

The Effect of Attachment on the Association Between
Familial Dysfunction and Recidivism and Aggression in a
Sample of Adolescent Offenders: Testing a Moderated-
Mediation Effect

by

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Abstract

The main purpose of this study was to determine if familial dysfunction exerts gendered and indirect effects on general recidivism or aggression (relationally-driven aggression and indirect aggression) through attachment style. This question was tested using a cross-sectional and longitudinal design with a sample of justice-involved youth (211 males, 101 females). Overall, results indicated that attachment did not mediate the effect of familial dysfunction on general recidivism or relationally-driven aggression and that gender did not moderate this relationship. Interestingly, there was evidence to support the indirect effect of familial dysfunction on indirect aggression through preoccupied attachment but only for males. If future research replicates these results, preoccupied attachment should be implemented as a male-specific treatment target for practitioners and as a screening tool for risk assessment developers.

Keywords: attachment theory, familial dysfunction, recidivism, gender, indirect aggression, relationally-driven aggression

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The Effect of Attachment on the Association Between Familial Dysfunction and
Recidivism and Aggression in a Sample of Adolescent Offenders: Testing a Moderated-
Mediation Effect

Before the 21st century, criminological theorists focused little energy studying gender differences. In the past, males and females were hypothesized to follow similar pathways to crime and respond similarly to criminal rehabilitation programs (Brown et al., 2017a). Gender differences were not examined even when female samples were included, which led to an abundance of male-biased research masked as gender-neutrality, as well as a lack of gender-informed theories of crime (Brown et al., 2017a).

Since the late 1990s and early 2000s, there have been significant increases in official reports of female-perpetrated crime. The Federal Bureau of Investigation (2006) released a report on American crime statistics which stated that although females commit considerably less crime than their male counterparts, the increase in the rate of female arrests for violent offences (homicide, rape, robbery, and aggravated assault) outpaced that of corresponding male arrests. Schwartz and Steffensmeier (2012) have critically evaluated several crime data sources (e.g., official crime reports, victim-reported crime, and offender self-reported crime), positing that official crime reports are misleading regarding female crime rates. Of these sources, only official crime reports claim an increase in female-perpetrated crime (Schwartz & Steffensmeier, 2012). This artificial rise in female crime rates is likely because women tend to commit minor offenses, which are now being dealt with more seriously where they would have previously been ignored (Schwartz & Steffensmeier, 2012). Schwartz and Steffensmeier therefore suggest that

females are not becoming more criminal, but rather that changes in policy and attitudes toward females are increasingly targeting traditionally “female crime”.

Despite Schwartz and Steffensmeier’s (2012) claim that the narrowing of the gender gap in criminal offending is in fact artificial, females are being arrested more than ever before (Schwartz & Steffensmeier, 2012). It is therefore increasingly important to study female criminality and continue to make advances in female-informed theories of crime. In fact, the emerging focus on female crime has led to significant progress in gender-informed risk assessment, treatment rehabilitation programs, and research. Risk assessment tools and treatment programs have now begun to incorporate female-salient risk factors (risk factors that predict recidivism for both males and females but more strongly for females; Brown et al., 2017b; Brown & Motiuk, 2008). One such theorized female-salient risk factor is relational dysfunction which is hypothesized to stem from early family dysfunction—an all-encompassing term capturing everything from poor parental practices (including neglect, family conflict, and parental criminality) to childhood abuse (Belknap, 2015; Bright & Jonson-Reid, 2015; Brown et al., 2017a).

Attachment theory—which underscores the importance of early positive relational bonds between children and parents to foster healthy relationships in adulthood—is a promising theoretical framework that may help researchers better understand relational dysfunction as well as how familial dysfunction variables exert indirect effects on adolescent criminality, particularly among girls. Grounded largely in attachment theory, this study will explore what (if any) aspects of childhood adversity (e.g., abuse vs. poor parental practices) lead to insecure attachments in adolescence (including unhealthy attachment styles) and if familial dysfunction exerts indirect effects on various aspects of

criminality (e.g., aggression and/or recidivism) through attachment style. The extent to which these various relationships are moderated by gender will also be examined.

The literature review is organized as follows. First, general theories of female criminality are discussed, including pathways theory and relational cultural theory. Second, what we know more generally about abuse, family dysfunction, and crime is subsequently reviewed. Third, given that this study is using attachment theory to flesh out the mechanisms through which abuse/family dysfunction may be exerting indirect effects on aggression and crime, a discussion of attachment theory will follow. Finally, the empirical evidence on attachment, aggression, and crime is reviewed. Existing research on gender differences will be underscored throughout.

Theories of Female Criminality

The history of criminology has until relatively recently been dominated by male researchers focusing on explanations of male criminality. Cesare Lombroso, author of *La Donna Delinquente (The Female Offender)*, was one of the first to study female crime (Brown et al., 2017a). His explanations of female criminality, however, were fundamentally sexist and relied heavily on the idea that female biology and sexuality are both faulty and inferior (Brown et al., 2017a). In the years that followed, very few scholars wrote about females when discussing criminal activity. Whether by studying males exclusively or by unjustifiably assuming that males and females have similar criminal etiology and patterns, traditional criminological theorists have largely ignored women and girls.

Gender is rarely evaluated as an important factor in mainstream criminological theories. Traditional strain theory (TST), for example, posits that criminal activity stems

from an individual's unequal access to the cultural goals of society, but is critiqued for focusing solely on the class inequalities of men and boys (Belknap, 2015). It is stated in Cohen's expansion of TST that where men and boys experience employment and income related strain, women and girls are burdened only by the need to "marry well" (Cohen, 1955). However, it is notable that contemporary theorists have actively incorporated gender into strain theory. Agnew's (1992) general strain theory (GST), furthered by Broidy and Agnew (1997), specifically attempts to explain gender differences in criminal offending. The authors state that the difference in the types of crimes committed by males and females can be explained by their experience of differences in types of strains (Broidy & Agnew, 1997). For example, males may be more vulnerable to financial types of strain whereas females are more sensitive to problems with family or friends, leading males to commit more serious violent and property crimes and females to steal to finance their social activities or provide for loved ones (Broidy & Agnew, 1997). Broidy and Agnew also hypothesize that males and females differ in their emotional reactions to strain, stating that women experience more depression and guilt, which reduces the likelihood of violent crime.

Sutherland and Cressey's differential association theory (DAT) is yet another example of a non-sex-specific theory that, although promised, rarely incorporates women (Belknap, 2015). While the general premise of DAT is that criminal behaviour is learned, it neglects to discuss the variant aspects of male/female socialization (such as prescribed gender roles and victimization) that may differentially foster criminal activity (Belknap, 2015; Sutherland & Cressey, 1966). Similarly, Hirschi's social control theory (SCT) and his work with Gottfredson on the general theory of crime (GTC) also focuses on social

motivators of criminal activity. Where SCT proposes that criminal activity arises due to an individual's lack of ties to social conventions, GTC reasons that those with low self-control and a greater access to criminal opportunity are most at risk to offend (Gottfredson & Hirschi, 1990; Hirschi, 1969). Both SCT and GTC, however, have been criticized for either excluding or ignoring women and girls in their final models (Belknap, 2015). Despite gender-inclusive claims, it is clear that early mainstream criminological theorists neglected girls and women in theoretical discussions of crime.

The first proper account of female-specific crime was not published until 1975, almost a century following Lombroso's *La Donna Delinquente* (Brown et al., 2017a). With the publication of Rita Simon's *Women and Crime* and Freda Adler's *Sisters in Crime*, female offenders were brought to the forefront of criminological discussion. The authors emphasized the need to distinguish between male and female crime and, unlike almost all their predecessors, used feminism to understand and explain female criminality (Adler, 1975; Simon, 1975). Simon and Adler are accredited with pioneering the "emancipation hypothesis," which speculates that the rise in the female crime rate is positively correlated with the increasing level of freedom and enhanced gender equality brought on by the rise of feminism (Adler, 1975; Simon, 1975).

Pathways Theory

The next significant advancement in female-focused criminological thought was the emergence of Daly's (1992) pathways theory (PT). PT was a groundbreaking development in gendered criminological theory and is considered seminal by leading feminist criminological scholars to understanding female-perpetrated crime (Belknap, 2015). PT posits that males and females engage in criminal activity for different reasons

and have followed unique pathways into the criminal justice system (Daly, 1992). PT posits childhood abuse (physical, sexual, and emotional) may be especially significant for women and girls (Belknap, 2015; Daly, 1992). Generally, PT posits that a traumatic and/or abusive childhood may lead to future criminality and that women and girls are at an increased risk to offend if they have experienced abuse and trauma (Belknap, 2015; Daly, 1992). PT further stresses that abuse and trauma act as catalysts to crime, which may lead to other negative outcomes (such as running away, poor coping strategies, drug addiction, and mental health issues) that are in turn criminalized by the criminal justice system (Belknap, 2015; Daly, 1992).

Several criminologist scholars have researched the prevalence of childhood abuse in the incarcerated population (Terkla, 2005). These studies consistently find that one quarter to one half of female inmates and one quarter of male inmates report having been abused in childhood, ultimately suggesting that abuse is more prevalent in the early childhood of female inmates compared to male inmates (Bloom, Owen, & Covington, 2003; Fletcher, Shaver, & Moon, 1993; Greenfield & Snell, 1999; Harlow, 1999; McClellan, Farabee, & Crouch, 1997). Furthermore, according to both Daly and Reisig, Holtfreter, and Morash (2006), relationally-based factors such as trauma and abuse are particularly important in female pathways to crime. In accordance with this hypothesis, Thompson, Kingree, and Desai (2004) found that in a sample of 8,000 men and 8,000 women, physical abuse in childhood was significantly related to acquiring self-reported chronic mental health issues (such as depression and/or anxiety) for women but not for men. In addition, a study conducted by Soylu and his associates (2016) found that in a sample of 1,250 sexually abused youth (248 males, 1,002 females), rates of substance

abuse were significantly higher among girls than boys. Given that mental health issues and substance abuse are often hypothesized as female-salient risk factors, these may explain how trauma and abuse differentially affect males and females in terms of criminal activity (Belknap, 2015; Brown et al., 2017a).

PT is based largely on retrospective and qualitative interviews with incarcerated women that ask questions relating to their history of abuse and trauma, but there is also a growing body of quantitative research to support the pathways model (Belknap, 2015; Jones et al., 2014; Salisbury & VanVoorhis, 2009). For example, Salisbury and VanVoorhis (2009) conducted an applied path analysis to examine women's potentially unique pathways into the criminal justice system. Using a sample of 313 women probationers, Salisbury and VanVoorhis found support for three pathways to crime that are hypothesized to be female-salient: (1) childhood victimization leads to past and current mental health issues and substance abuse, which lead to crime, (2) women's dysfunctional relationships lead to adult victimization, lowered self-efficacy, mental illness and substance abuse, which lead to crime, and (3) women's obstacles (in education, family support, self-efficacy, and relationship dysfunction) lead to employment and financial difficulties, which lead to crime. Nevertheless, given that this study did not include a male sample, it cannot be inferred that these pathways are unique to females. Jones, Brown, Wanamaker, and Greiner (2014), however, utilized a sample of 1,175 male and 663 female adjudicated youth in detecting two empirically-derived pathways to crime for both boys and girls. Jones and her colleagues identified two thematically distinct pathways within the female subsample: (1) the gendered pathway (including items such as abuse, runaway attempts, times kicked out of home, poverty, and

diagnosed mental health issues) and (2) the traditional antisocial pathway (including items such as antisocial peers, antisocial attitudes, and impulsivity). Males also exhibited two distinct pathways: (1) the “mixed” pathway—which, despite incorporating items such as abuse and runaway attempts, could not be labeled as a gendered pathway due to its inclusion of items such as antisocial attitudes and impulsivity (items that are typically thought of as gender-neutral) and (2) the traditional antisocial pathway (including items such as antisocial peers, defiance of parental authority, and manifestations of violence). Almost half of the female subsample (48%) followed the gendered pathway to crime, whereas only one quarter of the male subsample (25%) followed the mixed pathway (Jones et al., 2014). These findings support PT’s hypothesis that abuse and trauma act as catalysts to crime and are particularly significant to female crime.

It should be noted that not all research supports a unique criminal pathway for girls and women. In a meta-analytic review, Scott (2017a) sought to determine what factors predict recidivism differentially among male and female adolescent offenders. The meta-analysis included 22 unique studies with a total of 11,952 female and 38,649 male participants. Eleven domains were examined, including criminal history, family circumstances and parenting, education and employment, substance abuse, leisure/recreation, personality/behaviour, attitudes/orientation, mental health, social history and environment, childhood abuse and neglect, and overall risk score. Of these domains, most of the observed effect sizes were small or were equally predictive for both males and females. However, it is possible that domain-level comparisons may not yield those gender differences typically argued by feminist-informed theorists and that important gender differences only emerge at the item-level.

Research conducted by Wanamaker, Brown, and Skilling (2015) also provides little support for a unique female pathway into crime. Wanamaker and her colleagues examined the extent to which gender moderates the relationship between abuse and criminal recidivism and found the effect of gender on this relationship to be non-significant. Based on this research, PT's hypothesis that childhood abuse and neglect is more predictive of criminal offending for females than it is for males is questionable. However, these meta-analyses do not rule out the possibility that abuse and trauma are instrumental in the onset of female criminal conduct.

Support for the female-salience of family related variables comes in part from a meta-analytic review of treatment programs for female offenders that found programs were more successful in reducing recidivism when they addressed family process variables, as opposed to those that employed typical intervention targets such as substance abuse and basic education skills (Dowden & Andrews, 1999). While this meta-analysis suggests that family is important, it is unknown exactly what these programs were specifically targeting and hence what made the difference. Similarly, in her PhD dissertation, Jones (2011) found that family history variables were more predictive of female reconviction rates whereas school-related factors were more predictive of male reconviction rates. Still, the literature on these pathways studies is mixed and inconsistent, indicating that there may be an underlying mechanism that is indirectly affecting the relationship between abuse and trauma, gender, and ensuing criminal offending.

