosocial outcomes (Finkelhor et al., 2007a; Finkelhor et al., 2009a). Missing data for all models were addressed using Full Information Maximum Likelihood (FIML) (Kline, 2016; Muthén & Muthén, 2012). Model fit was tested using Root Mean Square Error of Approximation (RMSEA), chi-square test of model fit, Comparative Fit Index (CFI), and Standardized Root Mean Square Residual (SRMR) (Hu & Bentler, 1999; Kline, 2016). Model fit was considered adequate if RMSEA was between .05 and .10 or less, if $p \geq .05$ from the chi-square index, if CFI was greater than .95, and SRMR was less than or equal to .08 (Hu & Bentler, 1999; Kline, 2016). All coefficients are reported using the STDYX standardization.

Results

Descriptive Analyses

Approximately 45% of participants were adjudicated for first-degree sex offenses, 16.6% were adjudicated for second-degree sex offenses, and 40.3% were adjudicated for misdemeanor

offenses (e.g., Sexual Misconduct, Indecent Exposure) (see *Table 1*). Although the remaining 8.2% of participants were adjudicated for nonsexual offenses (e.g., violation of aftercare, harassment), they were included in the sample because illegal sexual behavior was the target of their legally mandated treatment. Adjudications were organized into five categories: sexual assault, rape, sodomy, sexual abuse, other contact sex offenses (e.g., Sexual Misconduct, Sexual Harassment), and non-contact/non-sex offenses (e.g., Violation of Probation, Assault) (see *Table 1*). Five one-way ANOVAs found no significant relationships between adjudication category and poly-victimization [$F(5, 107) = 0.96, p = 0.45$], affective dysregulation [$F(5, 105) = 0.28, p = 0.92$], externalizing problems [$F(5, 104) = 0.17, p = 0.97$], posttraumatic stress symptom severity [$F(5, 68) = 0.91, p = 0.48$], and suicidal behavior [$F(5, 105) = 0.38, p = 0.86$]. Zero-order correlations found no significant relationships between demographic characteristics and poly-victimization, affective dysregulation, posttraumatic stress, and suicidal behavior (see *Table 2*). A significant correlation was found between age and externalizing problems indicating that younger participants reported more impulsive behavior patterns than older participants, $r = -0.21, p = 0.01$ (see *Table 2*). These findings are consistent with existing research on adolescents with illegal sexual behavior (e.g., Harrelson et al., 2017; Newman et al., 2018; Seto & Lalumiere, 2010).

Ninety-two percent of participants endorsed at least 1 of the 34 items on the JVQ-R2. Average JVQ-R2 total score was 10.63 ($SD = 7.2$) and ranged from 0–33. When the 34 types of victimization were collapsed into the 5 aggregate categories, most participants had experienced at least 1 type of Conventional Crime, Childhood Maltreatment, Peer or Sibling Victimization, Sexual Victimization, and/or Indirect Victimization (see *Table 4*). The percentage of participants who experienced victimization across multiple aggregates was also examined. The majority of

participants (90.3%) reported experiencing victimization from 2 or more aggregate categories, and 31.2% of participants reported experiencing victimization across all five aggregates assessed by the JVQ-R2 (see *Table 4*). These findings are commensurate with previous research on poly-victimization and adolescents with illegal sexual behavior (Harrelson et al., 2017).

Of the 165 participants, 106 adolescents reported exposure to at least one Criterion A traumatic event that warranted follow-up testing on the UCLA-PTSD-RI. Average UCLA total score was 26.63 ($SD = 18.49$) and ranged from 0 to 71. It should be noted that PTSD symptoms are considered to warrant therapeutic intervention for UCLA total scores at or above 31 (Steinberg et al., 2013). The average number of traumas reported on the UCLA was 4.42 ($SD = 2.61$) with the most common index trauma being traumatic grief/sudden death of a loved one (see *Table 5*) (Newman et al., 2018).

Affective Dysregulation

Simple linear regression analysis was used to test the relationship between poly-victimization and affective dysregulation. Poly-victimization was found to predict dysregulation, with JVQ-R2 total scores explaining approximately 8% of the variance in MACI ratings of affective dysregulation ($R^2 = .078$, $F(1, 153) = 12.31$, $p = 0.001$). Specifically, more types of victimization experienced in childhood predicted higher self-reported rates of affective dysregulation ($\beta = 0.27$, $p = 0.001$).

Multiple linear regression analyses were used to examine the predictability of poly-victimization beyond each victimization aggregate. This method is supported by the poly-victimization literature and is considered equally as effective to more complex approaches (Finkelhor et al., 2007a; Finkelhor et al., 2009a). When entered individually, all five victimization aggregates predicted affective dysregulation, as measured by the MACI Borderline

Tendency scale (see *Table 6*) (Alexander et al., 2018; Elliott et al., 2009; Harrelson et al., 2017). When JVQ-R2 total scores were added to each model, the JVQ-R2 aggregate scores no longer contributed unique variance to affective dysregulation (see *Table 5*) (Alexander et al., 2018; Elliott et al., 2009; Harrelson et al., 2017). Further, JVQ-R2 total scores accounted for meaningful variance in MACI Borderline Tendency scores beyond most aggregate categories of victimization, with exception to the Conventional Crime and Peer and Sibling aggregates (see *Table 6*). Findings support the hypothesis that poly-victimization predicts affective dysregulation in adolescents with illegal sexual behavior.

Psychosocial Impairment

Simple linear regression analyses were also used to test the relationships between poly-victimization and the psychosocial impairment that interferes with sexual behavior treatment. Poly-victimization was found to predict all three negative psychosocial outcomes, with JVQ-R2 total scores explaining 4.2% of the variance in MACI ratings of externalizing problems ($R^2 = .042$, $F(1, 153) = 6.68$, $p = 0.01$), 13.7% of the variance in UCLA-PTSD-RI ratings of posttraumatic stress ($R^2 = .137$, $F(1, 95) = 14.89$, $p < 0.001$), and 22.7% of the variance in MACI ratings of suicidal behavior ($R^2 = .227$, $F(1, 153) = 44.83$, $p < 0.001$). Thus, higher rates of poly-victimization in childhood corresponded to higher levels of self-reported externalizing problems ($\beta = 0.21$, $p = 0.01$), posttraumatic stress ($\beta = 0.37$, $p < 0.001$), and suicidal behavior ($\beta = 0.48$, $p < 0.001$) at the beginning of treatment for illegal sexual behavior.

Multiple linear regression analyses examined the unique contribution of poly-victimization on psychosocial impairment using the same regression technique identified in the previous objective (see *Tables 7-9*) (Alexander et al., 2018; Elliott et al., 2009; Harrelson et al., 2017). First, poly-victimization eliminated the unique contribution of victimization type on

MACI ratings of externalizing problems (see *Table 7*). Poly-victimization also accounted for meaningful variance in externalizing problems beyond the Childhood Maltreatment ($\beta = 0.33, p = 0.005$) and Sexual Victimization ($\beta = 0.34, p = 0.003$) aggregates (see *Table 7*). Second, poly-victimization eliminated the unique contribution of victimization type on UCLA-PTSD-RI ratings of posttraumatic stress (see *Table 8*). Poly-victimization also accounted for meaningful variance in posttraumatic stress symptom severity beyond the Peer and Sibling ($\beta = 0.51, p = 0.002$), Sexual Victimization ($\beta = 0.34, p = 0.02$), and Indirect Victimization ($\beta = 0.41, p = 0.008$) aggregates (see *Table 8*). Third, poly-victimization eliminated the unique contribution of victimization type on MACI ratings of suicidal behavior, with exception of the Childhood Maltreatment ($\beta = 0.21, p = 0.048$) and Indirect Victimization ($\beta = 0.25, p = 0.03$) aggregates (see *Table 9*). When poly-victimization was examined alongside of victimization type, JVQ-R2 total score contributed meaningful variance to suicidal behavior across all five aggregates (see *Table 9*). Overall, findings support the hypothesized relationship of poly-victimization on psychosocial impairment in adolescents adjudicated for sex offenses.

Bootstrapping analyses. Three sets of bootstrapping analyses were conducted to test the indirect effect of poly-victimization on psychosocial impairment. The baseline models found significant indirect effects of poly-victimization on all three negative psychosocial outcomes (i.e., externalizing problems, posttraumatic stress, suicidal behavior). For the externalizing problems model, the mediator, as measured by the MACI Borderline Tendency scale, accounted for 7.7% of the total effect, $\beta = 0.17$ (SE = 0.05), CI [0.07, 0.27] and eliminated the direct effect of poly-victimization $\beta = 0.03$ (SE = 0.07), CI [-0.09, 0.16] (see *Figure 1*). The lack of a direct effect between JVQ-R2 total scores on MACI Impulsive Propensity scores in this model corresponds a full mediation (Barron & Kenny, 1986) or indirect-only mediation (Kline, 2016;

Zhao, Lynch, & Chen, 2010). The indirect-only mediation is sufficient to identify affective dysregulation as the mediator of poly-victimization and externalizing problems (James et al., 2006; Kline, 2016; Zhao et al., 2010). For the posttraumatic stress model, the mediator, as measured by the MACI Borderline Tendency scale, accounted for 7.4% of the total effect $\beta = 0.09$ (SE = 0.03), CI [0.03, 0.16] (see *Figure 2*). A significant direct effect was also observed between poly-victimization and posttraumatic stress, $\beta = 0.28$ (SE = 0.08), CI [0.12, 0.42]. For the suicidal behavior model, the mediator, as measured by the MACI Borderline Tendency Scale, accounted for 7.5% of the total effect $\beta = 0.16$ (SE = 0.05), CI [0.07, 0.26] (see *Figure 3*). A significant direct effect was also observed between poly-victimization and suicidal behavior $\beta = 0.32$ (SE = 0.06), CI [0.21, 0.68]. The significant indirect and direct effects of JVQ-R2 total scores on UCLA-PTSD-RI total scores and MACI Suicidal Tendency scores, respectively, correspond to a partial mediation (Baron & Kenny, 1986) or complementary mediation (Zhao et al., 2010) models (Kline, 2016). These complementary mediations sufficiently identify affective dysregulation as a mediator of poly-victimization and posttraumatic stress and suicidal behavior, respectively (Kline, 2016; Zhao et al., 2010). Thus, findings support the hypothesis that poly-victimization would indirectly affect psychosocial impairment via affective dysregulation.

Due to the observed nature of the variables, quantity of measured paths, and just-identified model structure, fit statistics for the baseline models were unable to be calculated (see *Figures 1-3*) (James et al., 2006; Kline 2016). According to James et al. (2006), the lack of model fit indices for just-identified models does not compromise the model's utility in describing the data. Rather, model fit is determined by the strength of the path coefficients (James et al., 2006; Kline, 2016). Given the significant paths observed in the baseline externalizing problems,

posttraumatic stress, and suicidal behavior models, these models are considered to adequately describe the data (James et al., 2006).

The remaining bootstrapping analyses examined the additional direct contribution of victimization type on psychosocial impairment. Model fit indices displayed adequate fit for each bootstrapping analysis (see *Figures 4-18*) (Hu & Bentler, 1999; Kline, 2016). Thus, path coefficients are considered valid and interpretable (Hu & Bentler, 1999; Kline, 2016). A significant indirect effect of poly-victimization via affective dysregulation was observed across externalizing problems, posttraumatic stress, and suicidal behavior models (see *Figures 4-18*). For the externalizing problems models, direct effects of the Childhood Maltreatment, $\beta = -0.19$ (SE = 0.09), CI [-0.354, -0.004] (see *Figure 5*), and Sexual Victimization, $\beta = -0.20$ (SE = 0.10), CI [-0.38, -0.03] aggregates (see *Figure 7*), contributed unique variance to MACI Impulsive Propensity Scale scores of externalizing problems. Significant correlations were also observed between victimization type and poly-victimization (see *Figures 4-8*). Similar to the baseline mediation model no direct effect was observed between poly-victimization and externalizing problems for each externalizing problems model (see *Figures 4-8*). For the posttraumatic stress models, no direct effects of JVQ-R2 aggregate were observed, indicating that victimization type did not uniquely contribute to UCLA-PTSD-RI scores of posttraumatic stress symptom severity. Significant correlations were observed between victimization type and poly-victimization for each posttraumatic stress model (see *Figures 9-13*). Direct effects were also observed between JVQ-R2 total scores and UCLA-PTSD-RI scores in models containing the Peer and Sibling Victimization, $\beta = 0.39$ (SE = 0.16), CI [0.08, 0.18] (see *Figure 11*) Sexual Victimization, $\beta = 0.26$ (SE = 0.12), CI [0.01, 0.48] (see *Figure 12*), and Indirect Victimization, $\beta = 0.29$ (SE = 0.14), CI [0.03, 0.56] aggregates (see *Figure 13*) aggregates. For the suicidal behavior models,

direct effects of Childhood Maltreatment, $\beta = 0.18$ (SE = 0.08), CI [0.02, 0.32] (see *Figure 15*), and Indirect Victimization $\beta = -0.22$ (SE = 0.07), CI [-0.36, -0.01] (see *Figure 18*) contributed unique variance to scores on the MACI Suicidal Tendency Scale (see *Table 15*). Significant correlations were observed between victimization type and poly-victimization (see *Figures 14-18*). Direct effects were also observed between JVQ-R2 total scores and MACI Suicidal Tendency scores for each suicidal behavior model (see *Figures 14-18*).