Familial dysfunction as a risk factor for aggression and criminal offending.

Although many factors can contribute to an individual's involvement in aggressive or

criminal behaviours, special attention should be paid to childhood adversity and trauma. Compared to 34% of children in a normative sample, research shows that 75-93% of youth in the American criminal justice system have experienced some form of trauma (Justice Policy Institute, 2010). Consequently, research on adverse childhood experiences (ACEs) has become an important focus in forensic psychology literature. Baglivio, Wolff, Piquero, and Epps (2015) used a sample of 64,000 male and female juvenile offenders to conduct research on the relationship between adverse childhood experiences (ACEs) and criminal offending. In this research, Baglivio and his associates measured ACEs using a similar tool to that which will be used in the current study. This tool was used to count the number of ACEs (including physical abuse, sexual abuse, parental neglect, and household dysfunction) each participant had experienced and examine that count alongside each participant's arrest information. The authors found that a larger proportion of youth who had a high number of ACEs (>5) were arrested earlier on in life and that a larger proportion of youth who had high ACE scores were arrested at every age (Baglivio et al., 2015). Baglivio and his colleagues did not, however, mention any gender differences.

In a similar study on adolescent violence and ACEs conducted by Duke, Pettingell, McMorris, and Borowsky (2010), it was found that ACEs were significantly associated with delinquency, bullying, physical fighting, dating violence, weapon-carrying on school property, self-mutilation, suicidal ideation, and suicide attempts. Furthermore, Duke and her associates found that as the number of ACEs increased, so did too the likelihood of delinquency, bullying, physical fighting, dating violence, and

weapon-carrying on school property. This effect was significant for both boys and girls, though the effect was greater for boys than girls (Duke et al., 2010).

Felitti and his colleagues (1998) also conducted an ACE study. This ACE study relied on betrayal trauma theory (BTT), which hypothesizes that childhood abuse perpetrated by someone who is close to the victim, as opposed to someone less known, has a more significant negative impact on the child's mental health (Felitti et al., 1998; Terkla, 2005). Using a sample of 9,508 adults, Felitti and his associates attempted to test BTT by examining the relationship between childhood adversity (e.g., household dysfunction and emotional, physical, and sexual abuse) and disease and other unhealthy behaviour. In his original study, Felitti and his colleagues reported high correlations between ACEs and increased health risks for alcoholism, drug abuse, depression, and suicide attempts. In 2012, Edwards, Freyd, Dube, Anda, and Felitti (2012) expanded on this research using a subscale of four ACE questions adapted from the 8-question Wyatt Sexual History Questionnaire (as cited in Wyatt, 1985). Edwards and her colleagues found that betrayal trauma (specifically that which stemmed from physical and sexual abuse) often led to problems with anger and aggression in later life (though they did not distinguish between different types of aggression).

Much of the research that has been reported thus far neglects to examine gender differences in the relationship between ACEs and negative outcomes and is therefore not especially relevant to PT. Jones, Salisbury, and Kelly (2016), however, conducted one of the few studies that links gender to these variables. The authors created the ACE proxy using a formerly validated assessment tool called the Youth Assessment and Screening Instrument (YASI; Orbis Partners, 2000). This ACE proxy contained 10 items, including

number of foster care placements, times kicked out/run away from home, emotional neglect, parental substance abuse, parental mental health issues, parental criminal record, emotional abuse, violence between parents, physical abuse, and sexual abuse. Using two different samples—one from a large US Midwestern county (1,578 males and 384 females) and one from Alberta, Canada (5,236 males and 1,441 females)—Jones and her associates found several interesting results. First, consistent with past literature, results from both samples showed that females are significantly more likely to experience both physical and sexual abuse, as well as emotional neglect and a higher number of foster care placements (Jones et al., 2016). Second, although higher ACE scores were related to more negative outcomes (such as interpersonal skills deficits, substance abuse, mental health issues, suicidal ideation and/or attempts, and criminal recidivism) for both male and female youth, this effect was stronger for females than for males (Jones et al., 2016). This finding provides support for PT and boosts the rationale for the current study.

In accordance with PT, some scholars suggest that early familial dysfunction (which includes poor parenting practices as well as abuse and trauma) is particularly important in the development of general aggression in girls (Pakaslahti, Spooft, Asplund-Peltola, & Keltikangas-Javinen, 1998). In a study of parents of 26 aggressive 12/13-year-old girls (24 mothers and 13 fathers) and of 32 non-aggressive girls (32 mothers and 24 fathers), results showed that aggressive girls (measured by peer ratings on aggressiveness) are significantly more likely to come from dysfunctional families than are non-aggressive girls. This effect was especially strong when there was a conflictual relationship between mother and daughter. Similarly, much of the literature on familial dysfunction states that delinquent females are significantly more likely than delinquent

boys to have experienced parental negativity, life stress, family conflict, and seriously disrupted parenting evidenced by out-of-home placements (Chamberlain & Reid, 1994; Dembo et al., 1998; Henggeler et al., 1987; Viale-Val and Sylvester, 1993; Webster-Stratton, 1996). Although familial dysfunction has long since been established as a risk factor for aggression and criminal offending in both genders (Bright & Jonson-Reid, 2015; Chamberlain & Reid, 1994; Pakaslahti et al., 1998; Viale-Val & Sylvester, 1993), it is speculated that girls may be more vulnerable to negative family factors (Hipwell & Loeber, 2006). This is likely because female relationships are characterized by greater intimacy and loyalty, along with a higher level of investment in interpersonal relationships (Hartup, 1996; Hipwell & Loeber, 2006; Savin-Williams & Berndt, 1990). This is one of the main points made by Relational Cultural Theory – another theoretical approach that is essential to the study of gendered criminology (Belknap, 2015).

Relational Cultural Theory

Relational Cultural Theory (RCT) was pioneered at Wellesley College in Massachusetts by a group of feminist theorists (Jordan, 2000; Jordan, Kaplan, Miller, Stiver, & Surrey, 1991; Miller, 1986). Generally, RCT postulates that an individual's personal development occurs alongside others' and is therefore inherently tied to the resulting relationships and the cultural context in which they are developed (Spencer, 2000). According to experts on RCT, mature functioning is characterized by growth-fostering relationships, movement towards mutuality, and authentic connection with others (Jordan et al., 1991). Crucial to growth-fostering relationships are five key elements: (1) A commitment to the relationship (mutual engagement), (2) a willingness to be genuine with others (authenticity), (3) a feeling personally strengthened by a

relationship (empowerment/zest), (4) a willingness to accept differences and work through perspectives (ability to deal with conflict), and (5) a desire for a deeper and continued connection (Jordan, 2000; Jordan et al., 1991; Miller, 1986).

Much like PT, RCT incorporates gender into its model. For example, empathic traits such as sensitivity and emotionality are considered typically “female” and may threaten the masculine identity (Jordan, Walker, & Hartling, 2004). Males are therefore steered away from a path of connection and towards individuation, where they are socialized to attribute their worth to power in the form of monetary gain and social standing; conversely, females are socialized to place emphasis on relational competence and maintain their roles as nurturers, which in turn directs them towards relational connection (Chodorow, 1978; Jordan et al., 2004).

Much of the literature surrounding RCT is grounded in qualitative research consisting of interviews with girls and women (Jordan et al., 1991; Spencer, Jordan, & Sazama, 2004). One finding that has emerged from such qualitative analyses that is especially relevant to the current study is that familial dysfunction (through neglect and/or abuse) is particularly detrimental to girls’ development (Chesney-Lind & Shelden, 2003; Robb, 2006). Furthermore, it has been hypothesized within the RCT literature that familial and/or relational dysfunction acts as a catalyst for female crime (Cernkovich, Lanctot, & Giordano, 2008; Chesney-Lind, 2006; Salisbury & Van Voorhis, 2009). According to Miller (1986), relational dysfunction is especially damaging to a woman’s healthy emotional functioning because women tend to place an increased importance on relationships. In response to relational dysfunction, young women are thus more likely to engage in substance abuse—along with other negative outcomes—that are in turn

criminalized by the criminal justice system (Salisbury & Van Voorhis, 2009). Consequently, treatment rehabilitation programs have begun to incorporate RCT principles including the role of relationships and the impact of trauma. Still, the mechanisms through which family dysfunction in general (and childhood abuse more specifically) lead to adolescent criminal offending are not well understood and more research is needed in order to draw reliable conclusions.

The Potential Indirect Effect of Attachment

Perhaps what is missing from these studies is a mechanism to explain how familial dysfunction (including both poor parental practices such as neglect as well as adverse childhood experiences such as childhood abuse) leads to criminal offending and how gender may differentially impact that relationship. The incorporation of attachment, for instance, has potential to shed light on this relationship. Insecure attachment has been found to be predictive of several issues that occur in childhood and adolescence (Unger & Luca, 2014). For example, a history of childhood abuse is associated with insecure attachment (Unger & Luca, 2014). Furthermore, the literature suggests that childhood abuse is positively correlated with insecure attachment in later life (Alexander, 1993; Edwards et al., 2012; Freyd, 1996; Styron & Janoff-Bulman, 1997). These attachment issues persist into adolescence and even adulthood, leading to deviant behaviour and criminal activity (Bright & Jonson-Reid, 2015; Grattagliano et al., 2015). Specifically, criminal offenders have been found to have insecure attachment styles, unstable relationships, and less emotional attachment to others (Ross & Pfäfflin, 2007). Conceivably, then, poor parental practices and/or adverse childhood experiences may lead to aggression (a relationship that is potentially mediated by poor attachment—

specifically insecure attachment) and then in turn to criminal offending. Given the research on gendered pathways to crime, this pathway may also be gender-moderated, but this relationship has yet to be studied. The current study aims to utilize attachment as a mediator (a mechanism through which an independent variable influences a dependent variable) and gender as a moderator (a variable that influences the magnitude of the causal effect of an independent variable on a dependent variable) to analyze this relationship (Hayes, 2013).

Attachment Theory

Historical Overview

Introductory psychology textbooks focus predominately on John Bowlby's theory, which describes attachment as "a deep, affectionate, close, and enduring relationship with the person with whom a baby has shared many experiences" (Bernstein, Cramer, Fenwick, & Fraser, 2008, p. 455). Child development textbooks broaden this rudimentary explanation beyond infancy, defining attachment as "the strong, affectionate tie that humans have with special people in their lives, which leads them to feel pleasure when interacting with those people and to be comforted by their nearness in times of stress" (Berk, 2013, p. 428). These descriptions are based on the combined work of John Bowlby and Mary Ainsworth—both pioneering figures in the field of today's attachment research.

Following World War II, John Bowlby was working in a house for maladjusted boys and witnessed firsthand the grave effects of negative attachment (Cassidy & Shaver, 1999). Given that the war produced an abundance of orphaned children, Bowlby was inspired to learn more about attachment (Cassidy & Shaver, 1999). Bowlby pioneered

attachment theory in several papers, beginning with “The Nature of a Child’s Tie to His Mother” published in 1958, which is now widely known as the first basic outline of attachment theory (Bretherton, 1992). Like many before him, Bowlby based this theory of attachment on ethology and biology. He believed that infant-mother attachment acted as a survival mechanism for the child, one that increases their likelihood of success and growth (Bowlby, 1969). Consistent with other approaches to attachment theory, he states that children develop attachment behaviours when the caregiver consistently meets his or her physiological and emotional needs (Bowlby, 1969). According to Bowlby (1969), infant attachment behaviours such as smiling, vocalizing, crying, approaching, and following, are simply attempts to increase proximity to the attachment figure. Some behaviours (such as smiling and vocalizing) signal the caregiver to approach the child for interaction, while others (such as crying) alert the caregiver to terminate some aversive stimuli (Cassidy & Shaver, 1999). Children also engage in “active attachment behaviours,” such as approaching and following, to become closer to their caregivers (Cassidy & Shaver, 1999). What made Bowlby the father of attachment theory was not, however, his focus on ethology and biology, but rather his interest in social interactions (Cassidy & Shaver, 1999).

Bowlby was one of the first to elaborate on the idea that attachments to caregivers are not derived from physical gratification, but rather from social interactions between children and their caregivers (Bowlby, 1969). Fundamental to his theory is that attachment acts as a “primary motivational system,” one that is separate from hunger, pleasure, and other physical gratification (Bowlby, 1969). According to Bowlby (1969), children become attached to their caregivers and engage in attachment behaviours

regardless of whether or not their physiological needs are being met. In fact, early research illustrated that infants can become attached even to abusive mothers (Ainsworth, 1967; Bowlby, 1956; Harlow, 1959). Bowlby's major conclusion, however, is that to be a mentally healthy adult, "the infant and young child should experience a warm, intimate, and continuous relationship with his mother (or permanent mother substitute) in which both find satisfaction and enjoyment" (Bowlby, 1951, p. 11).

Mary Ainsworth's work on attachment, first alone and then in collaboration with Bowlby, was essential to the emergence of modern attachment theory. Ainsworth (1989) developed the idea of an "attachment bond," which refers to an affectional tie between the child and caregiver that is formed by attachment behaviours. According to her initial theory, forming positive attachment is an evolutionary behaviour in that infants with increased chances of survival are those that are protected by caregivers in close proximity (Ainsworth, 1967). Initially, infants behave in ways that attract the attention of a caregiver, though they are not directed towards any one person specifically (Ainsworth, 1967). As children develop both physically and mentally, they can better discriminate between principal caregivers and other persons (Ainsworth, 1967). Children are said to be capable of attachment when they are aware that the caregiver exists even when they are not physically present (Ainsworth, 1967). In her early works, she describes attachment as a response to how mothers and children interact during infancy and the behaviours (e.g., approaching and following) surrounding this relationship (Ainsworth, 1967). More recently, and along with other attachment researchers, she expanded this definition of attachment to include long-lasting connections with primary caregivers and friends in both childhood and adulthood (Ainsworth, 1989; Bowlles, 2010).

Ainsworth (1963) is credited with publishing the first empirical study of modern day attachment theory as related to humans. Ainsworth conducted an observational study aimed to examine infant-mother relations using a sample of Ugandan mothers. She recruited 26 families with unweaned babies and observed them for 2 hours every second week over the course of 9 months. Grounded in Bowlby's work (1951), she observed three types of attachment styles: (1) insecurely attached infants who cried frequently, explored little, and did not calm upon being held, (2) securely attached infants who cried rarely and explored often, and (3) infants who had not yet developed attachments to their mothers "showed no differential behaviour to the mother" (Ainsworth, 1963, 1967).

Ainsworth and Bowlby published their first combined account of attachment theory in 1991. In this paper, they emphasize the integration of social learning theory with evolutionary theory to produce a theory of attachment that covers affectional bonds outside of the infant-mother relationship (Ainsworth & Bowlby, 1991). Ainsworth and Bowlby (1991) focused on attachment and personality, drawing on Bowlby's prior works in which he commented on the effect of early attachment experiences on personality development. Much of the research following Bowlby and Ainsworth's work focuses on this idea of attachment as a major factor in personality development, as well as attachment outside of the infant-mother relationship (including father-infant relationships, the father-mother-child triad, adult attachment, and marital relationships) (Marrone, 2014). Specifically, early attachment experiences are theorized to shape later attachment styles and the quality of one's relationships (Marrone, 2014).

Contemporary Attachment Theories

Attachment models have evolved considerably since Ainsworth's (1963) original model that recognized two distinct attachment styles—secure and insecure (see Ainsworth, 1978; Ainsworth & Bowlby, 1991; Bowlby, 1982 for further iterations). Bartholomew's (1990) fourfold classification system of attachment, for example, is a relatively recent model that is heavily grounded in Bowlby's internal working models of the self and other (Bowlby, 1973; Mercer, 2006). Bowlby's two-dimensional model addresses two questions: (1) Am I a worthy and lovable person? and (2) Are others (attachment figures) trustworthy and caring? (Bowlby, 1973). These questions divide the model into two separate dimensions, models of self and models of others, which vary from emotionally negative to positive (Bowlby, 1973). For example, a person who is skeptical and wary of others but confident and self-sufficient would have a negative valence in the "others" model and a positive valence in the "self" model.

Building on Bowlby's self/other model, Bartholomew (1990; Bartholomew and Horowitz, 1991) proposed a fourfold attachment classification system comprised of four attachment styles: secure, dismissing, fearful, and preoccupied. These attachment styles are derived from the four possible combinations resulting from Bowlby's internal working models of the self and other. As previously mentioned, models of the self and other can be either positive (the self as worthy of love and attention; the other as trustworthy, caring, and available) or negative (the self as unworthy; the other as rejecting, uncaring, and distant) (Bartholomew, 1990). The unique combination of these factors give rise to either secure, dismissing, fearful, or preoccupied attachment (see Table 1).

Secure attachment. Those with secure attachment are thought to have experienced warm and responsive parenting and thus score in the positive range of both the self and other (Bartholomew, 1990). Those with secure attachments to their caregivers are comfortable with intimacy and autonomy, meaning that they have few interpersonal problems and exhibit high self-esteem. This attachment style is characterized by an individual's expectation that others are generally accepting and responsive (Bartholomew & Horowitz, 1991). Secure attachment to caregivers give rise to stable and fulfilling relationships in later life (Bartholomew, 1990). In studies recognizing three attachment classifications (secure, insecure-avoidant, and insecure-resistant), about 70% of infants have been classified as securely attached (Ainsworth, 1978). In studies containing Bartholomew's (1990) fourfold model, approximately 47% of young adults in a normative sample tend to be securely attached; no gender differences are noted (Bartholomew & Horowitz, 1991).

Dismissing attachment. According to Bartholomew (1990), dismissive attachment emerges when a child's attachment needs (close, warm, and responsive parenting) are not met. Those with dismissive attachment score in the positive range of the self and the negative range of the other. These individuals maintain a positive self-image and protect themselves from rejection by distancing themselves from relationships. This means that dismissively attached individuals are independent and avoid forming relationships with others. Dismissive attachment is characterized by a preoccupation with achievement (through impersonal aspects of life such as work and/or hobbies) and the assumption that others will be untrustworthy and rejecting (Bartholomew & Horowitz, 1991). In studies recognizing three attachment classifications (secure, insecure-avoidant,

and insecure-preoccupied), about 20% of American infants have been classified as avoidant-insecure, which closely resembles dismissing attachment (Ainsworth, 1978). In studies containing Bartholomew's (1990) fourfold model, approximately 18% of young adults in a normative sample tend to be dismissively attached; no gender differences are noted (Bartholomew & Horowitz, 1991).

Fearful attachment. Those with fearful attachment are negative in both self and other; they are therefore typically fearful of intimacy and socially avoidant (Bartholomew, 1990). Fearful attachment is formed when a caregiver neglects a child's attachment needs (e.g., rejection), which leads the child to believe that others are uncaring and that they themselves are consequently unlovable. Fearful attachment is similar to dismissive in that they both involve a negative evaluation of others, but differ in the individual's sense of self-worth. Whereas dismissing individuals generally believe themselves to be worthy of love, fearful attachment is characterized by a poor sense of self-lovability (Bartholomew & Horowitz, 1991). In addition, fearfully attached individuals desire social contact, but have a deep-seated fear of rejection and distrust for others (Bartholomew, 1990). In studies recognizing three attachment classifications (secure, insecure-avoidant, and insecure-preoccupied), about 10% of American infants have been classified as avoidant-resistant, which closely resembles fearful attachment (Ainsworth, 1978). In studies containing Bartholomew's (1990) fourfold model, approximately 21% of young adults in a normative sample tend to be fearfully attached; no gender differences are noted (Bartholomew & Horowitz, 1991).

Preoccupied attachment. Preoccupied attachment emerges from insensitive and inconsistent parenting (Bartholomew, 1990). Individuals are said to have preoccupied

attachment if they are negative in self and positive in other; they are therefore overly dependent on others and exhibit engrained feelings of unworthiness. Those with preoccupied attachments to others are particularly concerned with the status of their relationships. Preoccupied attachment is characterized by a poor sense of self-worth and a positive evaluation of others. The preoccupied individual develops self-acceptance through outside approval (Bartholomew & Horowitz, 1991). In studies containing Bartholomew's (1990) fourfold model, approximately 14% of young adults in a normative sample tend to have preoccupied attachment; no gender differences are noted (Bartholomew & Horowitz, 1991).

Table 1

Attachment Style by Orientation (Self vs. Other)

Attachment Style	Orientation	
	Self	Other
Secure	Positive range i.e., comfortable with autonomy	Positive range i.e., comfortable with intimacy
Dismissing	Positive range i.e., comfortable with autonomy	Negative range i.e., denial of attachment
Fearful	Negative range i.e., low self-worth/esteem	Negative range i.e., socially avoidant
Preoccupied	Negative range i.e., low self-worth/esteem	Positive range i.e., overly dependent on others

Note. Adapted from Bartholomew (1990).

Bartholomew (1990) therefore established three types of insecure attachment: preoccupied, fearful, and dismissing. Insecure attachment emerges from negative experiences with caregivers and includes dismissive, preoccupied, and fearful attachment

(Bartholomew, 1990). Bartholomew's model also includes secure attachment, along with the overarching "self" and "other" scales. Measures of attachment vary in terms of the models on which they are based and there is no one consistent measure used throughout the literature. Given that Bartholomew's fourfold model gave rise to the Adolescent Relationship Scales Questionnaire (Scharfe & Bartholomew, 1995) and that the current study utilizes a sample of adolescents, it is Bartholomew's model that guides this research.

Attachment Style and Behavioural Outcomes

There is empirical support that attachment style is related to a number of behavioural outcomes. Tanaka and his colleagues (2008) conducted a correlational study examining psychosocial correlates of attachment using a population of 4,226 unmarried university students (2,896 women; 1330 men). The researchers found that fearful and preoccupied individuals report higher instances of being bullied at school and often engage in "wishful thinking", indicative of low self-directedness. It was also found that dismissive individuals show little interest in interpersonal relationships. Tanaka et al. explain that those with dismissive attachment are not anxious around others and do not actively evade social interaction; they are just simply not interested in forming intimate relationships. The research team also found that individuals with a more secure attachment style behave affectionately and are more relaxed, energetic, and outgoing than preoccupied, fearful, and dismissing individuals. Furthermore, in an exploratory correlational study conducted on 323 university undergraduate students in Michigan, secure attachment was found to be related to altruism, cooperative behaviours, and maturity (Meyers, 1998). Meyers (1998) also found that those with secure attachment to

others generally show lower levels of psychological distress and greater self-esteem. No gender differences were reported in either study.

In the interest of determining correlates of the different attachment styles, Moss, Bureau, Cyr, Mongeau, and St-Laurent (2004) conducted a correlational study using a population of 153 three-year-olds (71 girls; 82 boys). Moss and her colleagues (2004) considered four types of attachment that closely resemble Bartholomew's (1990) fourfold model: secure attachment, insecure-avoidant (dismissing) attachment, insecure-dependent (preoccupied) attachment, and insecure-disorganized (fearful) attachment. The authors found that children with insecure-disorganized (fearful) attachment showed significantly higher levels of both internalizing and externalizing problems than the other groups (Moss et al., 2004). It was also found that insecure-disorganized (fearful), insecure-dependent (preoccupied), and insecure-avoidant (dismissing) individuals exhibited significantly higher levels of aggression than securely attached individuals, although no differences were found between the three insecure groups (Moss et al., 2004). No gender differences were reported.

Attachment, Aggression, Criminality, and Gender

Beginning in the early 2000s, anger and aggression based research moved to the forefront of the literature examining gendered explanations of attachment, emotionality, and behavioural issues (Beckner, 2005; Farnicka & Grzegorzewska, 2015; Feiring et al., 2002). In 2002, Feiring and her associates conducted a correlational study examining the relationship between attachment and emotional styles with patterns of aggression in relationships. The sample consisted of 254 adolescents (94 boys; 160 girls), in grade 9-12, from the Philadelphia Metropolitan area (Feiring et al., 2002). Feiring and her

colleagues found that girls with a less secure view of their peer friendships were significantly more likely to engage in aggressive behaviours. In contrast, it was found that adolescent boys (also with less secure views) do not show relational trends in aggressive conduct. These results suggest that secure attachment is less important in predicting relationally-motivated aggression among boys. Feiring and her colleagues (2002) did not however examine the effect of abuse on attachment style, and therefore could not look at attachment as a mediator to aggression and/or crime.

In her PhD dissertation on attachment as a predictor of female aggression, Beckner (2005) came to similar conclusions on gendered explanations of attachment and aggression. Her sample consisted of 60 adults from the community, as well as 82 adults from the Texas Community Supervision and Corrections Department, for a total number of 142 participants (83 females; 59 males). Using correlational procedures, Beckner found that female aggression had a stronger relational component than male aggression, suggesting that female aggression is more likely to be relationally-motivated. Furthermore, using regression analyses, it was concluded that insecure attachment styles are more strongly associated with female aggression (measured using the total aggression score from the Aggression Questionnaire) than male aggression. This finding corresponds with the results of other research on female aggression (Feiring et al., 2002).

There are flaws with Beckner's (2005) research, however. For example, she assessed the relational component of aggression with the Aggression Questionnaire (AQ), which is problematic since it contains five subscales (physical aggression, verbal aggression, anger, hostility, and indirect aggression), only one of which maps onto relational aggression (indirect aggression). Furthermore, despite noting that the fourfold

model is becoming an integral part of the way in which attachment is both measured and described, Beckner used the Adult Attachment Scale (which distinguishes between three lesser known attachment styles: close attachment, dependent attachment, and anxious attachment) as her only measure of attachment. The Adult Attachment Scale is both less popular and intuitive than other models of attachment (i.e., Bowlby's internal-working models of the self and other, Ainsworth's three-dimensional model, and Bartholomew's fourfold model).

Although most of the attachment literature in this field does not conceptualize attachment as a mediator, it is important to note that one particular article, written by Grady and her colleagues (2016), did theorize that attachment acts as an explanatory link between childhood adversity and sexual offending in adulthood. Their theoretical model suggests that adverse childhood experiences (ACEs) lead to insecure attachments, which in turn lead to social and psychological deficits, which are risk factors for sexually violent behaviours. Additional research testing this model has not yet been conducted. Grady et al.'s model, however, is limited due to its singular emphasis on sexual offending and its exclusion of gender-specific analyses.

It is clear that the literature is mixed in terms of gendered explanations of attachment and aggression. While some research indicates that there are in fact gender differences, a small number produce null results. For example, Farnicka and Grzegorzewska's (2015) conducted a study on interpersonal correlates of adolescent aggression. The authors used the Inventory of Peer and Parent Attachment to measure attachment and the Aggression Questionnaire to measure aggression. Farnicka and Grzegorzewska found no gender differences in terms of attachment's impact on feelings

of anger. Attachment did, however, have a general impact on feelings of anger and aggressiveness in both genders. Specifically, Farnicka and Grzegorzewska found that insecure attachment was highly correlated with aggression and anger in male and female adolescents. Konishi and Hymel (2014) produced similar results in their correlational study on attachment and anger among adolescents in southwestern Canada, also reporting no gender differences.