Discussion

The current study investigated the influence of poly-victimization exposure and affective dysregulation severity on psychosocial impairment in adolescents adjudicated for sex offenses. Specifically, childhood poly-victimization and self-reported affective dysregulation were identified as factors that could compromise engagement in mandated treatment for illegal sexual behavior. As hypothesized, poly-victimization exposure was positively associated with all three areas of psychosocial impairment at the beginning of treatment. Moreover, affective dysregulation mediated the relationships between poly-victimization and self-reported externalizing problems, posttraumatic stress, and suicidal behavior. Findings highlight several therapy-relevant constructs that can influence engagement in interventions that target illegal sexual behavior in adolescent populations.

Participants reported high rates of childhood poly-victimization, with approximately 92% disclosing exposure to at least one aggregate category of victimization on the JVQ-R2. The majority of participants reported exposure to two or more victimization aggregates, and 31% of the sample reported exposure to all five aggregates (Harrelson et al., 2017). Most participants reported experiencing relatively common and low severity victimizations (i.e., Conventional Crime, Peer and Sibling, Indirect Victimization), which is consistent with poly-victimization

rates found in community (Elliott et al., 2009; Ford et al., 2011), non-sexual juvenile offender (Ford et al., 2012; Pereda et al., 2015), and adolescent sex offender (Harrelson et al., 2017; Newman et al., 2018) samples. Further, approximately half of participants reported exposure to the victimization categories that are typically considered targets for trauma-informed interventions (i.e., Child Maltreatment, Sexual Victimization) (Cohen et al., 2012; Newman et al., 2018). Although rates of maltreatment and sexual victimization were consistent with those found in other residential treatment populations (Newman et al., 2018; Pereda et al., 2015; Schmidt et al., 2012), these aggregates did not fully account for the victimization profile of the current sample (Ford et al., 2013; Harrelson et al., 2017). Thus, adolescents with illegal sexual behavior possess diverse victimization backgrounds that influence the psychosocial processes paramount to engagement in sexual behavior-specific interventions (Harrelson et al., 2017).

Findings indicate that childhood poly-victimization exposure predicts affective dysregulation severity. Participants with higher rates of lifetime victimization exposure reported greater levels of affective dysregulation than those with lower rates of victimization exposure. Moreover, poly-victimization was a better predictor of affective dysregulation than most victimization aggregates. When controlling for poly-victimization, none of the aggregate categories on the JVQ-R2 contributed unique variance to MACI scores of affective dysregulation (see *Table 6*). This is consistent with research in which lifetime poly-victimization exposure was associated with elevated rates of self-reported anger, anxiety, and depression (Cuevas et al., 2009; Cyr et al., 2013; Finkelhor et al., 2009a, 2009b; Turner et al., 2010). Further, poly-victimization accounted for unique variance in affective dysregulation beyond victimization type, with exception to the Conventional Crime and Peer and Sibling Victimization aggregates (see *Table 6*). This finding indicates that the influence of poly-victimization on affective

dysregulation may be attributed to the accumulation of relatively common, lower severity types of victimization rather than the maltreatment and abuse that is typically cited as causing emotional distress in youth (Finkelhor et al., 2009a; Hamby & Finkelhor, 2000; Turner et al., 2010). Overall, results demonstrate that childhood poly-victimization predicts self-reported affective dysregulation in adolescents with illegal sexual behavior.

Participants with higher rates of poly-victimization exposure also reported greater functional impairment across all domains: externalizing problems, posttraumatic stress, and suicidal behavior. Poly-victimization eliminated the predictability of each victimization type in externalizing problems and posttraumatic stress, suggesting that much of the variability accounted for by the aggregate category of victimization in these outcomes is attributed to the cumulative effect of poly-victimization (see *Table 7, Table 9*) (Finkelhor et al., 2005a; Hamby & Finkelhor, 2000; Turner et al., 2010). Findings related to externalizing problems are consistent with the higher rates of caregiver-reported aggression found in poly-victimized youth compared to youth with single-type victimization (Finkelhor et al., 2011; Turner et al., 2010). Results are also commensurate with research on clinical treatment populations, in which children diagnosed with PTSD possess more diverse victimization profiles than children who do not meet PTSD diagnostic criteria (Cohen et al., 2012; Newman et al., 2018; Romano et al., 2016). Regarding suicidal behavior, the Childhood Maltreatment and Indirect Victimization aggregates contributed unique variance to MACI scores of suicidal behavior when examined alongside of poly-victimization. Although poly-victimization remained a significant predictor of suicidal behavior in these regression models (see *Table 9*), results indicate that qualities unique to maltreatment and indirect victimizations may place youth at greater risk for suicide than youth who have not experienced these types of victimization (Brown et al., 1999; Liu et al., 2017; Turner et al.,

2012). This is consistent with research that cites elevated rates of suicide attempt in youth exposed to parental abuse, neglect, and domestic violence (Brown et al., 1999; Liu et al., 2017). Together, findings conclude that poly-victimization is associated with the negative psychosocial outcomes that can interfere with mandated sex offense treatment in adolescent populations.

Results demonstrated inconsistent predictability of poly-victimization exposure on psychosocial impairment beyond victimization type. Poly-victimization contributed unique variance to suicidal behavior when examined alongside of all five victimization aggregates (see *Table 9*). This suggests that the accumulation of multiple types of victimization throughout childhood is a meaningful indicator of suicidal behavior in adolescence (Finkelhor et al., 2009; Turner et al., 2012). However, similar to the relationships observed between poly-victimization and affective dysregulation, poly-victimization failed to predict externalizing problems and posttraumatic stress beyond all five aggregates on the JVQ-R2. Specifically, poly-victimization did not contribute meaningful variance beyond the Conventional Crime, Peer and Sibling Victimization, and Indirect Victimization aggregates for externalizing problems, as well as the Conventional Crime and Child Maltreatment aggregates for posttraumatic stress. Results are consistent with the etiology of these outcomes in victimized youth. For example, index traumas characterized by maltreatment have consistently been tied to posttraumatic stress symptom severity in adolescence (Browne & Finkelhor, 1986; Bryer et al., 1987; Cohen et al. 2012). Further, externalizing behavior problems, including impulsive and aggressive behaviors, have been linked to behavioral modeling from repeated exposure to interpersonal violence, including domestic abuse, bullying, and community violence (e.g., Fowler, Ahmed, Tompsett, Jozefowicz-Simbeni, & Toro, 2008; Guerra et al., 2016; Moylan, Herrenkohl, Sousa, Tajima, Herrenkohl & Russo, 2010). Youth exposed to these types of victimization are also more likely to possess

diagnoses that independently potentiate externalizing problems, including Attention Deficit-Hyperactivity Disorder and Oppositional Defiant Disorder (Guerra et al., 2016; Lagasse, Hammond, Liu, Lester, & Shankaran et al., 2006; Pareda et al., 2015). Overall, findings indicate that more common, lower severity types of victimization possess greater influence on psychosocial impairment, particularly maladaptive behavior patterns, than the types of victimization that are often identified to warrant trauma-informed intervention (Finkelhor et al., 2009a; Hamby & Finkelhor, 2000; Harrelson et al., 2017; Turner et al., 2010).

The bootstrapping analyses revealed that affective dysregulation mediates the relationships between poly-victimization and psychosocial impairment. Results indicate that the effect of poly-victimization on self-reported externalizing problems, posttraumatic stress, and suicidal behavior is partially dependent upon affective dysregulation severity (James et al., 2006; Kline, 2016). That is, poly-victimization influences psychosocial impairment insofar as the development of adaptive emotion regulation strategies is compromised (Alvarez-Listerr et al., 2014; Cuevas et al., 2009; Turner et al., 2012). The indirect effect was also observed when victimization type was included in the model, indicating that the mediator maintains predictive power across models containing different aggregate categories of victimization (Elliott et al., 2009; Finkelhor et al., 2011; Harrelson et al., 2017). This finding is consistent with research on poly-victimization exposure and psychological outcomes in child and adolescent populations (Boonman et al., 2015; Cuevas et al., 2009; Finkelhor et al., 2007a; Turner et al., 2010). Direct effects of poly-victimization on posttraumatic stress and suicidal behavior were also observed (Zhao et al., 2010). Although complementary mediation does not compromise the strength of the indirect effect, simultaneous direct and indirect effects could correspond to the existence of an omitted second mediator (Kline, 2016; Ro, 2012; Zhao et al., 2010). For posttraumatic stress,

direct effects of poly-victimization were observed in the baseline, Peer and Sibling Victimization, Sexual Victimization, and Indirect Victimization models, indicating that the variance accounted for by the indirect effect of poly-victimization and the direct effects of victimization type do not sufficiently explain the relationship between poly-victimization and posttraumatic stress symptom severity (Kline, 2016; Ro, 2012; Zhao et al., 2010). Instead, direct effects of poly-victimization suggest that psychological processes, other than affective dysregulation, may potentiate posttraumatic stress in poly-victimized youth (Zhao et al., 2010). Moreover, direct effects were observed across all suicidal behavior models, including baseline and victimization type path models. Given that suicidal behavior is associated with a number of precipitating factors, it is possible that other phenomenon related to poly-victimization exposure could potentiate suicidal behavior in adolescents with illegal sexual behavior (Boonman et al., 2015; Briggs et al., 2012; Brodsky & Briggs, 2012; Brodsky et al., 2008). A second mediator could provide theoretical and statistical clarification to the relationship between poly-victimization and suicidal behavior that is not explained by affective dysregulation (James et al., 2006; Zhao et al., 2010). Future studies should explore the influence of additional mediators on the models tested in the current study. Despite the presence of a complementary mediation (Zhao et al., 2010), results support the hypothesized indirect effect of poly-victimization on psychosocial impairment.

Direct effects of the Childhood Maltreatment, Sexual Victimization, and Indirect Victimization aggregates were observed in the externalizing problems and suicidal behavior models, respectively (see *Figures 4-8, Figures 14-18*). The presence of significant paths could indicate that victimization type meaningfully contributes to psychosocial impairment only after the variance accounted for by affective dysregulation is channeled into a different path (James et

al., 2006; Kline, 2016). This conclusion would be consistent with research on residential and other clinical populations in which youth with maltreatment, sexual abuse, and domestic violence histories report higher levels of functional impairment than youth without exposure to these types of victimization (Browne & Finkelhor, 1986; Cohen et al., 2012; Newman et al., 2018). However, the negative coefficients observed in three of the four significant paths contradict the hypothesized direction of these relationships (Finkelhor et al., 2007a; Finkelhor et al., 2009). Moreover, several victimization aggregates possessed negative, non-significant path coefficients across all three models of psychosocial impairment (see *Figures 4-18*). Thus, it is more likely that the collinearity of JVQ-R2 aggregate and total scores confounded the paths between victimization type and psychosocial impairment (Kline, 2016; Kock & Lynn, 2012; Kraha et al., 2012). High correlations between poly-victimization and victimization type (see *Table 3*), or collinearity, reflect similar underlying attributes for both variables (i.e., victimization) (Echambadi & Hess, 2007; Grewal, Cote, & Baumgartner, 2004; Hamby et al., 2004; Kline, 2016; Kock & Lynn, 2012). Collinearity among predictors has been found to produce improper parameter estimates with underestimated coefficient strength, inaccurate coefficient direction, and high standard error (Grewal et al., 2004; Kaplan, 1994; Kock & Lynn, 2012). Moreover, collinear coefficients are characterized by high variances in their sampling distributions, which increases the possibility that a drawing from this distribution could produce estimates with “inaccurate” signs (Grewal et al., 2004; Kennedy, 2005). Small sample size exacerbates the effects of multicollinearity and can potentiate inaccurate conclusions about parameter estimates (Grewal et al., 2004; Kennedy, 2005; Kock & Lynn, 2012). Thus, the negative path coefficients observed in the current study likely resulted from a combination of sample size deficits and multicollinearity among predictors, and should be interpreted with extreme caution (Grewal et

al., 2004; Kennedy, 2005; Kock & Lynn, 2012). Future poly-victimization studies should implement more sophisticated methods of controlling for the unique influence of victimization type on negative psychosocial outcomes.

Theoretical Implications

In light of the current findings, new insights could be gleaned regarding the developmental impact of poly-victimization on psychosocial functioning. First, results confirm that poly-victimization exposure is related to deficits in age-appropriate emotion regulation processes (Cyr et al., 2013; Turner et al., 2010). Self-reported affective dysregulation was found to increase as a function of lifetime poly-victimization exposure. This relationship suggests that the capacity for age-appropriate emotion regulation is incrementally compromised as the diversity of victimization increases during childhood (Finkelhor et al., 2005b; Finkelhor et al., 2009a; Turner et al., 2010). Findings are likely attributed to the compounded psychological distress associated with reminders of multiple victimizing or traumatic events (Cohen et al., 2012; Finkelhor et al., 2005a; Hamby & Finkelhor, 2000; Heleniak et al., 2016). Further, the types of victimization that are typically considered to cause affective dysregulation in youth (e.g., physical abuse, sexual abuse) did not sufficiently explain the increased levels of emotional distress reported by poly-victims (Cyr et al., 2013; Finkelhor et al., 2007a; Turner et al., 2010). Rather, findings indicate that the affective dysregulation is likely magnified by additional exposure to more common, lower severity forms of victimization, such as community violence and peer victimization (Finkelhor et al., 2007a; Finkelhor et al., 2011; Hamby & Finkelhor, 2000; Turner et al., 2010). The compounded effect of poly-victimization exposure likely cultivates a generalized vulnerability to psychological distress that interferes with the

development of adaptive emotion regulation strategies (Finkelhor et al., 2005a; Hamby et al., 2004; Turner et al., 2010).