Research on gender, criminality, delinquency, and the effect of attachment to family is scarce and often yields contradictory results. Some studies suggest that the effect of insecure attachment is stronger for males (Peterson & Zill, 1986), whereas others state that it is especially problematic for females (Bachman & Peralta, 2002). Still, some research concludes that gender does not influence the relationship between attachment and adolescent delinquency (Sokol-Katz, Dunham, & Zimmerman, 1997). For example, a path analysis study conducted by Sokol-Katz and her colleagues (1997) utilized a sample of data (consisting of 599 boys and 596 girls aged 11-14) to examine the relationship between family characteristics and adolescent deviant behaviours (such as delinquency and substance abuse). Sokol-Katz and her associates used the Family Loyalty Scale (a questionnaire created by the authors consisting of questions about the participants' family) to measure family attachment and the Student Questionnaire (Kaplan et al., 1986; as cited in Sokol-Katz et al., 1997) to measure delinquency. The authors found that gender and attachment style did not interact with regards to predicting delinquent behaviour; lower levels of family attachment were associated with delinquent behaviour irrespective of gender.

Another study conducted by Peterson and Zill (1986), however, did observe gender differences. Peterson and Zill utilized longitudinal data from the National Survey of Children, observing information on 2,301 children from 1,747 households. The children were 7-11 years of age at the first wave of the study and 12-16 at the second. Peterson and Zill used a series of questions about the parent-child relationship to measure attachment and another series of questions (adapted from the Behaviour Problems Index) to measure depressed/withdrawn behaviour, antisocial behaviour, impulsive/hyperactive behaviour, and other behaviour problems at school. Based on the results of their analyses, Peterson and Zill conclude that the effect of attachment (on antisocial behaviour and behavioural problems at school) is more important for males than it is females.

More recent research conducted by Bachman and Peralta (2002) observed the opposite trend. In their study on 2,643 high school seniors (46% male, 54% female), Bachman and Peralta used a home/parent environment variable (consisting of questions about the participant's family life) to measure family attachment and a violence variable (consisting of questions about the participant's history of violence) to measure violent tendencies. The results of this correlational study suggest that female violent behaviour is most affected by attachment (Bachman & Peralta, 2002).

Still, a relatively recent correlational meta-analysis on attachment, gender, and adolescent delinquency (74 studies and 63 effect sizes) by Hoeve and her colleagues (2012) suggests that gender does not moderate the attachment-delinquency link. These results are mixed and inconsistent, meaning that more research should be conducted to disentangle the relation between gender and attachment style and their effects on violent and delinquent behaviour (and criminal activity specifically). Given the increased

emphasis women and girls place on the quality of their relationships, is possible that gender moderates the relationship between attachment style and criminality, but there is little conclusive evidence on this interaction.

Current Study

In sum, there are very few notable studies on the associations between childhood adversity, attachment, relationally-motivated aggression, and criminal offending. In addition, most researchers in this area do not acknowledge the possible effect of gender on the relationships between poor parental practices and adverse childhood experiences, attachment, and crime and aggression. Given the research on the relational component of female crime and aggression (evidenced in the section outlining attachment, aggression, and gender), it is reasonable to suggest that attachment is a fruitful direction for future research. Based on the existing literature, this study has three goals: (1) To examine the effect of gender on attachment style in an adolescent offender sample, (2) To determine if attachment indirectly influences the relationship between familial dysfunction (including both poor parental practices and childhood abuse) and general recidivism, and (3) To determine if attachment indirectly influences the relationship between familial dysfunction and both indirect and relationally-driven aggression.

The current study aims to expand upon past research in a number of ways. Firstly, this study includes the Adolescent Relationship Scale Questionnaire (including secure, preoccupied, fearful, and dismissing attachment styles), which is a more applicable measure of adolescent attachment than the Adult Attachment Scale which was used in Beckner's (2005) research. In addition, there is limited research on the explanatory link between attachment and crime beyond sexual offending (Grady et al., 2016). In contrast,

this study also uses recidivism data, which adds a prospective component to past research (which is primarily correlational in nature). Furthermore, past research often uses indirect and relational aggression interchangeably. This is problematic because although these two constructs share some overlapping characteristics (i.e., gossiping and social exclusion; Campbell, 1999), they are not entirely consistent and measures that are used for indirect aggression therefore do not necessarily get at the roots of relational aggression. Consequently, the current study utilizes a relationally-driven index offence variable that was reported by participants from the set of archival data being used. This variable contains information on the type of offence committed (aggressive offences include homicide, assault, and uttering threats) and the offender's relationship to their victim (known victims include family members, friends, and significant others). If the participant committed an aggressive offence against a known victim, this is categorized as relationally-driven aggression. As opposed to simply using indirect aggression to measure relational aggression (see Beckner, 2005), the relationally-driven index offence variable (described in more detail under the methods section) will be used alongside indirect aggression. Finally, gender differences were often overlooked or excluded in earlier research, which is especially problematic because it may mask potentially significant effects and lead to inconsistent results (such as those found in past literature). The current study will address this issue by including gender as a moderator.

Research questions and hypotheses. Based on the literature review above, the following research questions and hypotheses will be explored in this study:

Research question #1. Does the nature of attachment style (i.e., fearful, preoccupied, dismissing, and secure attachment) measured using the Adolescent

Relationship Scales Questionnaire in an adolescent offender sample vary as a function of gender? Although Bartholomew and Horowitz (1991) found no association between gender and attachment style in a normative sample, the current study contains a sample of justice-involved youth, which may lead to different results. This will therefore be an exploratory analysis; no hypotheses will be made regarding potential gender differences and/or similarities.

Research question #2a. Is the relationship between poor parental practices and general recidivism mediated by (indirectly linked through) attachment style? Poor parental practices are measured using the static and dynamic risk factors from the family section of the Youth Assessment and Screening Instrument (YASI). It is important to distinguish between poor parental practices (which includes more global measures of familial dysfunction such as neglect and family conflict) and adverse childhood experiences (ACEs; which include more specific items from the YASI such as abuse, trauma, and mental health indicators) given the detrimental impact of abuse and trauma on aggression and criminality.

Hypothesis for research question #2a. Given the research linking familial dysfunction to insecure attachment (Mercer, 2006) and insecure attachment to crime (Bright & Jonson-Reid, 2015), it is hypothesized that insecure attachments (fearful, preoccupied, dismissing, and the absence of secure attachment) will mediate the relationship between poor parental practices and general recidivism.

Research question #2b. Is the relationship between ACEs and general recidivism mediated by (or indirectly linked through) attachment style?

Hypothesis for research question #2b. Given the research linking abuse to insecure attachment (Unger & Luca, 2014) and insecure attachment to crime (Bright & Jonson-Reid, 2015), it is hypothesized that insecure attachments (fearful, preoccupied, dismissing, and the absence of secure attachment) will mediate the relationship between ACEs and general recidivism.

Research question #3a. Is the relationship between poor parental practices (measured using the static and dynamic risk factors from the family section of the YASI) and relationally-driven aggression (measured using a relationally-driven index offence variable) mediated by attachment style? Does gender moderate this effect?

Hypothesis for research question #3a. Given the research linking familial dysfunction to insecure attachment (Mercer, 2006) and insecure attachment to female relational aggression (Feiring et al., 2002), it is hypothesized that insecure attachments (fearful, preoccupied, dismissing, and the absence of secure attachment) will mediate the relationship between poor parental practices and relationally-driven aggression more strongly for females than for males.

Research question #3b. Is the relationship between ACEs and relationally-driven aggression mediated by attachment style? Does gender moderate this effect?

Hypothesis for research question #3b. Given the research linking abuse to insecure attachment (Unger & Luca, 2014) and insecure attachment to female relational aggression (Feiring et al., 2002), it is hypothesized that insecure attachments (fearful, preoccupied, dismissing, and the absence of secure attachment) will mediate the relationship between ACEs and relationally-driven aggression more strongly for females than males.

Research question #4a. Is the relationship between poor parental practices and indirect aggression (measured using the indirect aggression subscale from the Direct/Indirect Aggression Scales) mediated by attachment style? Does gender moderate the nature of this mediated effect?

Hypothesis for research question #4a. Given the research linking familial dysfunction to insecure attachment (Mercer, 2006) and insecure attachment to female relational aggression (Feiring et al., 2002), it is hypothesized that insecure attachments (fearful, preoccupied, dismissing, and the absence of secure attachment) will mediate the relationship between poor parental practices and indirect aggression in both genders, but more strongly for females.

Research question #4b. Is the relationship between ACEs and indirect aggression mediated by attachment style? Does gender moderate the nature of this mediated effect?

Hypothesis for research question #4b. Given the research linking childhood abuse to insecure attachment (Unger & Luca, 2014) and insecure attachment to female relational aggression (Feiring et al., 2002), it is hypothesized that insecure attachments (fearful, preoccupied, dismissing, and the absence of secure attachment) will mediate the relationship between ACES and indirect aggression in both genders, but more strongly for females.

Methods

Participants and Procedures

Three-hundred and twelve justice-involved youth (68% male ($n = 211$), 32% female ($n = 101$) from central and eastern Ontario participated in the study. Study participants were part of a larger ongoing *Gendered Pathways to Delinquency and*

Implications for Risk Assessment Project examining the extent which gender influences pathways to the criminal justice system and risk assessment ($N = 340$; Brown & Skilling, 2010). Participants were recruited from a probation office, two secure custody facilities, four open custody facilities, and one mental health centre. Participants were then interviewed by trained researchers or clinicians. Clinicians at the mental health centre included a psychologist, a psychiatrist, and two social workers. Each clinician had several years of experience conducting risk and mental health assessments for adolescent offenders. The trained researchers included the principal investigator (Dr. Brown), as well as graduate and undergraduate students from Carleton University and the University of Toronto. Eight percent ($n = 28$) of the original *Gendered Pathways sample* did not complete the questionnaire portion of the larger study and were subsequently excluded from all further analysis.

The assessment process for each youth took approximately 6 to 8 hours; this included face-to-face interviews, the completion of self-report questionnaires, official file reviews and rater-based scoring. Probation and custody-based youth were compensated up to \$30.00 (community-based youth received gift cards while custody-based youth received canteen money) depending on whether they participated in just the interview portion of the study or the self-report questionnaire component as well. Offenders who were assessed at the mental health centre were not compensated because they were already being assessed as part of the regular court process and had consented to have their assessment results used for research purposes. The *Pathways Study* was accepted by three independent research ethics boards (REBs), including one university REB, one hospital REB, and one government REB.

The mean age for the sample was 16.83 ($SD = 1.26$), range: 12 to 21. An independent-samples t-test revealed that there were no gender differences in age (males: $M = 16.90$, $SD = 1.28$; females: $M = 16.68$, $SD = 1.22$; $t(308) = 1.47$, $p = .14$, Cohen's $d = .17$).

Participants identified themselves as Caucasian (43.6%, $n = 136$), of African-descent (23.1%, $n = 72$), Aboriginal (4.8%, $n = 15$), Asian (2.9%, $n = 9$), Hispanic (2.2%, $n = 7$), East Indian (1.6%, $n = 5$), and other or unidentified (21.8%, $n = 68$). To test if there were any gender differences in race, a 5-level collapsed race variable was created using the following categories: Caucasian, African-descent, Aboriginal, other, and unidentified. A chi-square test of independence revealed significant gender differences, $\chi^2(4, N = 312) = 20.29$, $p < .001$, $\Phi_{\text{Cramer}} = .26$; specifically, males more frequently identified as being from African-descent than did females (males: 33.6%, $n = 71$; females: 17.8%, $n = 18$) and females more frequently identified as Caucasian than did males (females: 61.4%, $n = 62$; males: 35.1%, $n = 74$). Note that these results should be interpreted cautiously given that two cells have an expected count of less than five. See Table 2 for more detail.

Table 2

Percent of Males and Females by Race

Race	Total % (n/312)	Male % (n/211)	Female % (n/101)
Caucasian	43.6 (136)	35.1 (74)	61.4 (62)
African-descent	28.5 (89)	33.6 (71)	17.8 (18)
Aboriginal	4.8 (15)	4.7 (10)	5.0 (5)
Other	18.3 (57)	20.9 (44)	12.9 (13)
Unidentified	4.8 (15)	5.7 (12)	3.0 (3)

Note. These results should be interpreted cautiously given that two cells have an expected count of less than five.

At the time of assessment, the participants were either at the Centre for Addictions and Mental Health (CAMH; 24.0%, $n = 75$), convicted and serving their sentences in either open (4.5%, $n = 14$) or secure (51.9%, $n = 162$) custody, or in the community on probation (19.6%, $n = 61$). A chi-square test of independence revealed significant gender differences in assessment location, $\chi^2(3, N = 312) = 49.33, p < .001$, $\Phi_{\text{Cramer}} = .40$; specifically males were more likely to be interviewed at CAMH than were females (males: 33.6%, $n = 71$; females: 4%, $n = 4$) and females were more likely to be interviewed on probation than were males (females: 36.6%, $n = 37$; males: 11.4%, $n = 24$). Note that these results should be interpreted cautiously given that one cell had an expected count of less than five. See Table 3 for more detail.

Table 3

Percent of Males and Females by Assessment Location

Assessment Location	Total % (n/312)	Male % (n/211)	Female % (n/101)
Secure Custody	51.9 (162)	51.7 (109)	52.5 (53)
Open Custody	4.5 (14)	3.3 (7)	6.9 (7)
CAMH	24.0 (75)	33.6 (71)	4.0 (4)
Probation	19.6 (61)	11.4 (24)	36.6 (37)

Note. These results should be interpreted cautiously given that one cell has an expected count of less than five.