Second, results bridge theoretical gaps highlighted by the poly-victimization literature. Specifically, poly-victimization was related to negative psychosocial outcomes, including maladaptive behavior patterns and psychological symptoms (Cuevas et al., 2009; Ford et al., 2011; Turner et al., 2012). Similar to the trends observed between poly-victimization and affective dysregulation, results demonstrated that self-reported maladaptive behaviors increased as a function of poly-victimization exposure (Guerra et al., 2016; Ford et al., 2011; Kretschmar et al., 2017). Findings suggest that the heightened affective dysregulation potentiated by poly-victimization exposure contributes to the development of externalizing problems and suicidal behavior (Brodsky & Briggs, 2012; Brown et al., 1999; Hamby & Finkelhor, 2000). Both of these behavior patterns can be conceptualized as inappropriate attempts to regulate distress, and are often cited as the first indicators of emotional dysregulation in youth (Clements-Nolle & Bargmann-Losche, 2009; Heleniak et al., 2016; Liu et al., 2017). The current results suggest that poly-victimization undermines the development of the neurobiological systems necessary for regulating impulses and tolerating distress (Brodsky & Biggs, 2012; Briere & Jordan, 2009; Heleniak et al. 2016). Without these skills, youth are unable to adapt to age-appropriate stressors and effectively modulate emotional responses (Brodsky & Biggs, 2012; Briere & Jordan, 2009; Clements-Nolle & Bargmann-Losche, 2009). Victimization type also appears to have some influence on these self-reported behavior patterns, indicating that factors unique to certain types of victimization can contribute to the development of externalizing problems and suicidal behaviors (Browne & Finkelhor, 1986; Folwer et al., 2008; Moylan et al., 2010). However, the severity of these outcomes is likely magnified as poly-victimization exposure increases

(Finkelhor et al., 2005b; Ford et al., 2011; Maschi et al., 2008). Therefore, poly-victimization contributes to the development of maladaptive behavior patterns that are indicative of pervasive affective dysregulation (Alvarez-Lister et al., 2014; Cohen et al., 2010; Maschi et al., 2008).

Results also found that posttraumatic stress symptom severity increased as a function of poly-victimization exposure. Findings indicate that the affective dysregulation potentiated by poly-victimization exposure extends to diagnostic indicators of PTSD (Cohen et al., 2012b; Cuevas et al., 2009; Romano et al., 2016). Many PTSD symptoms are characterized by ineffective methods of managing distress (APA, 2013; Cohen et al., 2004; Herman, 2015). For example, intrusion and avoidance symptoms can represent attempts to remove traumatic memories from conscious awareness; whereas, other cognitive, affective, and behavioral symptoms can be considered maladaptive responses to traumatic memories (APA, 2013, Cohen et al., 2012a; Herman, 2015). Further, trauma-informed interventions, such as TF-CBT (Cohen et al., 2012a), have been found to alleviate posttraumatic stress symptoms through the development of affective regulatory processes that facilitate the consolidation and reorganization of traumatic memories (Cohen et al., 2004; Cohen et al., 2012a; 2012b). Thus, it is conceivable that the heightened levels of affective dysregulation potentiated by poly-victimization exposure exacerbate posttraumatic stress symptom severity, particularly for symptoms characterized by emotion regulation deficits (Cohen et al., 2012b; Cuevas et al., 2009; Romano et al., 2016; Turner et al., 2012). Therefore, the current results indicate that poly-victimization contributes to the development of posttraumatic stress symptoms in victimized youth.

Finally, findings enhance the utility of lifetime poly-victimization exposure as a meaningful indicator of psychosocial stability in children and adolescents. The clinical utility of poly-victimization is rooted in the ability to predict affective dysregulation severity (Alvarez-

Listerr et al., 2014; Finkelhor et al., 2005a; Turner et al., 2010). Although previous research supports the association between poly-victimization and functional impairment, poly-victimization exposure alone does not signify the presence of negative outcomes (APA, 2013; Briere et al., 2001; Maschi et al., 2008). Further, the current findings do not suggest that poly-victimization exposure corresponds to a specific area of impairment (e.g., externalizing problems, posttraumatic stress, suicidal behavior) (Briere et al., 2001; Finkelhor et al., 2007a; Maschi et al., 2008). Rather, psychosocial impairment could be a byproduct of ineffective affective regulatory strategies, with higher levels of psychosocial impairment corresponding to more pervasive disruptions in affective stability (Alvarez-Lister et al., 2014; Briere et al. 2001; Heleniak et al., 2016; Segura et al., 2016). Thus, results demonstrate that lifetime poly-victimization exposure informs the intensity of psychosocial impairment in victimized youth (Cuevas et al., 2009; Ford et al., 2011; Kretchmar et al., 2017; Turner et al., 2012). This is particularly relevant during clinical screenings where youth are ruled into trauma-informed interventions based on symptom presentation (Hamby & Finkelhor, 2000; Newman et al., 2018). An accurate understanding of lifetime poly-victimization exposure could provide insight into the degree of impairment experienced by victimized youth, even if this impairment is not linked to a specific victimization or adverse event (Hamby & Finkelhor, 2000; Finkelhor et al., 2005a; Turner et al., 2012). Together, the current findings bolster the construct validity of poly-victimization in predicting the developmental outcomes of childhood victimization.

Implications for Clinical Practice

The current findings have clinical implications for adolescents in treatment for illegal sexual behavior. First, results emphasize the importance of incorporating poly-victimization assessment into psychosocial evaluations for adolescents adjudicated for sex offenses (Elliott et

al., 2009; Finkelhor et al., 2009a; Turner et al., 2012). Findings confirm that many adolescents who engage in problematic sexual behaviors have experienced significant childhood poly-victimization across a broad range of categories (Harrelson et al., 2017; Levenson et al., 2016; Newman et al., 2018). Over 80% of participants reported exposure to community, school, and indirect types of victimizations, whereas less than half reported exposure to abuse or neglect (Harrelson et al., 2017). Further, aggregates containing more common types of victimization, including the Conventional Crime, Peer and Sibling Victimization, and Indirect Victimization aggregates, were consistently more predictive of psychosocial impairment than aggregates containing less frequent, higher severity forms of victimization, such as the Child Maltreatment and Sexual Victimization aggregates. Findings demonstrate that multiple types of victimization warrant clinical attention in this population, even experiences that are considered to be relatively common and socially accepted events (Alexander et al., 2018; Elliott et al., 2009; Harrelson et al., 2017). Failing to assess the cumulative impact of poly-victimization exposure in youth with problematic sexual behavior could underestimate their affective stability and interfere with their treatment adherence (Elliott et al., 2009; Finkelhor et al., 2009; Turner et al., 2010). Therefore, poly-victimization assessment provides meaningful insight into the psychosocial profiles of youth enrolled in treatment for illegal sexual behavior (Harrelson et al., 2017).

Second, findings highlight the need to develop therapeutic approaches that are conducive to poly-victimization exposure. Most evidence-based models of trauma-informed psychotherapy for youth populations, including TF-CBT (Cohen et al., 2012a), focus on symptoms from one index trauma (APA, 2013; Cohen et al., 2012a; Steinberg et al., 2013). However, poly-victimized youth may have difficulty identifying index traumas as targets for treatment, given that poly-victimization increases their vulnerability for emotional distress (Cohen et al., 2012b; Finkelhor

et al., 2005a; Finkelhor et al., 2011; Hamby & Finkelhor, 2000). The lack of a specified index trauma could interfere with enrollment in trauma-informed interventions that are designed to treat single-incident trauma exposure (Blaustein & Kinniburgh, 2018; Cohen et al., 2012b; Hamby & Finkelhor, 2000). Thus, interventions that target index traumas alone may be insufficient to address the level of psychosocial impairment experienced by poly-victimized youth (Blaustein & Kinniburgh, 2018; Hamby & Finkelhor, 2000). Rather, intervention models that place a greater emphasis on managing trauma-related functional impairment could increase mastery over the outcomes that interfere with treatment for illegal sexual behavior (Blaustein & Kinniburgh, 2018; Hodgdon, Kinniburgh, Gabowitz, Blaustein, & Spinazzola, 2013). For example, the Attachment, Self-Regulation, and Competency (ARC) framework is an evidence-based approach designed to reduce distress and impairment in youth with exposure to multiple traumatic events (Blaustein & Kinniburgh, 2018). ARC integrates caregiver support, distress management, and strength utilization into gradual exposure to traumatic stimuli (Blaustein & Kinniburgh, 2018). ARC is not only associated with reductions in posttraumatic stress symptoms, but has also been found to decrease interpersonal aggression and self-harm behaviors in youth across residential and outpatient settings (Hodgdon et al., 2013; Holland, Begin, Orris & Meyer, 2017). Current findings support the implementation of integrated intervention models, such as ARC, in adolescents with illegal sexual behavior to accommodate the pervasive affective dysregulation associated with poly-victimization exposure (Blaustein & Kinniburgh, 2018; Hodgdon et al., 2013).

Third, the indirect relationships between poly-victimization and psychosocial impairment indicate that poly-victimization exposure could pose a barrier to engagement in treatment for illegal sexual behavior. Many intervention programs for problematic sexual behavior require

youth to complete psychoeducational modules that target legal and ethical consent, healthy sexual practices, victim empathy, and safety planning (Kjellgren, 2019; Schmidt et al., 2012; Silovsky et al., 2019; Yates et al., 2010). Although mastery of these components is essential to mitigate sexual recidivism (Caldwell, 2007; Kjellgren, 2019; Silovsky et al., 2019; Yates et al., 2010), poly-victimized youth may not possess the regulatory processes to participate in treatment at a developmentally appropriate level (Boonman et al., 2015; Harrelson et al., 2017).

Adolescents characterized by high rates of community, peer and sibling, and indirect victimizations are at particular risk for low therapeutic engagement, as these victimizations are not typically considered targets for trauma-informed intervention (Hamby & Finkelhor, 2000; Hodgdon et al., 2013; Newman et al., 2018). Thus, findings highlight a need to implement a trauma-informed intervention program prior to treating problematic sexual behavior to increase treatment prognoses for all adolescents adjudicated for sex offenses (Boonman et al., 2015; Caldwell, 2007; Newman et al., 2018; Silovsky et al., 2019).

Implications for Public Policy

The present findings have public policy implications for adolescents adjudicated for sex offenses. The legal consequences most often associated with sexual offending are national offender registration and community notification (Alabama Sex Offender Registration and Notification Act, 2013; Garfinkle, 2003; Pitman & Parker, 2013). In many United States jurisdictions, adolescents can be tried and sentenced as adult sex offenders for offenses occurring as early as fourteen-years-old (Alabama SORNA, 2013; Caldwell, Ziemke, & Vitacco, 2008). Adolescents also incur lifetime registration requirements for felony sexual offenses or ten-year requirements for misdemeanor, or second-degree, sexual offenses (Alabama SORNA, 2013). To properly register with law enforcement, youth and their guardians must present to local law

enforcement every three months (i.e., lifetime registry) or every year (i.e., 10-year registry) to verify residential, academic, and employment status (Alabama SORNA, 2013). Adolescents adjudicated for sex offenses are also required to notify their schools and places of employment of their registration status, even if they have been opined low risk for sexual recidivism (Alabama SORNA, 2013). These institutions are then responsible for imposing their own restrictions on the adolescent as they deem fit (Alabama SORNA, 2013). Once registered adolescents turn 18-years-old, their records are made public and remain opened indefinitely (Alabama SORNA, 2013). Adolescents in violation of their registration or notification conditions can incur additional felony charges and prison time (Alabama SORNA, 2013; Garfinkle, 2003; Pitman & Parker, 2013).

Mandated registration and notification for adolescents with illegal sexual behavior is associated with several long-term consequences (Caldwell et al., 2008; Gafinkle, 2003; Pitman & Parker, 2013). First, adolescents on the sex offender registry report fewer social relationships, lower self-esteem, and higher rates of suicide than non-registered peers (Pitman & Parker, 2013; Zirring et al., 2007). The stigma associated with sex offender status can facilitate withdrawal and isolation, as youth may not have access to prosocial, same-aged peers (Letourneau & Miner, 2005; Levenson et al., 2007; Pitman & Parker, 2013). This thwarted belongingness can lead to depressive symptoms and feelings of hopelessness in registered adolescents, which has been found to potentiate suicidal behavior (Letourneau & Miner, 2005; Levenson et al., 2007; Van Orden, Witte, Cukrowicz, Braithwaite, & Selby, et al., 2010). Second, youth on the sex offender registry have higher rates of homelessness than unregistered youth (Pitman & Parker, 2013; Tewksbury, 2007). Residency restrictions prohibit registered youth from living within two miles of a school or playground, which creates housing barriers for youth in densely populated areas

(Alabama SORNA, 2013; Letourneau & Miner, 2005; Levenson et al., 2007; Pitman & Parker, 2013). Landlords and homeowners' associations can also deny access to individuals because of their registration status (Alabama SORNA, 2013). Thus, homelessness is often considered a necessary solution to accommodate sex offender residency restrictions (Pitman & Parker, 2013). Finally, registered youth have higher rates of unemployment than unregistered youth. Many employers require adolescents to declare their registration status on job applications (Letourneau & Miner, 2005; Pitman & Parker, 2013). Registered applicants can then be eliminated based upon their adjudication history (Letourneau & Miner, 2005). Some states also require universities to notify their students when registered offenders reside on campus, even if their offense occurred during adolescence (Pitman & Parker, 2013). These registration policies discourage many adolescents from pursuing higher education, thereby directing them to low-paying positions only available to those with felony records (Pitman & Parker, 2013). Overall, the sex offender registry is associated with significant barriers for adjudicated youth who are attempting to reintegrate into society (Letourneau & Miner, 2005; Levenson et al., 2007; Pitman & Parker, 2013; Tewksbury, 2007).