Furthermore, at time of assessment 42.6% of the sample ($n = 133$) was on remand awaiting sentencing. Of this 42.6%, 82.0% were in custody ($n = 109$) and 18.0% were in the community ($n = 24$). A chi-square test of independence revealed no significant gender differences in remand location, $\chi^2(1, N = 133) = 3.86, p = .05, \Phi_{\text{Cramer}} = .17$. Formal disposition information was not available for the CAMH participants; however, this sample tends to approximate secure custody youth and represents justice-involved youth who have been court ordered to receive a comprehensive forensic risk and mental health assessment (T. Skilling, personal communication, June 11, 2017).

Participants' index offences (the offence(s) for which the youth had been remanded or convicted for at time of the original pathways assessment) were clustered into five groups (based on ministry guidelines; violent, other violent, non-violent, other non-violent, and administrative) to analyze frequencies and gender differences. A breakdown of offences included in each category by gender can be found in Table 4. In terms of the nature of the participants' index offences, 43.9% ($n = 137$) of the participants

had been convicted or remanded for violent offences, 33.0% ($n = 103$) were convicted or remanded for other violent offences, 34.0% ($n = 106$) were convicted or remanded for non-violent offences, 28.5% ($n = 89$) were convicted or remanded for other non-violent offences, and 55.1% ($n = 172$) were convicted or remanded for administrative offences. See Table 4 for more detail.

Table 4

Percent of Males and Females by Index Offence Cluster

Index Offence Cluster	Total % (n/311)	Male % (n/210)	Female % (n/101)	χ^2	Φ
Violent	44.1 (137)	43.8 (92)	44.6 (45)	.02	.01
Homicide	4.2 (13)	4.3 (9)	4.0 (4)	.02	-.01
Violent Sexual	5.5 (17)	8.1 (17)	0.0 (0)	8.64**	-.17
Assault-Related	35.7 (111)	32.9 (69)	41.6 (42)	2.26	.09
Other Violent	33.1 (103)	41.9 (88)	14.9 (15)	22.53***	-.27
Serious Violent ^a	26.4 (82)	33.3 (70)	11.9 (12)	16.17***	-.23
Weapons-related	15.1 (47)	20.5 (43)	4.0 (4)	14.50***	-.22
Non-Violent	34.1 (106)	34.3 (72)	33.7 (34)	.01	-.01
Break and Enter	10.3 (32)	12.9 (27)	5.0 (5)	4.62*	-.12
Fraud and Related	1.0 (3)	1.0 (2)	1.0 (1)	.00	.00
Theft and Possession	20.9 (65)	21.4 (45)	19.8 (20)	.11	-.02
Arson/Property Damage	8.4 (26)	6.7 (14)	11.9 (12)	2.42	.09
Other Non-Violent	28.6 (89)	30.5 (64)	24.8 (25)	1.10	-.06
Non-Violent Sexual	4.8 (15)	6.7 (14)	1.0 (1)	4.79*	-.12
Traffic/Import Drugs	5.1 (16)	5.7 (12)	4.0 (4)	.43	-.04
Misc. Offences ^b	11.3 (35)	11.4 (24)	10.9 (11)	.02	-.01
Obstruction of Justice	6.4 (20)	5.7 (12)	7.9 (8)	.55	.04
Drug Possession	4.8 (15)	5.7 (12)	3.0 (3)	1.12	-.06
Administrative	55.3 (172)	53.3 (112)	59.4 (60)	1.02	.06

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. ^aSerious violent offences include assault before/after robbery, extortion, forcible confinement, kidnap with intent to forcibly confine, material benefit, robbery/theft with a weapon, robbery, robbery threat/violence, trafficking in persons, and wounding with intent (firearm).

^bMiscellaneous offences include administration of substance to obtain sex, attempt to intimidate with violence, criminal harassment, criminal harassment conduct, intimidate/violence, and uttering threats to destroy property or cause death/serious harm.

According to Statistics Canada (2014), the most frequent criminal offences committed by justice-involved youth (JIY) are theft, mischief, common assault, cannabis possession, and offences related to the administration of justice. In contrast, the youth in the current sample were more likely to have committed assault (27% vs. 36%), theft (7% vs. 21%), sexual offences (2% vs. 10%), and violent offences in general (52% vs. 80%). Furthermore, according to Statistics Canada (2014), 44% of girls were charged with violent offences (compared to 60% in the current sample). Thus, the participants involved in this study (particularly the girls) were not an average sample of JIY.

Measures

Several questionnaires were administered to participants in the *Pathways Study*, though only a select few will be used for the purposes of this study.

Adolescent Relationship Scale Questionnaire. There are numerous attachment measures for adults and children, which is important due to the changing nature of attachment across the lifespan (Mercer, 2006). There are, however, very few measures that focus solely on adolescent attachment. The Adolescent Relationship Scales Questionnaire (ARSQ) is one such measure. The ARSQ was developed by Scharfe and Bartholomew (1995) from the parallel adult measure, the Relationship Scales Questionnaire (Griffin & Bartholomew, 1994). This questionnaire aims to measure an adolescent's attachment to others, as well as feelings about said attachment.

The ARSQ is a continuous measure made up of 17 items in which a 7-point Likert scale is used to show the degree to which a statement describes the participant's feelings. Four subscales make up this questionnaire, representing each attachment style (secure, fearful, preoccupied, and dismissing). Each subscale contains 4-5 questions pertaining to

each attachment style. To calculate a mean score for each subscale, the scores on each of the questions are added up and divided by the number of questions; thus each subscale has a plausible range of 1 to 7. Each of the four subscales describe aspects of the participants' relationships and patterns of attachment. Specifically, the secure subscale assesses comfort with being close to, and depending on others. The fearful subscale measures anxiety over being hurt by others in relationships. The pre-occupied subscale measures the extent to which participants worry that people do not really care about them. Lastly, the dismissing subscale measures lack of desire for emotional closeness with others. A few specific questions directed at measuring the different attachment styles include: (1) *I find it hard to count on other people* (fearful attachment), (2) *I want to be completely emotionally close with others* (preoccupied attachment), (3) *I am comfortable depending on other people* (secure attachment), and (4) *It is very important to me to feel independent* (dismissing attachment). See Appendix A to view the full questionnaire.

Considering that the ARSQ is a relatively new scale, it is not widely used nor has it been adequately validated. Given that this questionnaire is tailored to adolescents, and that no corrections-specific measure of attachment exists, this measure was selected as the one that maps most closely onto the theoretical framework guiding this research. However, as Table 5 illustrates, the internal consistency of this scale (particularly the secure attachment subscale) was relatively low as the most widely accepted reliability is an alpha value of .7 to .8 (Kline, 1999). However, Kline (1999) notes that when dealing with psychological constructs, values below .7 can be expected. Similarly, Nunnally (1978) suggests that in the early stages of research, values as low as .5 will suffice.

Table 5

Chronbach's Alpha Values of Measures for the Total Sample, Males, and Females

Measure	Total	Males	Females
ARSQ ^a	.51	.53	.47
Fearful Attachment	.67	.63	.72
Preoccupied Attachment	.44	.38	.40
Dismissing Attachment	.63	.69	.48
Secure Attachment	.16	.08	.32

Note. ^aARSQ = Adolescent Relationship Scales Questionnaire; the alpha values for the ARSQ were derived using the original (pre-PCA analysis) scale.

Given the poor reliability of the ARSQ, four separate principal components analyses (PCA) were conducted to determine if any items could be dropped from each subscale that would enhance reliability. Advice on the following guidelines was taken from Field (2013). The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy for the fearful subscale was acceptable at .70 and Bartlett's test of sphericity was significant ($\chi^2(6) = 163.16, p < .001$). Based on eigenvalues that were ≥ 1 , only one component was extracted from the fearful subscale and (upon visual inspection of the scree and component plots as well as examination of the communalities) all items were thus retained in the final analyses (see Table F1 in Appendix F to view the component matrix). The KMO measure of sampling adequacy for the dismissing subscale was acceptable at .71 and Bartlett's test of sphericity was significant ($\chi^2(10) = 205.81, p < .001$). Based on eigenvalues that were ≥ 1 , two components were extracted from the dismissing subscale and (upon visual inspection of the scree and component plots as well as examination of

the communalities) one item (*I am comfortable without close emotional relationships*) was removed before conducting final analyses (see Table F2 in Appendix F). The KMO measure of sampling adequacy for the preoccupied subscale was mediocre at .62 and Bartlett's test of sphericity was significant ($\chi^2(6) = 85.03, p < .001$). Based on eigenvalues that were ≥ 1 , two components were extracted from the preoccupied subscale and (upon visual inspection of the scree and component plots as well as examination of the communalities) one item (reverse keyed: *I am comfortable without close emotional relationships*) was removed before conducting final analyses (see Table F3 in Appendix F). The KMO measure of sampling adequacy for the secure subscale was poor at .59 and Bartlett's test of sphericity was significant ($\chi^2(10) = 169.02, p < .001$). Based on eigenvalues that were ≥ 1 , two components were extracted from the secure subscale and (upon visual inspection of the scree and component plots as well as examination of the communalities) three items (1. *I find it easy to get emotionally close to others*; 2. reverse keyed: *I worry about being alone*; 3. reverse keyed: *I worry about having people not accept me*) were removed before conducting final analyses (see Table F4 in Appendix F).

The questions that did not map onto each subscale were dropped and reliability analyses were re-run. After these adjustments, alpha values for the total ARSQ (including all four subscales) increased dramatically for the total sample, males, and females. Alphas for the dismissing subscale increased considerably for the total sample and for females, though remained the same for males. Only the questions that mapped onto dismissing attachment were retained in the analyses. Reliability for the preoccupied and secure subscales remained relatively the same for females but increased considerably for the total sample and for males. Only the questions that mapped onto preoccupied and

secure attachment were retained in the analyses. Table 6 contains the alpha values after conducting the PCA and removing items that did not map onto their respective subscales.

Table 6

Chronbach's Alpha Values of the ARSQ^a for the Total Sample, Males, and Females

Measure	Total	Males	Females
ARSQ	.78	.76	.75
Fearful Attachment	.67	.63	.72
Preoccupied Attachment	.60	.60	.49
Dismissing Attachment	.66	.69	.57
Secure Attachment	.47	.54	.32

Note. ^aARSQ = Adolescent Relationship Scales Questionnaire; the alpha values for the ARSQ were derived using the adjusted (post-PCA analysis) scale.

Youth Assessment and Screening Instrument. The Youth Assessment and Screening Instrument (YASI) was developed by Orbis Partners Inc. in 2000. It is a 120-item risk/need/strength assessment protocol that is divided into two components: an initial Pre-Screen and a Full assessment. The Pre-Screen version is comprised of 33 items (a subset of those included on the Full Assessment) tapping into both static and dynamic risk factors across seven domains: *legal history, family environment, school, community/peers, substance abuse, mental/physical health, and attitudes*, whereas the Full Assessment is more comprehensive and measures both protective factors and additional dynamic risk factors. In criminal justice settings, it is typically recommended that the Full Assessment be given to youth scoring in the moderate to high risk range on the Pre-Screen. However, in the context of the Pathways Study, a Full Assessment was completed for all youth. This larger protocol is comprised of 88 items across 10 separate

domains (i.e., *legal history, family, school, community and peer relationships, alcohol and drugs, mental health, aggression, attitudes, skills, employment, and use of free time*). Some items feature both risk/need and strength components, hence accounting for the total count of 120 items. Validation studies conducted on the YASI provide evidence for the predictive validity of the YASI as a risk assessment measure for justice-involved youth (Scott, 2017b).

Certain items from the YASI were used in the current study to measure childhood adversity or ACEs. Several notable authors have used the YASI to code for ACEs, such as Baglivio and his colleagues (2015) and Jones, Salisbury, and Kelly (2016). The ACE proxy for this study (which was replicated from Jones et al., 2016) contains 10 indicators, including emotional abuse, physical abuse, sexual abuse, alcohol/drug problems in home, mental health problems in home, parental criminality, physical neglect, emotional neglect, violence toward mother, and parents separated/divorced (unstable home). These indicators are mainly geared toward ACEs that occur within the family and do not necessarily include external traumatic events (i.e., vehicular accidents, natural disasters, witnessing violence, etc.). In order to code for ACEs, specific items were pulled from the YASI. For example, abuse was defined as either emotional, physical, or sexual abuse when it was perpetrated by a parent or caregiver that was hostile (i.e., berating, belittling), physically violent (i.e., hitting, kicking, spanking), or sexual toward the youth. For a complete list of YASI items used to code the ACE (and their corresponding ACE item), see Appendix B.

For scoring purposes, if one (or more) YASI item satisfied the condition for any ACE construct, the participant was given a score of 1 for that specific item. For example,

a participant who satisfied either both or only one of the following conditions (a) *times kicked out of home* and (b) *court finding of child neglect* received the same score (i.e., 1) for the ACE item: physical neglect. If both conditions were answered *no*, the participant received a score of 0. The scores for each indicator (either 0 or 1) were then summed to create a total score that ranges from 0 to 10. Higher scores correspond to more ACEs. For the current study, coding the ACE from the YASI yielded good internal consistency for the overall sample, as well as for males and females individually ($\alpha = .84, .80, .77$, respectively; Conley, Brown, & Skilling, 2017). Interrater reliability (IRR) was determined using a one-way random intraclass correlation coefficient (*ICC*). A one-way random *ICC* was chosen to account for the number of raters in the original pathways study. The *ICC* for the ACE proxy was .90; this value is considered excellent (Shrout & Fleiss, 1979).

The YASI is also being used to measure poor parental practices (exclusive of overt abuse). In order to code for poor parental practices, only the static and dynamic risk factors from the family domain were pulled (this will be referred to as YASI: Family Risk). Static risk items include: *times kicked out/locked out or runaway* (0 = never ran away/was never kicked out, 1 = ran away/was kicked out 1-6 times, 2 = ran away/was kicked out more than seven times), *court finding of child neglect*, and *historic circumstances of family members – mother, father, step-parent, sibling, other* (e.g., *criminal record, alcohol/drug problems, and mental health problems*). The static family risk items were summed to create a range of 0-7. Dynamic risk items include: *parental/custodial supervision* (e.g., *adequate or inadequate supervision*), *circumstances of family members – mother, father, step-parent, sibling, other* (e.g., *criminal record,*

alcohol/drug problems, and mental health problems), appropriate consequences for bad behaviour, appropriate rewards for good behaviour, parental attitude towards youths maladaptive behaviour (e.g., disapproving or proud of maladaptive behaviour), parental love, caring and support of youth, and level of conflict between parents, youth and parents, and among siblings. The dynamic family risk items were summed to create a range of 0-34. The static and dynamic scales were then combined to formulate a subscale for familial dysfunction. Therefore, the final range for scores on familial dysfunction were 0-41. Scoring for the YASI: Family Risk subscale was replicated from the YASI's family domain (Orbis, 2002), which can be viewed in Appendix C. See Appendix D for a complete list of both static and dynamic family risk items and their corresponding scoring.

Interrater reliability (IRR) was determined using a one-way random intraclass correlation coefficient (*ICC*). A one-way random *ICC* was chosen to account for the number of raters in the original pathways study. The *ICC* for the static risk items of the family subsection was moderate (*ICC* = .73) and the *ICC* for the dynamic risk items of the family subsection was poor (*ICC* = .40; Shrout & Fleiss, 1979). Lastly, the internal consistency was acceptable for the overall sample, as well as for males and females individually (α = .70, .68, .62, respectively).

How is the ACE proxy different from the familial dysfunction variable? Where the ACE proxy includes specific items such as abuse, trauma, and mental health indicators, the familial dysfunction variable contains only a combination of static and dynamic risk items from the family domain of the YASI (which contain more global items tapping into poor parenting practices and family conflict). Although there is

overlap between the familial dysfunction variables and the ACE proxy, it is important to distinguish between the two given the detrimental impact of abuse and trauma on aggression and criminality.

Direct/Indirect Aggression Scales. The Direct and Indirect Aggression Scales (DIAS) was created in 1992 by Björkqvist, Lagerspetz, and Osterman (1992). DIAS is a 24 item self-report measure aimed to measure physical, verbal, and/or indirect aggression. Each subscale was developed to capture different aspects of aggression (physical aggression is described as hitting “the other”; verbal aggression is described as yelling at or arguing with “the other”; and indirect aggression is described as gossiping about “the other” with whom the participant is angry (Björkqvist et al., 1992). The current study used only the 12 items from the DIAS designed to evaluate indirect aggression. Each item is rated on a five-point Likert scale (0 = *never*; 4 = *very often*). Specific items aimed at measuring indirect aggression include: (1) *shuts “the other” out of the group*, (2) *tries to get others to dislike the person*, (3) *plans to secretly bother “the other,”* and (4) *tells “the other one’s” secrets to a third person* (Björkqvist et al., 1992). Total scores for indirect aggression range from 0 to 48 with higher scores indicating greater use of indirect aggression (Björkqvist et al., 1992). See Appendix E to view the full questionnaire.

The indirect aggression subscale of the DIAS has been widely used with participants ranging from ages 8 to 19 (Lafferty, 2004). This measure has demonstrated high internal consistency (among both male and female adolescents) with alpha coefficients ranging from .88 to .96 (Kaukiainen et al., 1999; as cited in Lafferty, 2004). Lastly, the internal

consistency was excellent for the overall sample, as well as for males and females individually ($\alpha = .89, .89, .88$, respectively).

Relationally-driven index offence. In the context of the original *Pathways Study*, participants were asked to describe the nature of their crimes (e.g., who the victims were, why they did what they did, and so forth). Based on information gleaned from the interviews as well as official file information, the nature of the offender/victim relationship associated with the index offence was coded as follows: family, boyfriend/girlfriend, friend, acquaintance, stranger, or other. If an index offence was categorized as homicide, assault-related, or uttering threats *and* the victim was a family member, boyfriend/girlfriend or friend, participants received a score of “1”—meaning the index offence was assumed to be relationally-driven. In contrast, a score of “0” was assigned if the victim was classified as a stranger, acquaintance or ‘other’ *and* the index offence included anything but homicide, assaults or uttering threats.

A Kappa value could not be calculated to determine interrater reliability (IRR) as there were cell values less than five. As a result, IRR was determined using percent agreement which was moderate at .45 (indicating 45% agreement between raters; Landis & Koch, 1977).

Recidivism. Recidivism data was obtained from a combination of two sources: the Royal Canadian Mounted Police (RCMP) and the Ministry of Community Safety and Correctional Services (MCSCS). Time at-risk was accounted for by using a two-year fixed follow-up variable created during the coding process when combining the two recidivism sources (RCMP and MCSCS) of recorded institutional admissions. General

recidivism includes any kind of offence (including violent offences) other than technical violations.

A Kappa value could not be calculated to determine interrater reliability (IRR) as there were cell values less than five. As a result, IRR was determined using percent agreement which was excellent at .89 (indicating 89% agreement between raters; Landis & Koch, 1977).

Statistical Approach

Research question #1. Research question #1 asks if the nature of attachment style in an adolescent offender sample varies as a function of gender. The current study used four continuous subscales of attachment (from the ARSQ; after making adjustments from the PCA) in conducting four separate *t*-tests and Cohen's *d* analyses to determine if gender differences are present in regard to attachment style. The large majority of attachment research focuses on the two poles: secure vs. insecure attachment. Given that the current study sought to examine each facet of insecure attachment separately, the four subscales were used (in all analyses) in order to investigate the differences between the three types of insecure attachment (fearful, dismissing, and preoccupied).

Research question #2a. All remaining research questions were conducted using the latest innovations in SPSS Process as described by statistical expert, Hayes (2013). Research question #2a asks if scores on the four subscales of attachment (fearful, preoccupied, dismissing, and secure; i.e., the mediator variables) mediate the relationship between scores on the poor parental practices variable (the predictor variable) and general recidivism (the outcome variable). A parallel mediation analysis was conducted to explore this research question. Parallel mediation analyses (as opposed to multiple serial

univariate analyses) were used in all subsequent models for two main reasons. Firstly, the parallel mediation method resulted in a much more parsimonious model. If the analyses had been conducted using serial univariate mediation models, the current study would have consisted of 24 analyses (rather than six). The parallel method was therefore adopted. Secondly, if multiple serial univariate mediation analyses were used, this would inflate the probability of finding a Type I error (the error of rejecting a null hypothesis when it is actually true). A conservative approach was therefore used and parallel mediation analyses were conducted for the remaining research questions.

According to Hayes (2013), mediation occurs when variation in the predictor variable causes variation in a mediator variable, which in turn causes variation in the outcome variable. Mediation analyses therefore examines the effect of a predictor variable on an outcome variable, both directly ($X \rightarrow Y$) and indirectly ($X \rightarrow M \rightarrow Y$). The mediation effects were examined using non-parametric bias-corrected bootstrapping techniques to estimate regression coefficients for each model based on 10,000 bootstraps. A bootstrapping approach was chosen as this method has the highest power and the best Type I error control (Hayes, 2013). If the confidence intervals generated by bootstrapping do not contain zero, then one can conclude that there is in fact an indirect effect. See Figure 1 for a visual representation of the model that corresponds to research question #2a.

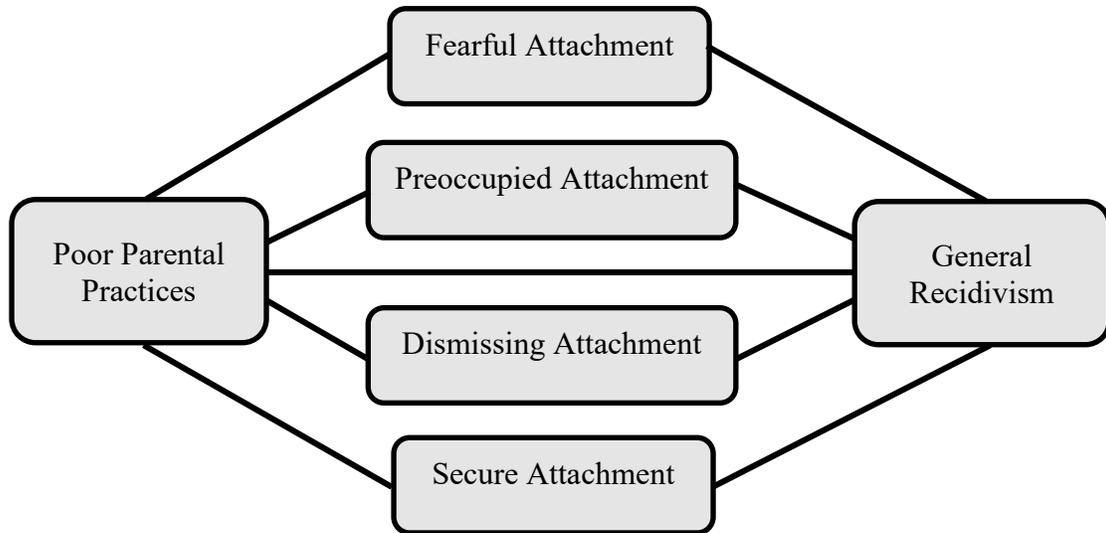


Figure 1. Parallel mediation model being tested in research question #2a.

Research question #2b. Research question #2a asks if scores on the four subscales of attachment (fearful, preoccupied, dismissing, and secure; i.e., the mediator variables) mediate the relationship between ACE scores (the predictor variable) and general recidivism (the outcome variable). The same approach—a parallel mediation analysis with non-parametric bias-corrected bootstrapping (based on 10,000 bootstraps) of confidence intervals—will be conducted to explore this research question. See Figure 2 for a visual representation of this model (research question #2b).

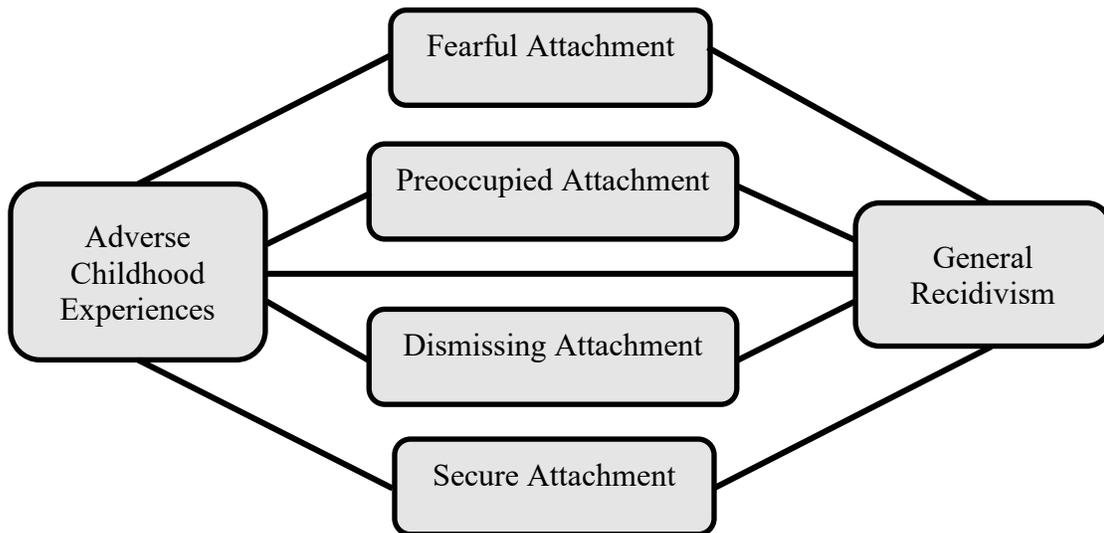


Figure 2. Parallel mediation model being tested in research question #2b.

Research question #3a. Research question #3a asks if scores on the four subscales of attachment (fearful, preoccupied, dismissing, and secure; i.e., the mediator variables) mediate the relationship between scores on the poor parental practices variable (the predictor variable) and the relationally-driven index offence variable (i.e. the outcome variable) and if this relationship is moderated by gender (moderator variable). A moderated parallel mediation analysis (also known as conditional process modelling) will be conducted to explore this research question.

There are two main reasons to use conditional process modelling (as opposed to separate regressions disaggregated by gender) that are relevant to the current study. Firstly, according to Hayes (2013), conducting multiple mediations separately based on the levels of a moderator (subgroups analyses) may not accurately reflect the process at work in that subgroups analyses do not respect the implied equality of the other paths in the mediation model. Subgroups analyses “freely estimate all paths in the mediation model” (Hayes, 2013, p. 408), meaning that it is impossible to be precise about where a

moderating effect occurs in a model. Given that the hypotheses of the current study are specific about how the mechanism linking the predictor variable to the outcome variable differs between groups, subgroups analyses are not recommended (Hayes 2013).

Secondly, power to detect direct or indirect effects will differ if groups have differing sample sizes. Due to a difference in power between the separate analyses, it may appear that mediation effects differ between groups when they do not. Given that the current study has an unequal ratio of male to female participants (211 males, 101 females), using the subgroups approach may lead to Type II error (failure to reject the null hypothesis when it is false). In order to be statistically sound, the current study conducted moderated mediation analyses (i.e., conditional process modelling) in place of subgroups analyses (i.e., separate regressions by gender).