Although sex offender registration and notification policies are designed to protect the public from harm (Alabama SORNA; Pitman & Parker, 2013), results from the current study suggest that these policies may not adequately mitigate future illegal sexual behavior. Specifically, sex offender policies misconstrue the underlying motivations for illegal sexual behavior by assuming that sexual offending is a stable trait (Letourneau & Miner, 2005; Pitman & Parker, 2013). Predatory sexual behavior is conceptualized as a personality pattern that cannot be treated, but only managed through environmental controls (Letourneau & Miner, 2005; Tewksbury, 2007). Although these policies may be beneficial for certain youth (Letourneau &

Miner, 2005; Pitman & Parker, 2013), findings suggest that illegal sexual behavior could be conceptualized as a negative outcome of poly-victimization exposure. Problematic sexual behavior is often associated with affective dysregulation in children and adolescents, particularly those with comorbid externalizing problems (Burk & Burkhart, 2003; Driemeyer et al., 2011; Silovsky et al., 2019). Given the relationships observed between affective dysregulation and psychosocial impairment, it is possible that childhood poly-victimization exposure could also increase risk for illegal sexual behavior in adolescence (Burk & Burkhart, 2003; Silovsky et al., 2019). If this is the case, then trauma-informed interventions that target affective dysregulation should reduce sexual recidivism and mitigate restrictions for youth on the sex offender registry (Burk & Burkhart 2003; Harrelson et al., 2017; Newman et al., 2018; Silovksy et al., 2019). Instead, current policies for adjudicated youth reinforce maladaptive affective regulatory patterns, exacerbate psychosocial impairment, and potentiate long-term negative outcomes (Pitman & Parker, 2013; Tewksbury, 2007).

Limitations

Data Collection

Findings and subsequent conclusions are limited by constraints in the data collection process. First, data were drawn from a residential, juvenile justice sample. Adolescents in residential or correctional settings often present with higher rates of victimization exposure (Ford et al., 2013; Pareda et al., 2015), affective dysregulation (Delisi, Drury, Kosloski, Caudill & Conis, et al., 2010; Hodgdon et al., 2013), and psychosocial impairment (Briggs, Greeson, Layne, Fairbank & Knoverek et al., 2012; Ford et al., 2012; Hodgdon et al., 2013) than outpatient adolescent samples. Further, youth are often committed to residential or secure treatment settings because their symptoms cannot be managed in less-restrictive environments

(Briggs et al., 2012; Delisi et al., 2010). Thus, the prevalence of poly-victimization and intensity of the outcome variables may not be characteristic of all adolescents with illegal sexual behaviors, particularly those who receive treatment in outpatient settings (e.g., Silovsky et al., 2019). Incorporation of data from outpatient samples into analyses would likely increase the variability observed in poly-victimization exposure and the relevant outcome variables.

Second, analyses for the current study focused on participant report of all outcome variables. Adolescent reports of both affective dysregulation and functional impairment may not provide the most accurate representation of their psychological stability, particularly in youth whose development has been characterized by high rates of poly-victimization exposure (Angold, Erkanli, Costello, & Rutter, 1996; Finkelhor et al., 2005b). Specifically, some participant reports on the MACI and UCLA-PTSD-RI could have reflected avoidance to trauma cues or a general lack of insight into the frequency and intensity of functional impairment (Angold et al., 1996). Caregiver reports of affective dysregulation, maladaptive behavior patterns, and psychological symptoms could have better informed adolescent psychosocial stability, as well as further elucidated the relationships between poly-victimization exposure, affective dysregulation, and psychosocial impairment (Angold et al., 1996; Finkelhor et al., 2005b; Finkelhor et al., 2011).

Third, multiple raters were used to assess posttraumatic stress symptom severity on the UCLA-PTSD-RI. Although precautionary measures were taken to ensure the reliability of each rater (e.g., didactic instruction, standardized training, administrations observed by licensed psychologist) (Newman et al., 2018; Steinberg et al., 2013), the current study did not assess inter-rater reliability due to limitations imposed by the juvenile justice setting (Harrelson et al., 2017). Thus, some variability in posttraumatic stress symptom severity could be attributed to the

use of multiple raters (Steinberg et al., 2013). Specifically, participant report of posttraumatic stress could have been confounded by a rater's interpersonal style or stimulus value (e.g., age, gender) (Harrelson et al., 2017; Kline, 2016). Nevertheless, every effort was made to uphold the inter-rater reliability within the constraints of the data collection process.

Sample size constitutes a fourth limitation. Participant count for the present study was contingent upon several factors unique to the juvenile justice setting. Limiting factors included rate of admission, program occupancy, rate of discharge from the program, and adolescent consent for research participation (Harrelson et al., 2017; Newman et al., 2018). Although the current sample was large enough to detect the hypothesized effects, it is relatively small compared to other studies of this population (e.g., Reitzel & Carbonell, 2006; Seto & Lalumière, 2010). Findings should be interpreted accordingly and require replication in larger samples.

Data Analytic Strategy

Findings and subsequent conclusions are limited by the use of cross-sectional mediation. Although path analysis is the preferred method of detecting mediation (e.g., Gunzler et al., 2013; Iacobucci et al., 2007; James et al., 2006; Kline, 2016), the current data analytic plan implies a causal model (Kline, 2016). Specifically, mediation corresponds to a causal relationship in which the manipulation of the independent variable causes change in the mediator, which then alters the outcome variable (Kline, 2016; James et al., 2006; LeBreton, Wu, & Bing, 2009). True mediation requires temporal precedence, or lapsed time between measured variables, for sufficient evidence of causal change (Kline, 2016; Lebreton et al., 2009). Mediation analyses in the current study were cross-sectional, as all data were collected within the same pre-treatment psychological evaluation (Kline, 2016; Lebreton et al., 2009). Due to constraints in the data collection process, poly-victimization was assessed retrospectively (Finkelhor et al., 2007a;

Hamby et al., 2004), while affective dysregulation and psychosocial impairment were evaluated based on the last one to six months, respectively (Millon, 1993; Millon & Davis, 1993; Steinberg et al., 2013). The lack of time precedence between variables compromises the interpretability of the current results as true mediation (Kline, 2016; LeBreton et al., 2009). Rather, findings describe an indirect relationship between poly-victimization and psychosocial impairment that is present within the data (Kline, 2016). Results and their corresponding implications would be strengthened alternative analytic approaches (James et al., 2006; Kline, 2016; LeBreton et al., 2009). For example, moderation analyses could assess conditional causation through the interaction between poly-victimization and affective dysregulation (Kline, 2016; Kraemer, Kiernanm Essex, & Kupfer, 2012). Moderation analyses rely less on temporal precedence to determine the conditions under which independent variables are related to outcomes (Barron & Kenney, 1986; Kraemer et al., 2012). This strategy would identify affective dysregulation as one variable in the causal process, rather than the sole variable in the “causal pathway” of poly-victimization to psychosocial impairment (Kline, 2016; Kraemer et al., 2012). Although findings would be enhanced through alternative approaches, the current results highlight important relationships between poly-victimization and psychosocial functioning that necessitate further exploration.

Model Interpretability

Findings and subsequent conclusions are also limited by model interpretability. First, interpretability is compromised by the lack of fit indices in the baseline bootstrapping models (see *Figures 1-3*) (Kline, 2016). Although the just-identified models produced significant parameter estimates for the observed paths, fit statistics were unable to be calculated (Kline, 2016; James et al., 2006). Thus, the current study cannot conclude that the baseline models

adequately fit the data (Gunzler et al., 2013; Kline, 2016; James et al., 2006). Alternative model conceptualizations should evaluate the validity of the current conclusions (Gunzler et al., 2013; Iacobucci et al., 2007; Kline, 2016). For example, high correlations between externalizing problems, posttraumatic stress, and suicidal behavior (see *Table 3*) could correspond to an underlying latent construct (Kline, 2016; Millon & Davis, 1993). A more complex structural equation model that combines measured and latent variables would provide insight into model fit, thus enhancing result interpretability (Iacobucci et al., 2007; Kline, 2016). Overall, the current results signify a meaningful first step in establishing relationships between measured variables in adolescents with illegal sexual behavior (James et al., 2006; Kline, 2016).

Model interpretability is also compromised by multicollinearity among predictors (Grewal et al., 2004; Kline, 2016; Kock & Lynn, 2012). Because victimization type and poly-victimization were both measured using the JVQ-R2 (Hamby et al., 2004), multicollinearity likely produced parameter estimates characterized by underestimated coefficient strength, inaccurate coefficient direction, and high standard error (Grewal et al., 2004; Kaplan, 1994; Kock & Lynn, 2012). The collinearity of the predictor variables compromises the interpretation of the path coefficients, even for paths with significant parameter estimates (Grewal et al., 2004; Kock & Lynn, 2012). Thus, the relative influence of victimization type in these path analysis models is inconclusive (Grewal et al., 2004). The current data analytic strategy was adapted from the poly-victimization literature where the inclusion of the JVQ-R2 aggregates into regression models is considered sufficient to control for victimization type (e.g., Finkelhor et al., 2007; Finkelhor et al., 2009; Finkelhor et al., 2011; Turner et al., 2010). Findings suggest, however, that this method does not extend to more sophisticated path analysis models (Grewal et al., 2004; Kline, 2016; Kock & Lynn, 2012). To strengthen construct validity, is imperative that future

research adopts more sophisticated methods of controlling for victimization type in models assessing the developmental impact of poly-victimization exposure.

Future Research

In addition to addressing aforementioned limitations, future studies assessing poly-victimization exposure, affective dysregulation, and psychosocial impairment in adolescents with sex offense adjudications are necessary to replicate and extend these findings. First, a class analysis should be conducted to identify which poly-victimized youth are at greatest risk for affective dysregulation (e.g., Ford et al., 2011; Finkelhor et al., 2005a; Finkelhor et al., 2007a). Identification of particularly dysregulated youth could mitigate the manifestation of psychosocial impairment during treatment, thus facilitating therapeutic engagement earlier in the intervention process (Ford et al., 2011).

Longitudinal data should also be collected to determine the long-term influence of trauma-informed interventions on sexual recidivism. Although the implementation of trauma-informed approaches (e.g., TF-CBT) have been found to increase engagement in treatment for illegal sexual behavior (Levenson et al., 2014; Newman et al., 2018; Silovsky et al., 2019), no studies have examined the relative influence of evidence-based, trauma-informed interventions on adolescent sexual reoffending. Future research should compare sexual and non-sexual recidivism rates for youth treated with and without an evidence-based trauma-informed protocol.

Finally, the preset study only examined three areas of psychosocial impairment that have been found to interfere with treatment for illegal sexual behavior. Given that many types of behaviors can contribute to treatment engagement (e.g., internalizing problems, cognitive functioning, learning difficulties) (e.g., Boonman et al., 2015; Ford et al., 2011; Seto & Lalumière, 2010), future studies should examine the relative influence of poly-victimization

exposure on other areas of functional impairment in adolescents adjudicated for sex offenses.

Further, future research should identify relative protective factors that could mitigate the impact of psychosocial impairment on treatment for illegal sexual behavior.

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Appendix A

Table 1. Offense Statistics

Offenses by Classification	N	Valid %
First Degree Offenses	49	44.9%
Second Degree Offenses	18	16.5%
Misdemeanor Offenses	44	40.3%
Nonsexual Offenses	9	8.2%
Missing Data*	53	-
Offenses by Type		
Sexual Assault	8	7.4%
Rape	10	9.3%
Sodomy	13	12.0%
Sexual Abuse	34	31.5%
Other Contact Offenses	30	27.8%
Noncontact Offenses	13	12.0%
Missing Data*	54	-

* Missing data not included in frequency analyses

Table 2. Correlation Matrix for Demographic Variables

	<i>N</i>	Race	Age	Grade	Offense Type
Race	151	-	-	-	-
Age	151	.11	-	-	-
Grade	156	.04	-.02	-	-
Offense Type	108	-.20	-.01	-.07	-
Poly-victimization	158	.26	.08	-.02	.04
Affective Dysregulation	157	-.01	-.15	-.08	.02
Externalizing Problems	157	.12	-.21*	.06	.03
Posttraumatic Stress	99	.14	.07	.08	.05
Suicidal Behavior	158	.24	-.01	-.14	.11

Notes. *N*'s range from 99 to 158 due to occasional missing data.

* $p < .05$.

Table 3. Correlation Matrix for Outcome Variables

	<i>N</i>	Affective Dysregulation	Externalizing Problems	Posttraumatic Stress	Suicidal Behavior
Affective Dysregulation	157	-	-	-	-
Externalizing Problems	157	.62**	-	-	-
Posttraumatic Stress	99	.40**	.11	-	-
Suicidal Behavior	158	.68**	.28**	.56**	.-

Notes. *N*'s range from 99 to 158 due to occasional missing data.

* $p < .05$

** $p < .001$

Table 4. Frequency Distribution of Poly-Victimization Exposure*

Aggregates	N	%
Conventional Crime	134	84.3%
Child Maltreatment	76	47.8%
Peer/Sibling Victimization	130	81.8%
Sexual Victimization	82	51.6%
Indirect Victimization	132	83.0%
Victimizations across Aggregates		
0 Aggregates	12	7.8%
1 Aggregates	3	1.9%
2 Aggregates	17	11.0%
3 Aggregates	30	19.5%
4 Aggregates	44	28.6%
5 Aggregates	48	31.2%

*Aggregates constructed based on Hamby et al., 2004 and Harrelson et al., 2017

Table 5. Frequency Distribution of Index Trauma

Criterion A Traumas	N	Valid Percent
Natural Disaster	1	1.1%
Accident	3	3.2%
War Violence	1	1.1%
Domestic Violence Victim	6	6.3%
Domestic Violence Witness	9	9.5%
Physical Assault Victim	8	8.4%
Physical Assault Witness	1	1.1%
Unwanted Exposure to Private Parts	13	13.7%
Witnessing Death	5	5.3%
Sexual Abuse	8	8.4%
Sudden Death of a Loved One	37	38.9%
Other Traumatic Event	3	3.2%
Missing Data	67	-

*Index traumas constructed based on Steinberg et al., 2013

Table 6. Contribution of Victimization Type on Affective Dysregulation ($N = 153$)

	Start Model			Add PV R^2				
	R^2 :	B	SEB	β	Change	B	SEB	β
Conventional Crime	0.06	1.91	0.64	0.24**	0.02	0.16	1.31	0.02
Maltreatment	0.05	3.46	1.22	0.22**	0.03*	0.74	1.79	0.05
Peer/Sibling	0.06	3.41	1.15	0.23**	0.02	0.52	1.95	0.04
Sexual	0.04	2.88	1.15	0.20**	0.04*	0.12	1.61	0.01
Indirect	0.04	1.96	0.79	0.20*	0.04*	0.57	1.29	0.06

Note. Start model assesses variance accounted for by victimization type alone on affective dysregulation; Add PV R^2 Change assesses simultaneous variance accounted for by poly-victimization and victimization type; Victimization type assessed using JVQ-R2 aggregate score; * $p < .05$. ** $p < .01$

Table 7. Contribution of Victimization Type on Externalizing Problems ($N = 153$)

	Start Model				Add PV R^2			
	R^2 :	B	SEB	β	Change	B	SEB	β
Conventional Crime	0.04	1.91	0.78	0.20*	0.01	0.68	1.58	0.07
Maltreatment	0.01	1.35	1.51	0.07	0.06**	3.11	2.16	0.17
Peer/Sibling	0.05	3.88	1.39	0.22**	0.002	2.80	2.36	0.16
Sexual	0.002	0.84	1.41	0.05*	0.06**	3.41	1.95	0.20
Indirect	0.03	2.18	0.96	0.18*	0.01	0.63	1.56	0.95

Note. Start model assesses variance accounted for by victimization type alone on affective dysregulation; Add PV R^2 Change assesses simultaneous variance accounted for by poly-victimization and victimization type; Victimization type assessed using JVQ-R2 aggregate score; * $p < .05$. ** $p < .01$

Table 8. Contribution of Victimization Type on Posttraumatic Stress ($N = 95$)

	Start Model			Add PV R^2				
	R^2 :	B	SEB	β	Change	B	SEB	β
Conventional Crime	0.11	2.33	0.70	0.33**	0.03	0.02	1.43	0.003
Maltreatment	0.12	4.50	1.26	0.35**	0.03	2.02	1.91	0.16
Peer/Sibling	0.05	3.01	1.30	0.23*	0.09**	2.22	2.06	0.17
Sexual	0.08	3.21	1.12	0.28**	0.06*	0.44	1.56	0.34
Indirect	0.07	2.47	0.93	0.27**	0.07**	0.43	1.40	0.05

Note. Start model assesses variance accounted for by index trauma alone on affective dysregulation; Add PV R^2 Change assesses simultaneous variance accounted for by poly-victimization and victimization type; Victimization type based upon aggregates from JVQ-R2; * $p < .05$. ** $p < .01$

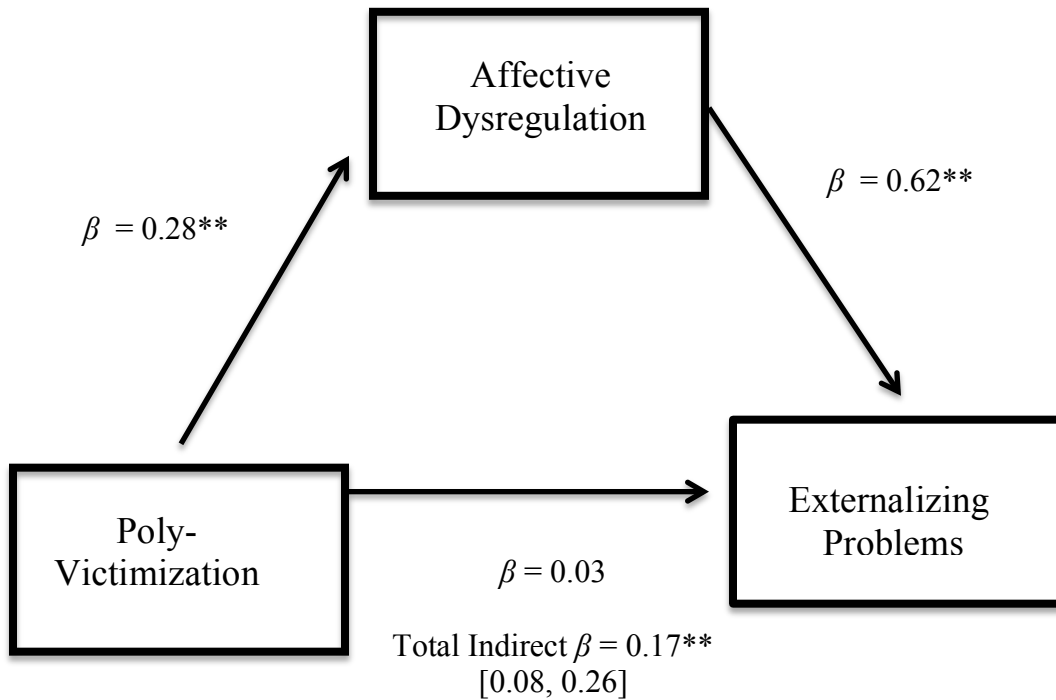
Table 9. Contribution of Victimization Type on Suicidal Behavior ($N = 153$)

	Start Model			Add PV R^2				
	R^2 :	B	SEB	β	Change	B	SEB	β
Conventional Crime	0.16	3.78	0.70	0.40**	0.07**	0.54	1.36	0.06
Maltreatment	0.20	7.96	1.30	0.44**	0.05**	3.70	1.85	0.21*
Peer/Sibling	0.15	6.60	1.26	0.40**	0.07**	0.37	2.03	0.02
Sexual	0.17	6.87	1.24	0.41**	0.07**	2.40	1.69	0.14
Indirect	0.08	3.26	0.90	0.28**	0.17**	2.88	1.32	0.25*

Note. Start model assesses variance accounted for by victimization type alone on affective dysregulation; Add PV R^2 Change assesses simultaneous variance accounted for by poly-victimization and victimization type; Victimization type assessed using JVQ-R2 aggregate score; * $p < .05$. ** $p < .01$

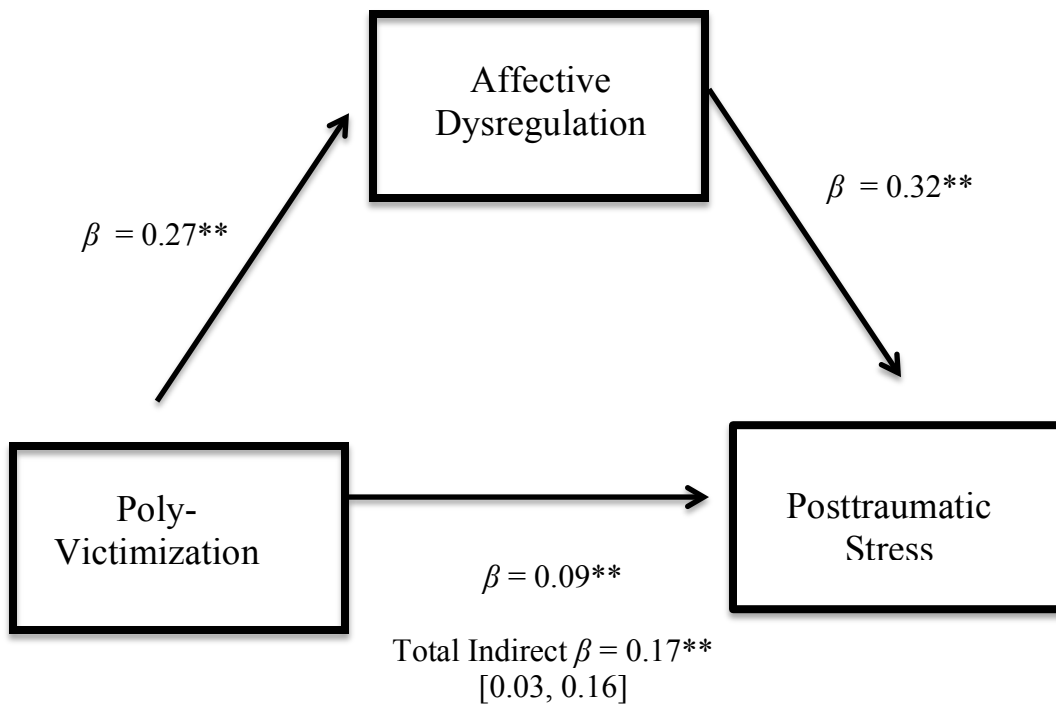
Appendix B

Figure 1. Mediation of Poly-victimization and Externalizing Problems



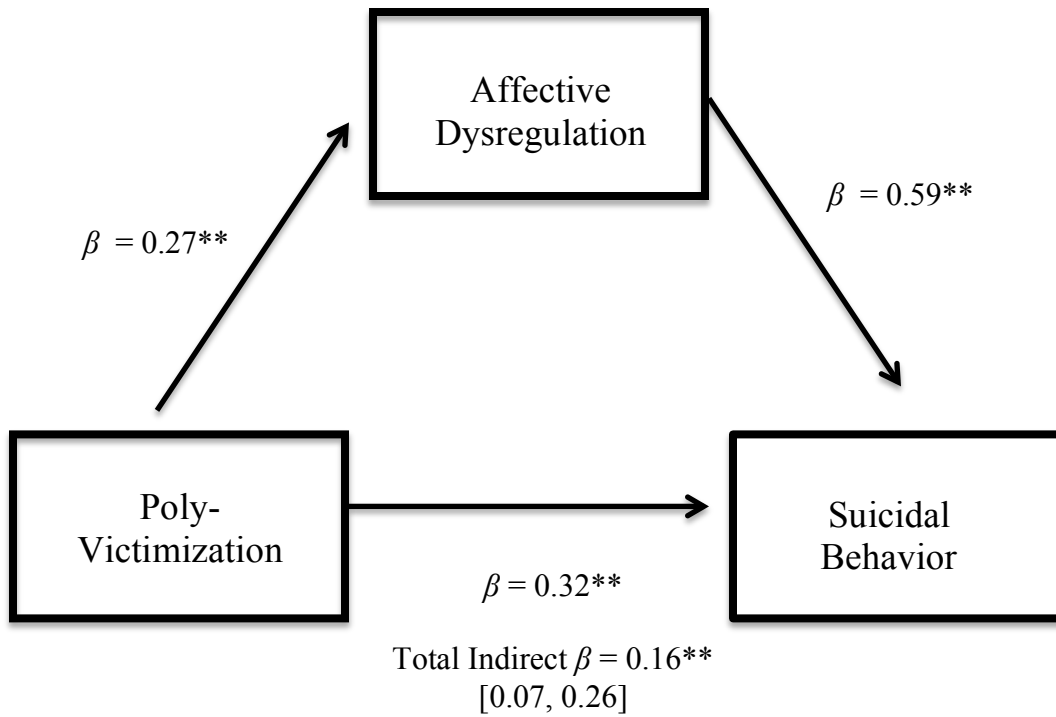
Note: $*p < .05$. $**p < .01$; RMSEA = 0.00; $\chi^2(0) = 0.00$, $p < .001$; CFI = 1.00, SRMR = 0.00; All coefficients reported in STDYX standardization. Confidence intervals use bias-corrected bootstrapping procedure.

Figure 2. Mediation of Poly-victimization and Posttraumatic Stress



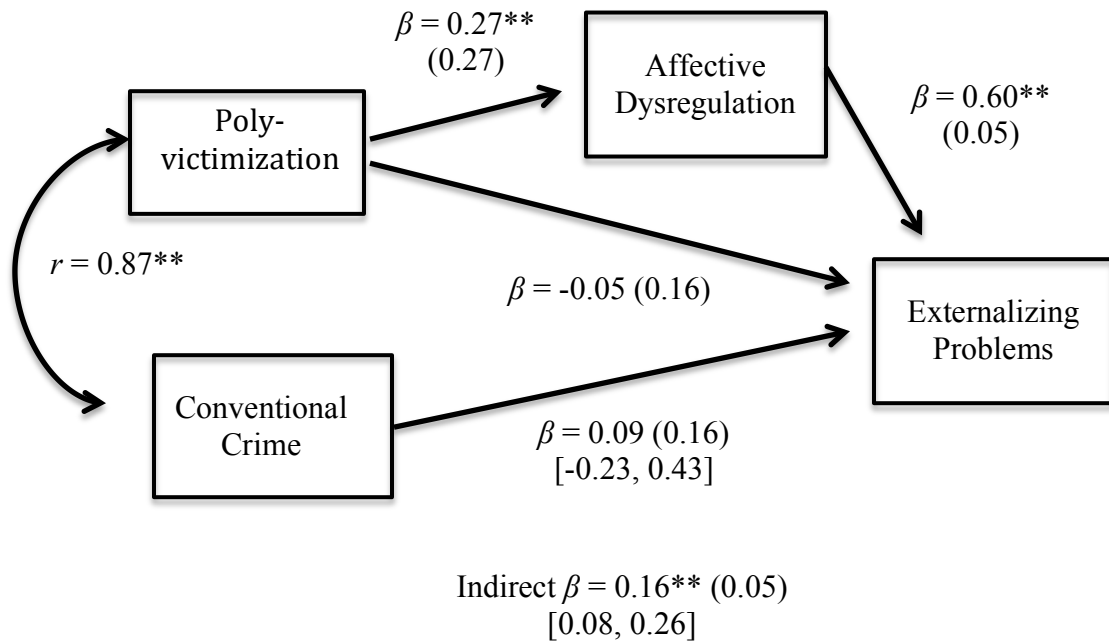
Note: * $p < .05$. ** $p < .01$; RMSEA = 0.00; $\chi^2(0) = 0.00$, $p < .001$; CFI = 1.00, SRMR = 0.00; All coefficients reported in STDYX standardization. Confidence intervals use bias-corrected bootstrapping procedure.