Moderated-mediation is said to occur when the strength of an indirect effect (i.e., a relationship between a predictor variable and an outcome variable through a mediator) is conditional upon a level of another variable (i.e., a moderator; Hayes, 2013).

Moderated-mediation is often referred to as a conditional indirect effect (Hayes, 2013). Again, the effects were examined using non-parametric bias-corrected bootstrapping techniques to estimate regression coefficients (based on 10,000 bootstraps) for each model. If the confidence intervals generated by bootstrapping do not contain zero, then one can conclude that there is in fact a conditional indirect effect. See Figure 3 for a visual representation of this model (research question #3a).

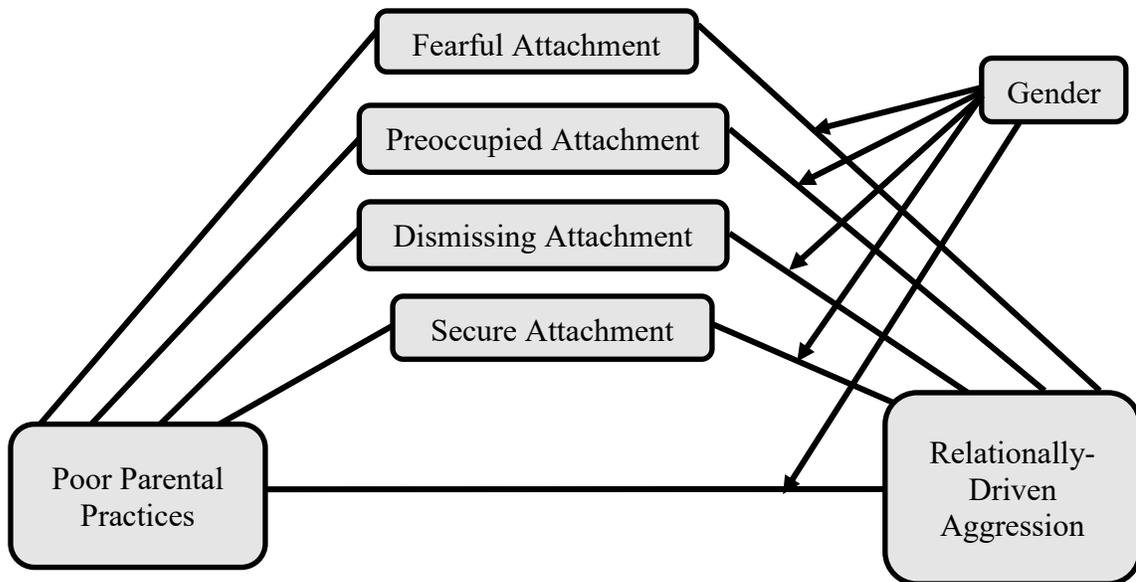


Figure 3. The moderated parallel mediation model tested in research question #3a.

Research question #3b. Research question #3b asks if scores on the four subscales of attachment (fearful, preoccupied, dismissing, and secure; i.e., the mediator variables) mediate the relationship between ACE scores (the predictor variable) and the relationally-driven index offence variable (i.e. the outcome variable) and if this relationship is moderated by gender. As above (research question #3a), a moderated parallel mediation analysis will be conducted to explore this research question. See Figure 4 for a visual representation of this model.

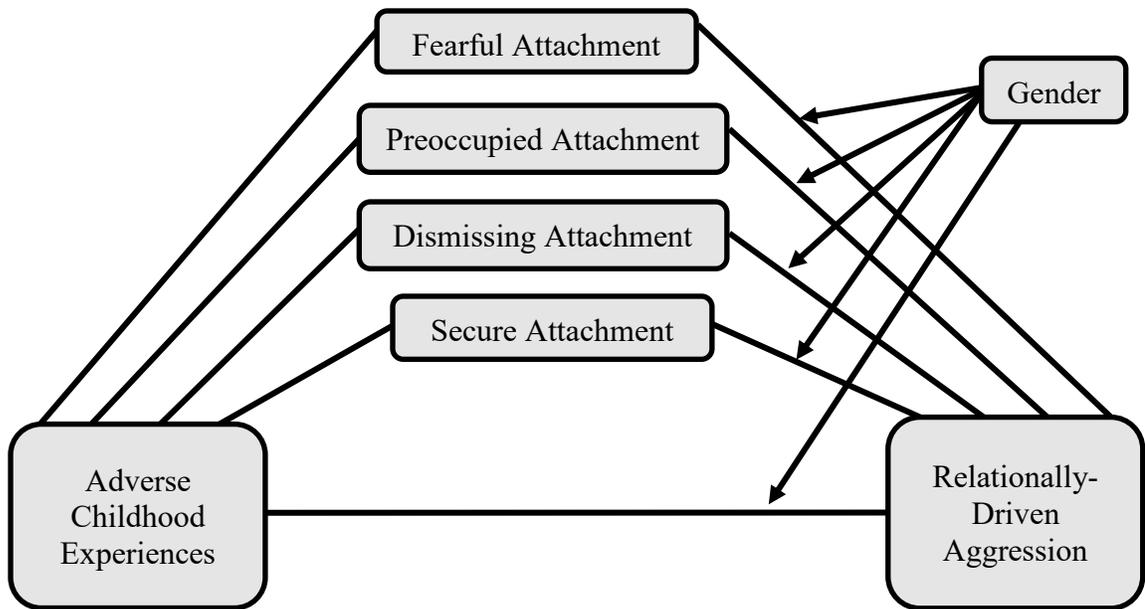


Figure 4. The moderated parallel mediation model tested in research question #3b.

Research question #4a. Research question #4a asks if scores on the four subscales of attachment (fearful, preoccupied, dismissing, and secure; i.e., the mediator variables) mediate the relationship between poor parental practices (the predictor variable) and the indirect aggression subscale of the DIAS (i.e. the outcome variable) and if this relationship is moderated by gender. As above (research question #3a and #3b), a moderated parallel mediation analysis will be conducted to explore this research question. See Figure 5 for a visual representation of this model.

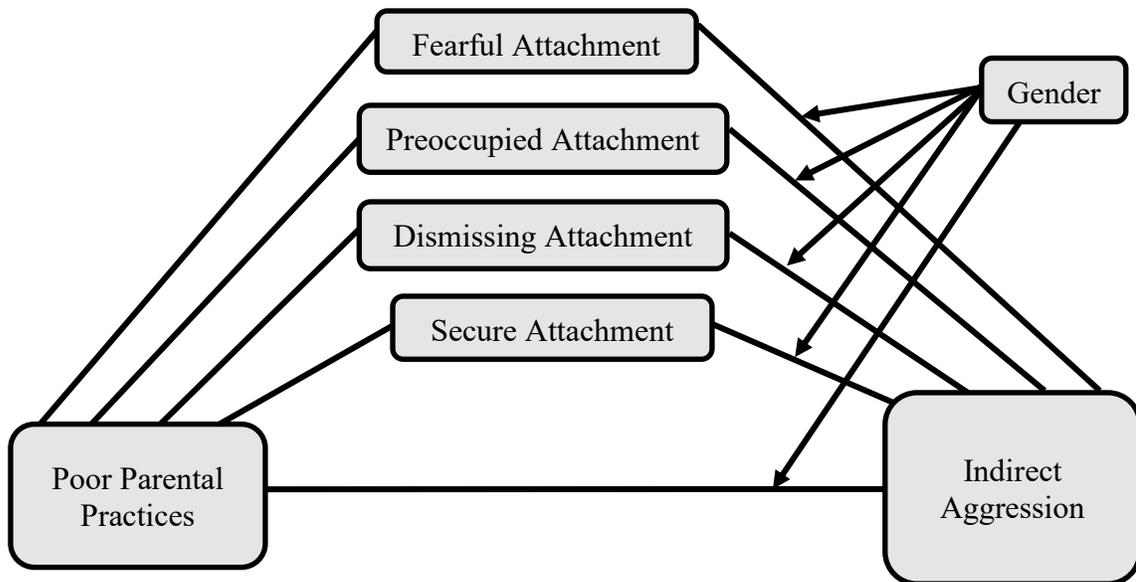


Figure 5. The moderated parallel mediation model tested in research question #4a.

Research question #4b. Research question #4b asks if scores on the four subscales of attachment (fearful, preoccupied, dismissing, and secure; i.e., the mediator variables) mediate the relationship between ACE scores (the predictor variable) and the indirect aggression subscale of the DIAS (i.e. the outcome variable) and if this relationship is moderated by gender. As above (research question #3a, #3b, and #4a), a moderated parallel mediation analysis will be conducted to explore this research question. See Figure 6 for a visual representation of this model.

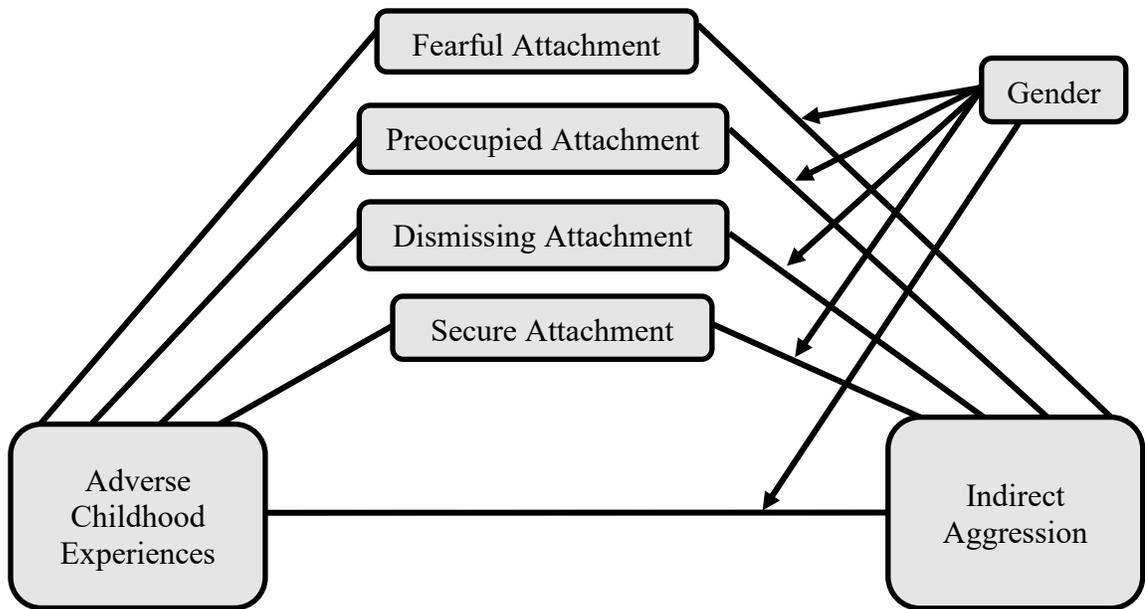


Figure 6. The moderated parallel mediation model tested in research question #4b.

Results

Data Screening

Missing data, outliers, influential cases, and assumptions. A missing value analysis (MVA) was conducted to determine the extent of missing data on gender, the Youth Assessment Screening Instrument (YASI: Family Risk Scale), the Adverse Childhood Experiences proxy (ACE), the Indirect/Direct Aggression Scales (DIAS), and the Adolescent Relationship Scales Questionnaire (ARSQ). The percentage of missing data ranged from 0% for gender to 24.0% for the YASI: Family Risk Scale. An examination of the pattern of missingness using a series of t-tests revealed non-significant t-test results for all variables (i.e., whether or not a variable has missing data or not was not related to other variables used in the analysis), indicating that the data was most likely missing at random (MAR). Given that multiple imputation is not possible in SPSS Process, pairwise deletion was used as a means for dealing with the missing data (Tabachnick & Fidell, 2013). Although pairwise deletion may produce standard errors

that are either under- or overestimated, this method was used in order to maximize data and increase power (Tabachnick & Fidell, 2013).

A standardized z-score greater than +/- 3.25 indicates the presence of univariate outliers. The analysis found no univariate outliers within the continuous variables used for this study. To test for presence of multivariate outliers, Mahalanobis distance was examined. The Mahalanobis distance values were then compared to the critical value listed in the χ^2 distribution ($df = 7$, $p = .001$). Using a critical value of 24.32, no multivariate outliers were identified. In order to look for influential cases at the multivariate level, Cook's D, DFFIT, and Leverage values were examined. A case deemed influential on two or more of these indexes would be classified as influential. Based on the appropriate criterion for each test, no influential cases were identified (Cook's D > 1.00; DFFIT > +/- 1.00; Leverage ($2p/N$) > .01).

A correlation matrix was examined to assess for multicollinearity as correlations in the range of .90 can be problematic (Tabachnick & Fidell, 2013). Correlations among the independent variables were found to be within an acceptable range ($r = .06$ to $.72$). Two of the proposed independent variables (the ACE proxy and the familial dysfunction variable) were moderately correlated with one another ($r = .72$). This was anticipated given that both variables come from the Youth Assessment and Screening Instrument (YASI) and therefore have some overlapping items. See the correlation matrix in Table 7 for more detail.

Table 7
Correlation Matrix of all Measures Using the Total Sample

Measure	Measure								
	ACE ^a	Dismissing Attachment	Fearful Attachment	Preoccupied Attachment	Secure Attachment	YASI ^b : Family Risk	DIAS ^c : Indirect Aggression	General Recidivism	Relationally-Driven Index
ACE									
Dismissing Attachment	.15*								
Fearful Attachment	.30*	.49**							
Preoccupied Attachment	.19**	-.10	.34**						
Secure Attachment	-.14*	-.09	-.27**	-.19**					
YASI: Family Risk	.72**	.06	.22**	.28**	-.17*				
DIAS: Indirect Aggression	.22**	.02	.14*	.24**	-.13*	.19**			
General Recidivism	.02	.07	-.02	-.11	-.05	.01	.12*		
Relationally-Driven Index	.10	-.05	.12	.10	-.05	.04	.04	-.06	

Note. ^aACE = Adverse Childhood Experiences proxy adapted from the YASI. ^bYASI = Youth Assessment and Screening Instrument. ^cDIAS = Direct/Indirect Aggression Scales. * $p < .05$, ** $p < .01$, *** $p < .001$.