Figure 3. Mediation of Poly-victimization and Suicidal Behavior



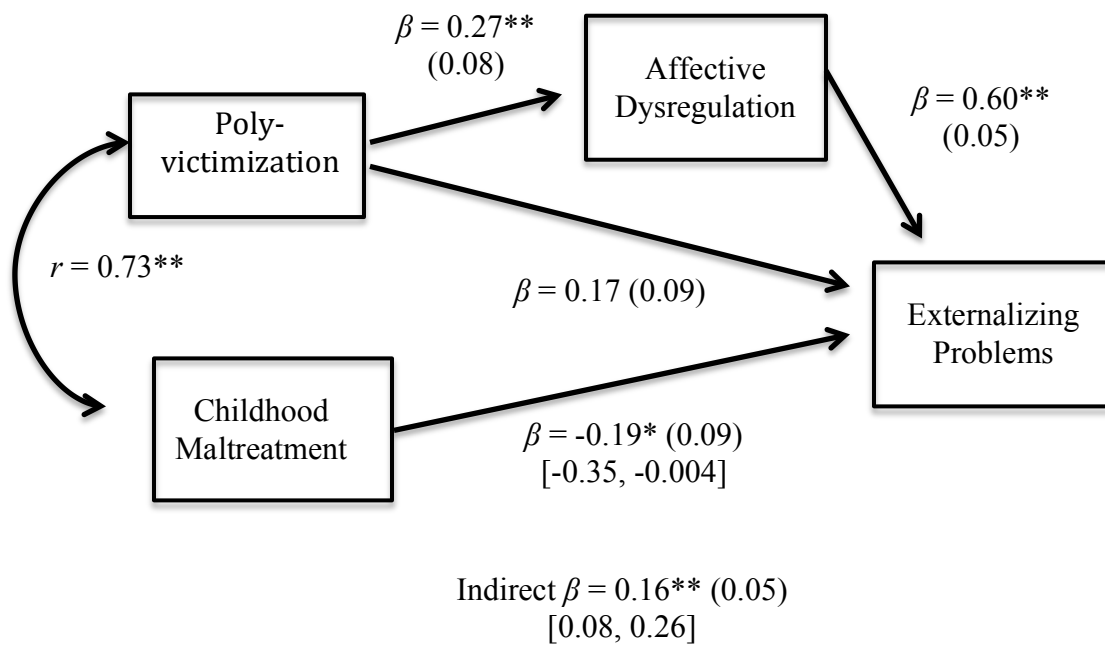
Note: * $p < .05$. ** $p < .01$; RMSEA = 0.00; $\chi^2(0) = 0.00, p < .001$; CFI = 1.00, SRMR = 0.00; All coefficients reported in STDYX standardization. Confidence intervals use bias-corrected bootstrapping procedure.

Figure 4. Path Analysis of Poly-victimization and Conventional Crime on Externalizing Problems



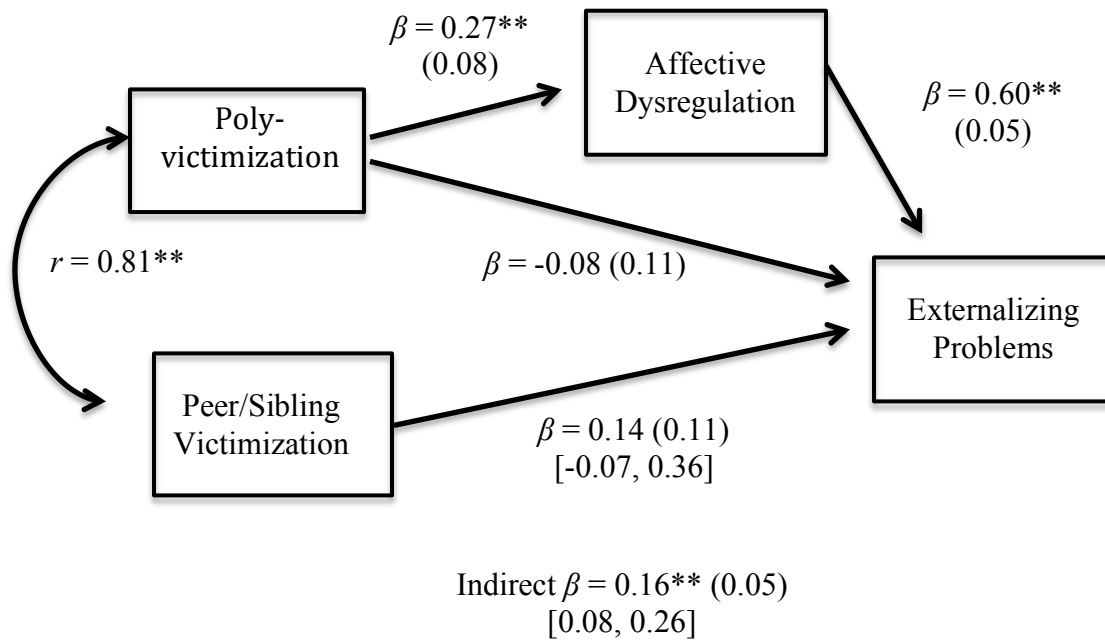
Note: $*p < .05$. $**p < .01$; RMSEA < 0.01 [$< 0.01, 0.14$]; $\chi^2(1) = 0.09, p = 0.76$; CFI = 1.00, SRMR = 0.004; All coefficients reported in STDYX standardization. Confidence intervals use bias-corrected bootstrapping procedure.

Figure 5. Path analysis of Poly-victimization and Childhood Maltreatment on Externalizing Problems



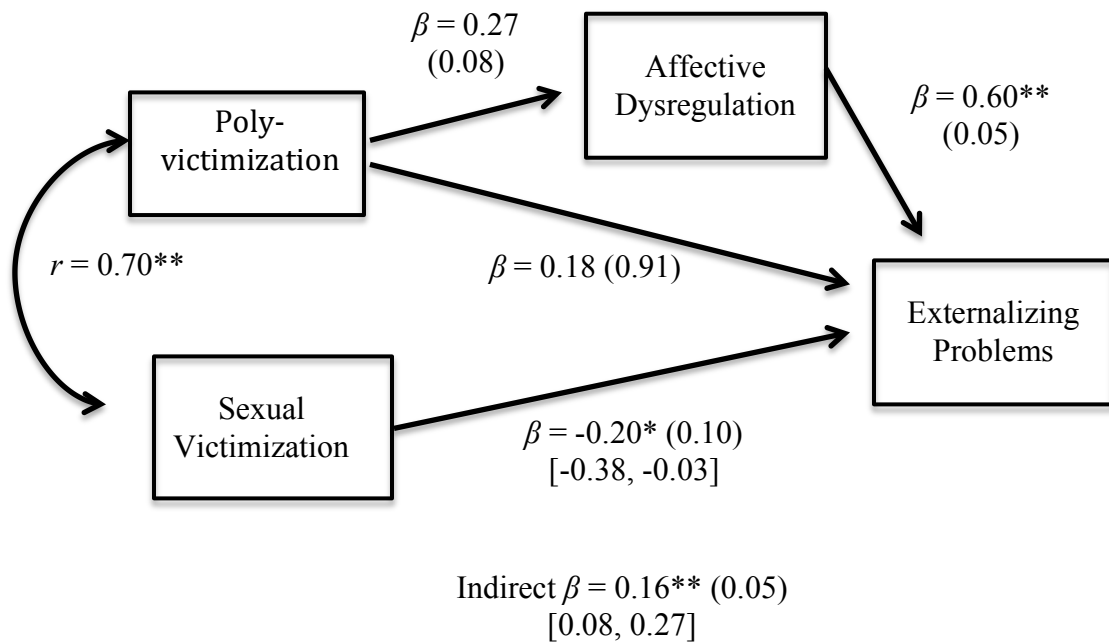
Note: $*p < .05$. $**p < .01$; RMSEA < 0.01 [$< 0.01, 0.15$]; $\chi^2(1) = 0.15, p = 0.70$; CFI = 1.00, SRMR = 0.006; All coefficients reported in STDYX standardization. Confidence intervals use bias-corrected bootstrapping procedure.

Figure 6. Path Analysis of Poly-victimization and Peer and Sibling Victimization on Externalizing Problems



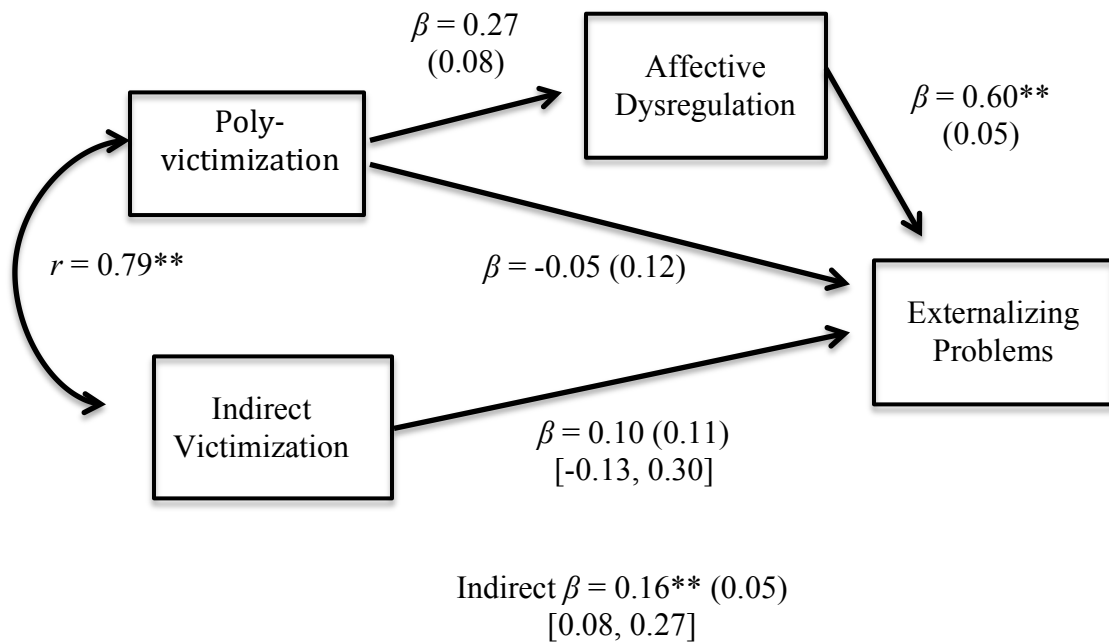
Note: * $p < .05$. ** $p < .01$; RMSEA < 0.01 [$<0.01, 0.05$]; $\chi^2(1) = 0.006, p = 0.94$; CFI = 1.00, SRMR = 0.001; All coefficients reported in STDYX standardization. Confidence intervals use bias-corrected bootstrapping procedure.

Figure 7. Path Analysis of Poly-victimization and Sexual Victimization on Externalizing Problems



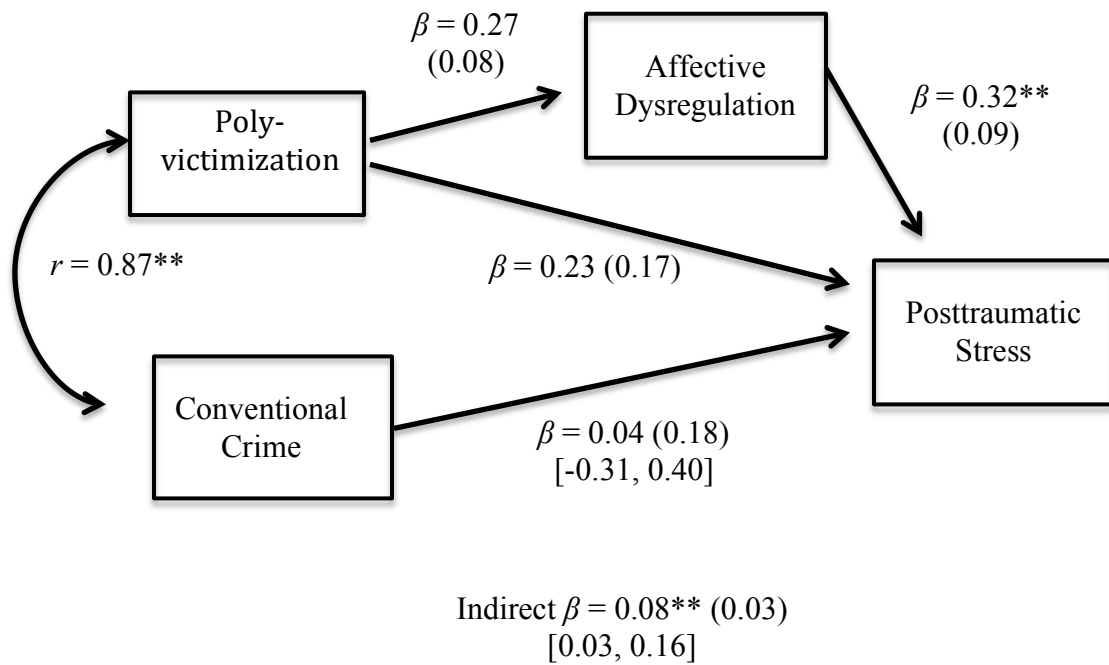
Note: $*p < .05$. $**p < .01$; RMSEA < 0.01 [$<0.01, 0.08$]; $\chi^2(1) = 0.01, p = 0.91$; CFI = 1.00, SRMR = 0.002; All coefficients reported in STDYX standardization. Confidence intervals use bias-corrected bootstrapping procedure.

Figure 8. Path Analysis of Poly-victimization and Indirect Victimization on Externalizing Problems



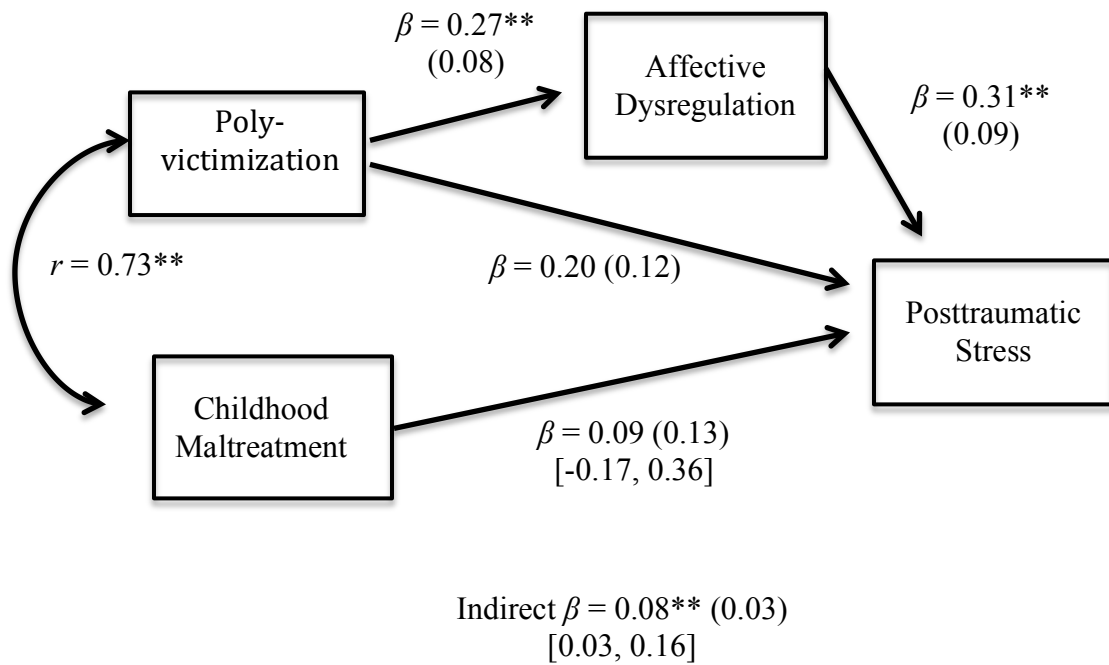
Note: $*p < .05$. $**p < .01$; RMSEA < 0.01 [$<0.01, 0.17$]; $\chi^2(1) = 0.36, p = 0.55$; CFI = 1.00, SRMR = 0.009; All coefficients reported in STDYX standardization. Confidence intervals use bias-corrected bootstrapping procedure.

Figure 9. Path Analysis of Poly-victimization and Conventional Crime on Posttraumatic Stress Symptom Severity



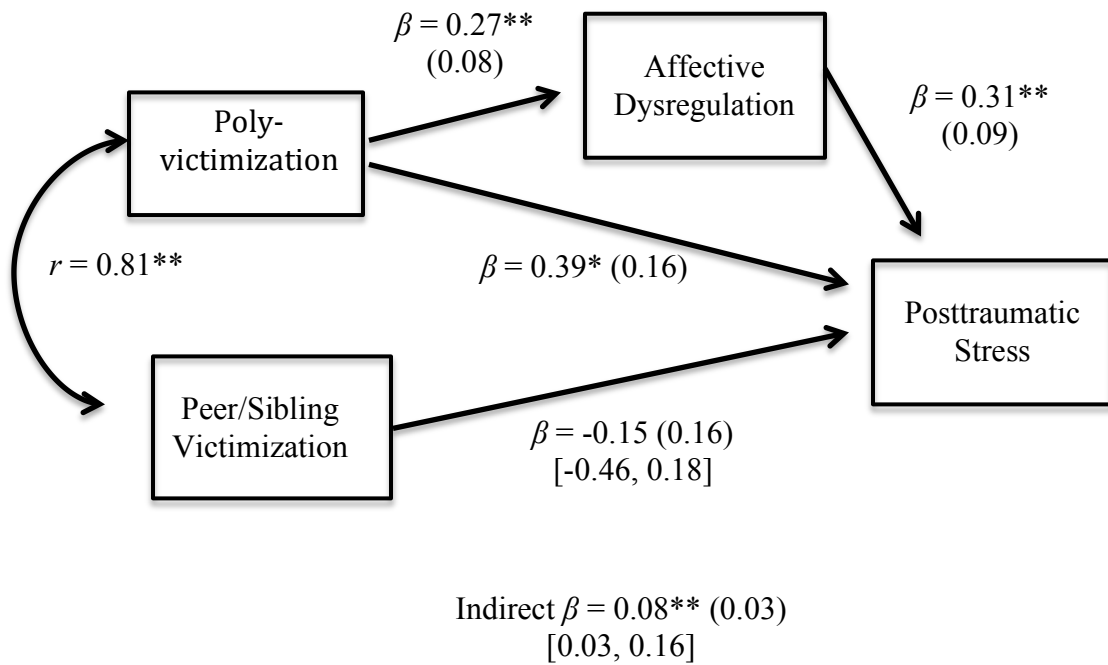
Note: * $p < .05$. ** $p < .01$; RMSEA < 0.01 [$<0.01, 0.12$]; $\chi^2(1) = 0.04, p = 0.84$; CFI = 1.00, SRMR = 0.002; All coefficients reported in STDYX standardization. Confidence intervals use bias-corrected bootstrapping procedure.

Figure 10. Path Analysis of Poly-victimization and Childhood Maltreatment on Posttraumatic Stress Symptom Severity



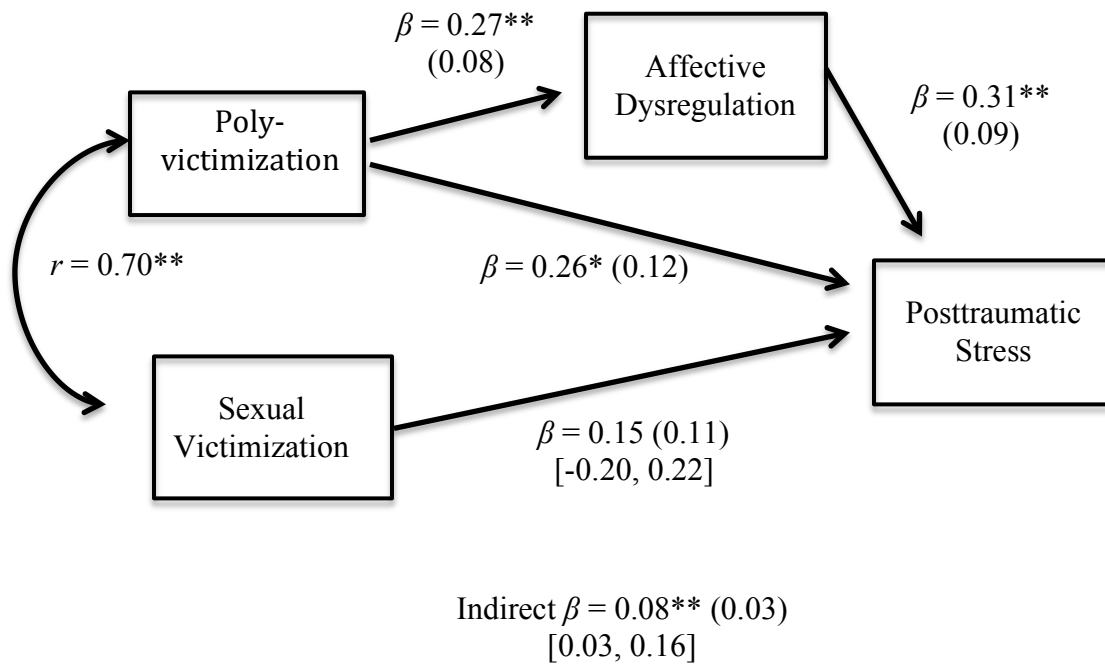
Note: $*p < .05$. $**p < .01$; RMSEA < 0.01 [$<0.01, 0.14$]; $X^2(1) = 0.11, p = 0.75$; CFI = 1.00, SRMR = 0.005; All coefficients reported in STDYX standardization. Confidence intervals use bias-corrected bootstrapping procedure.

Figure 11. Path Analysis of Poly-victimization and Peer and Sibling Victimization on Posttraumatic Stress Symptom Severity



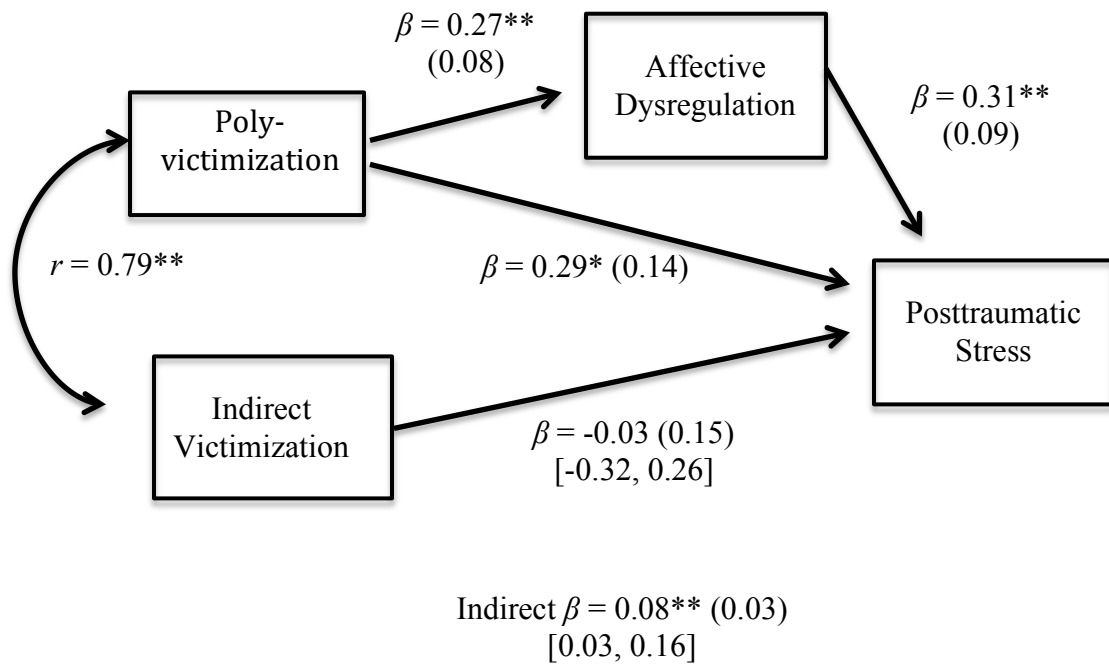
Note: $*p < .05$. $**p < .01$; RMSEA < 0.01 [$<0.01, 0.12$]; $\chi^2(1) = 0.04, p = 0.84$; CFI = 1.00, SRMR = 0.003; All coefficients reported in STDYX standardization. Confidence intervals use bias-corrected bootstrapping procedure.

Figure 12. Path Analysis of Poly-victimization and Sexual Victimization on Posttraumatic Stress Symptom Severity



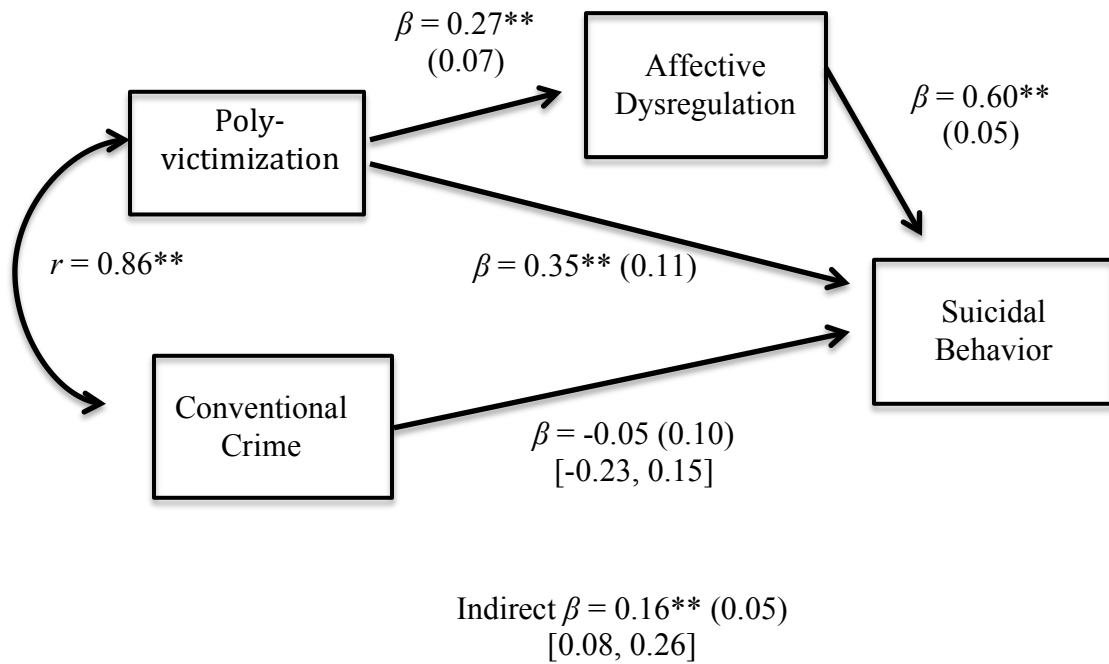
Note: $*p < .05$. $**p < .01$; RMSEA < 0.01 [$<0.01, 0.12$]; $\chi^2(1) = 0.05, p = 0.82$; CFI = 1.00, SRMR = 0.003; All coefficients reported in STDYX standardization. Confidence intervals use bias-corrected bootstrapping procedure.

Figure 13. Path Analysis of Poly-victimization and Indirect Victimization on Posttraumatic Stress Symptom Severity



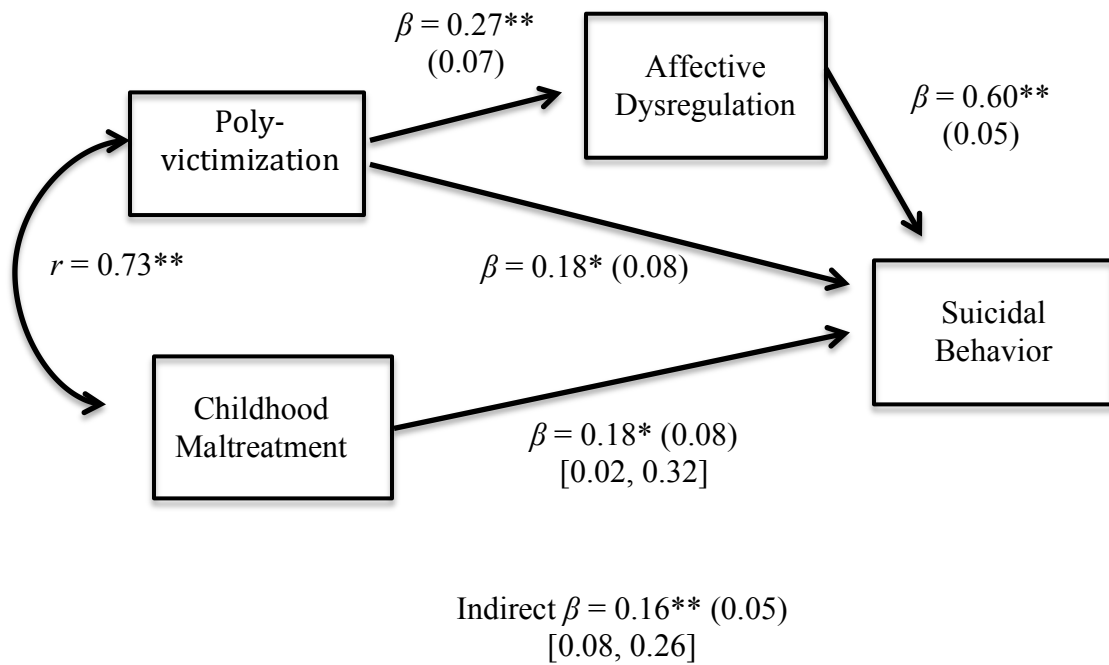
Note: $*p < .05$. $**p < .01$; RMSEA < 0.01 [$<0.01, 0.15$]; $\chi^2(1) = 0.15, p = 0.70$; CFI = 1.00, SRMR = 0.005; All coefficients reported in STDYX standardization. Confidence intervals use bias-corrected bootstrapping procedure.

Figure 14. Path Analysis of Poly-Victimization and Conventional Crime on Suicidal Behavior



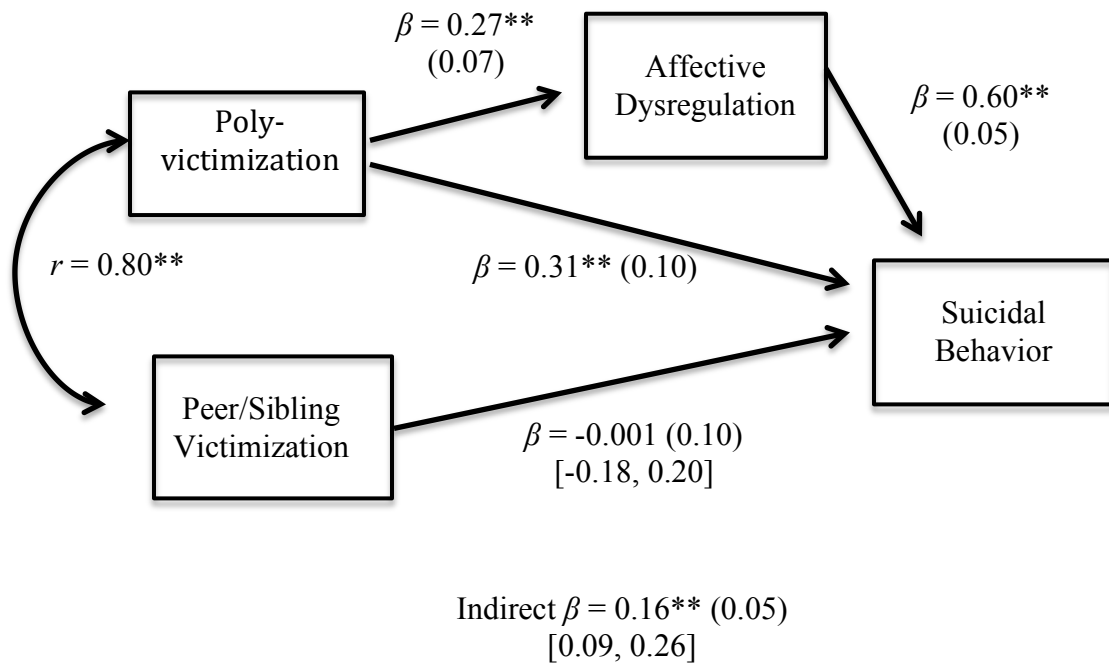
Note: $*p < .05$. $**p < .01$; RMSEA < 0.01 [$<0.01, 0.07$]; $\chi^2(1) = 0.09, p = 0.92$; CFI = 1.00, SRMR = 0.001; All coefficients reported in STDYX standardization. Confidence intervals use bias-corrected bootstrapping procedure.

Figure 15. Path Analysis of Poly-victimization and Childhood Maltreatment on Suicidal Behavior



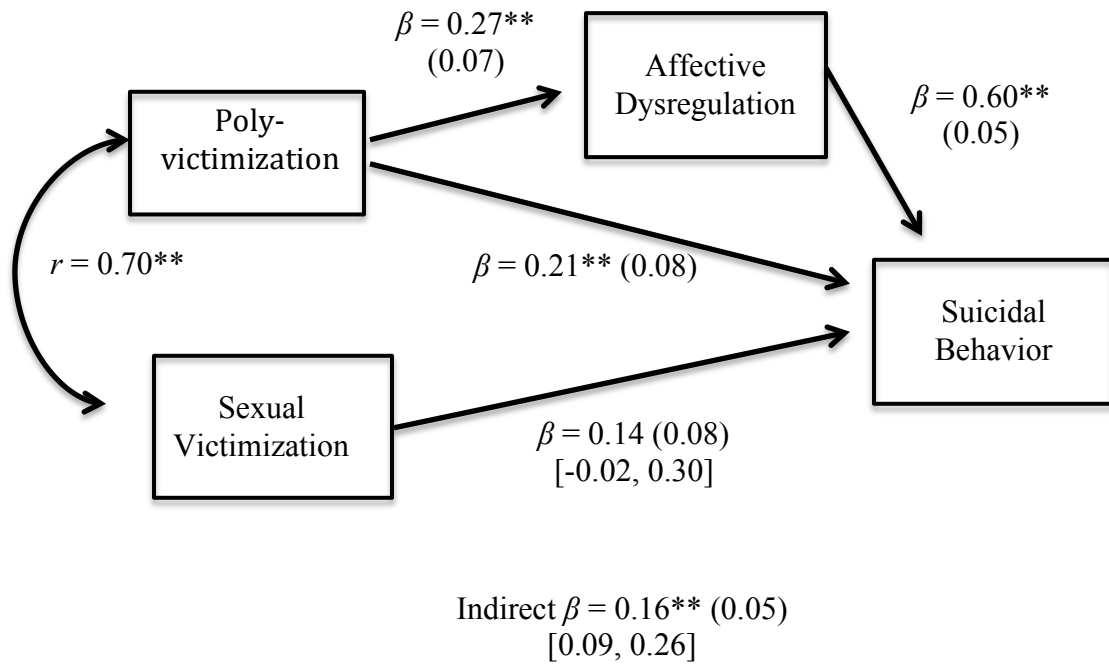
Note: $*p < .05$. $**p < .01$; RMSEA < 0.01 [$<0.01, 0.15$]; $\chi^2(1) = 0.17, p = 0.68$; CFI = 1.00, SRMR = 0.007; All coefficients reported in STDYX standardization. Confidence intervals use bias-corrected bootstrapping procedure.

Figure 16. Path Analysis of Poly-victimization and Peer and Sibling Victimization on Suicidal Behavior



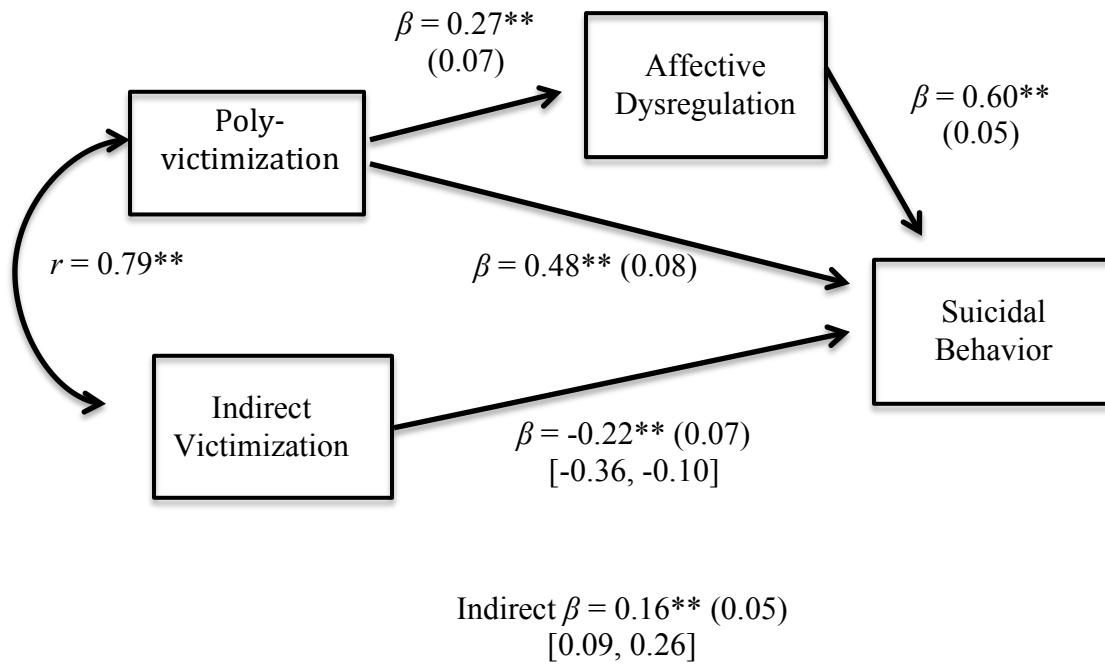
Note: $*p < .05$. $**p < .01$; RMSEA < 0.01 [$<0.01, 0.14$]; $\chi^2(1) = 0.09, p = 0.77$; CFI = 1.00, SRMR = 0.004; All coefficients reported in STDYX standardization. Confidence intervals use bias-corrected bootstrapping procedure.

Figure 17. Path Analysis of Poly-victimization and Sexual Victimization on Suicidal Behavior



Note: * $p < .05$. ** $p < .01$; RMSEA < 0.01 [$<0.01, 0.06$]; $\chi^2(1) = 0.01, p = 0.93$; CFI = 1.00, SRMR = 0.001; All coefficients reported in STDYX standardization. Confidence intervals use bias-corrected bootstrapping procedure.

Figure 18. Path Analysis of Poly-victimization and Indirect Victimization on Suicidal Behavior



Note: $*p < .05$. $**p < .01$; RMSEA < 0.01 [$<0.01, 0.15$]; $\chi^2(1) = 0.16, p = 0.69$; CFI = 1.00, SRMR = 0.006; All coefficients reported in STDYX standardization. Confidence intervals use bias-corrected bootstrapping procedure.