Levene's test was used to test the assumption of homogeneity of error variance; this test was non-significant for all variables. Normality tests were conducted on all necessary variables to test for skewness and kurtosis. The skewness and kurtosis scores were divided by their standard errors and if the resulting value was larger than +/- 1.96 then the variable was transformed (Tabachnick and Fidell, 2013). All variables were found to be within normal range for kurtosis. Two variables showed skewness; specifically, the DIAS was positively skewed while the dismissing subscale (ARSQ) was negatively skewed. Based on guidelines from Tabachnick and Fidell (2013), the DIAS was transformed using a square root method and the dismissing subscale (ARSQ) was transformed using a reflection and square root method. Regression analyses were run using both the transformed and non-transformed data; given that no major differences were noted between the two sets of data, the non-transformed variables were retained. Tests for the assumptions of linearity and homoscedasticity were met for the total sample and when examined for males and females separately.

Descriptive Statistics

Descriptive statistics for the ACE proxy, the indirect aggression subscale of the DIAS, and the family risk subscale of the YASI (including the mean, standard deviation, and range for both males and females) are provided in Table 7. Furthermore, t-tests were conducted to assess mean differences between genders on each of the three measures. Note that descriptive statistics on the ARSQ subscales pertain to research question #1 and will therefore be presented subsequently. As Table 8 illustrates, females scored significantly higher on the ACE proxy ($t(310) = -9.96, p < .001, \text{Cohen's } d = 1.21$), indicating that females in this sample experienced more ACEs than their male

counterparts. Females also scored significantly higher than males on the indirect aggression subscale of the DIAS ($t(262) = -3.92, p < .001$, Cohen's $d = .51$), suggesting that females show higher levels of indirect aggression than males in this sample. Finally, females scored significantly higher than males on the YASI: Family Risk variable ($t(235) = -7.02, p < .001$, Cohen's $d = .93$), indicating that females in this sample experienced more poor parental practices (i.e., family risk items) than did males.

Table 8

Descriptive Statistics of the ACE^a, the DIAS^b, and the YASI^c by Gender

Measure	Males		Females		<i>t</i>
	<i>M (SD)</i>	Range	<i>M (SD)</i>	Range	
ACE ^a proxy	2.09 (2.38)	0-9	5.13 (2.78)	0-10	-9.96***
DIAS ^b	12.33 (8.83)	0-40	16.88 (9.27)	0-40	-3.92***
YASI ^c	1.31 (1.17)	0-4	2.38 (1.12)	0-4	-7.02***

Note. ^aACE = Adverse Childhood Experience. ^bYASI = Youth Assessment and Screening Instrument: Family Risk. ^cDIAS = Direct/Indirect Aggression Scales: Indirect Aggression. *M* = mean. *SD* = standard deviation. *t* = t-test score. *** $p < .001$, ** $p < .01$, * $p < .05$

Descriptive statistics on the relationally-driven index offence variable were conducted on the total sample as well as the male and female subsamples. It was revealed that 7.1% ($n = 15$) of males and 9.9% ($n = 10$) of females committed a relationally-driven index offence. A chi-square test of independence revealed no significant gender differences regarding whether or not the participant committed a relationally-driven index offence, $\chi^2(1, N = 288) = .66, p = .41, \Phi = .05$.

Descriptive statistics were also conducted on the recidivism variable to determine the nature of recidivism and to examine gender differences. As illustrated in Table 9, a chi-square test of independence revealed significant gender differences for the following types of recidivism: general, serious violent, break and enter, and weapons-related offences; specifically males were more likely to recidivate (on these offences) than were females. Note that these results should be interpreted cautiously given that two cells had an expected count of less than five.

Table 9

Percent of Males and Females by Recidivism Type

Recidivism Type	Total % (n/312)	Male % (n/211)	Female % (n/101)	χ^2	Φ
General Recidivism	58.7 (183)	63.0 (133)	49.5 (50)	5.16*	-.13
Homicide	1.3 (4)	1.9 (4)	0.0 (0)	1.94	-.08
Serious Violent ^a	12.8 (40)	17.5 (37)	3.0 (3)	12.97***	-.20
Violent Sexual	1.6 (5)	2.4 (5)	0.0 (0)	2.43	-.09
Break and Enter	5.8 (18)	8.1 (17)	1.0 (1)	6.28*	-.14
Non-Violent Sexual	1.0 (3)	0.9 (2)	1.0 (1)	.00	.00
Traffic/Import Drugs	5.1 (16)	6.6 (14)	2.0 (2)	3.04	-.10
Weapons-Related	11.9 (37)	15.6 (33)	4.0 (4)	8.91**	-.17
Fraud and Related	1.0 (3)	0.9 (2)	1.0 (1)	.00	.00
Misc. Offences ^b	9.0 (28)	9.5 (20)	7.9 (8)	.20	-.03
Theft/Possession	15.1 (47)	15.2 (32)	14.9 (15)	.01	.00
Assault-Related	25.0 (78)	24.2 (51)	26.7 (27)	.24	.03
Arson/Property Damage	8.0 (25)	6.6 (14)	10.9 (11)	1.68	.07
Drug Possession	6.7 (21)	8.5 (18)	3.0 (3)	3.36	-.10

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. ^aSerious violent offences include assault before/after robbery, extortion, forcible confinement, kidnap with intent to forcibly confine, material benefit, robbery/theft with a weapon, robbery, robbery threat/violence, trafficking in persons, and wounding with intent (firearm).

^bMiscellaneous offences include administration of substance to obtain sex, attempt to intimidate with violence, criminal harassment, criminal harassment conduct, intimidate/violence, and uttering threats to destroy property or cause death/serious harm.

Research Question #1.

Descriptive statistics, *t*-tests, and Cohen's *d* analyses were conducted to test whether the nature of attachment style (secure, fearful, preoccupied, and dismissing) in an adolescent offender sample varies as a function of gender. As Table 10 illustrates,

females scored significantly higher than males on the fearful ($t(272) = -4.32, p < .001$, Cohen's $d = .55$) and preoccupied subscales ($t(275) = -4.99, p < .001$, Cohen's $d = .63$), indicating that females in this sample experienced low self-worth and self-esteem more often than did males and were also more likely to be overly dependent on others. No significant gender differences were found on the secure ($t(285) = -1.69, p = .09$, Cohen's $d = .21$) or dismissing subscales of attachment ($t(275) = -1.27, p = .18$, Cohen's $d = .16$).

Table 10

Descriptive Statistics of the ARSQ^a Subscales by Gender

Variable	Total		Male		Female		<i>t</i>
	<i>M (SD)</i>	<i>n</i>	<i>M (SD)</i>	<i>n</i>	<i>M (SD)</i>	<i>n</i>	
Secure	3.56 (1.38)	287	3.47 (1.39)	193	3.76 (1.33)	94	-1.69
Fearful	4.15 (1.37)	274	3.90 (1.33)	181	4.63 (1.31)	93	-4.32***
Preoccupied	3.26 (1.37)	277	2.98 (1.30)	184	3.81 (1.33)	93	-4.99***
Dismissing	4.81 (1.26)	277	4.74 (1.32)	184	4.94 (1.15)	93	-1.27

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. *M* = mean; *SD* = standard deviation; *t* = t-test score; *n* = sample size; ^aARSQ = Adolescent Relationship Scales Questionnaire.

Research Question #2a.

A parallel mediation analysis was conducted to explore research question #2a. Recall that this question explores if scores on the four subscales of attachment (fearful, preoccupied, dismissing, and secure; i.e., the mediator variables) mediate the relationship between scores on the poor parental practices variable (the YASI: Family Risk variable; i.e., the predictor variable) and general recidivism (the outcome variable). As illustrated in Table 11, the indirect effect of all four attachment styles (fearful, dismissing, preoccupied, and secure) on the association between poor parental practices and general

recidivism were non-significant as the bias-corrected bootstrap confidence intervals (based on 10,000 bootstrap samples; corresponding to each attachment style) all contained zero.

Table 11

The Mediating Effect of the Four Attachment Styles on the Relationship Between Poor Parental Practices and General Recidivism

Attachment Style	Indirect Effect	SE	LLCI	ULCI
Fearful Attachment	-.01	.04	-.09	.06
Dismissing Attachment	.00	.02	-.02	.05
Preoccupied Attachment	-.04	.04	-.13	.03
Secure Attachment	-.01	.02	-.06	.02

Note. SE = standard error. LLCI = lower level confidence interval, ULCI = upper level confidence interval.

The results of the parallel mediation analysis also permitted the examination of whether or not the predictor variable (poor parental practices) was related to any of the attachment styles and in turn, whether or not any of the attachment styles were related to general recidivism. As illustrated in Table 12, poor parental practices were significantly related to two of the four attachment styles; specifically there was a positive effect of poor parental practices on both fearful and preoccupied attachment. No significant effects were found for dismissing or secure attachment.

Table 12

The Effect of Poor Parental Practices on Attachment Style

Attachment Style	<i>b</i>	<i>SE</i>	LLCI	ULCI
Fearful Attachment	.24***	.07	.10	.38
Dismissing Attachment	.09	.07	-.04	.22
Preoccupied Attachment	.28***	.07	.14	.42
Secure Attachment	.04	.08	-.11	.19

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. *b* = unstandardized regression coefficient. *SE* = standard error. LLCI = lower level confidence interval, ULCI = upper level confidence interval.

As illustrated in Table 13, the effect of all four attachment styles (fearful, dismissing, preoccupied, and secure) on general recidivism were non-significant.

Table 13

The Effect of Attachment Style on General Recidivism

Attachment Style	<i>b</i>	<i>SE</i>	LLCI	ULCI
Fearful Attachment	-.03	.13	-.29	.23
Dismissing Attachment	.04	.13	-.22	.30
Preoccupied Attachment	-.13	.13	-.38	.12
Secure Attachment	-.18	.11	-.38	.03

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. *b* = unstandardized regression coefficient. *SE* = standard error. LLCI = lower level confidence interval, ULCI = upper level confidence interval.

Finally, the direct effect of poor parental practices on general recidivism was non-significant ($c_1 = .08, p = .52, CI -.15$ to $.31$). The unstandardized path coefficients corresponding to the parallel mediation analysis just conducted are presented in Figure 7.

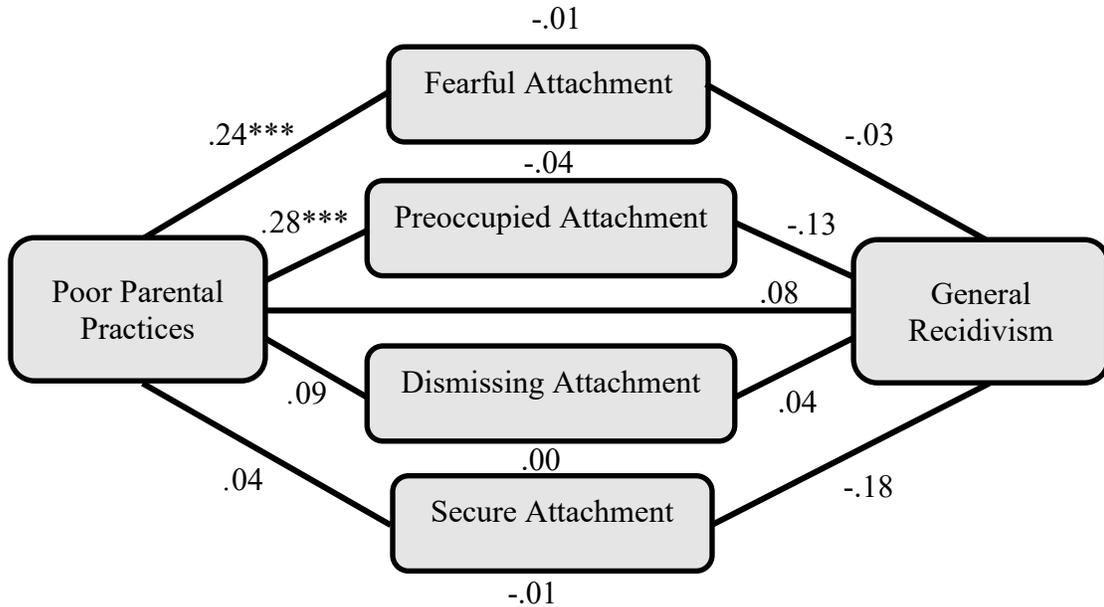


Figure 7. Poor parenting, attachment style, and recidivism: Unstandardized path coefficients resulting from the parallel mediation model.

Research Question #2b.

A parallel mediation analysis was conducted to explore research question #2b. Recall that this question explores if scores on the four subscales of attachment (fearful, preoccupied, dismissing, and secure; i.e., the mediator variables) mediate the relationship between scores on the ACE proxy (the predictor variable) and general recidivism (the outcome variable). As illustrated in Table 14, the indirect effect of all four attachment styles (fearful, dismissing, preoccupied, and secure) on the association between ACEs and general recidivism were non-significant as the bias-corrected bootstrap confidence intervals (based on 10,000 bootstrap samples; corresponding to each attachment style) all contained zero.

Table 14

The Mediating Effect of the Four Attachment Styles on the Relationship Between ACEs and General Recidivism

Attachment Style	Indirect Effect	SE	LLCI	ULCI
Fearful Attachment	-.01	.02	-.05	.02
Dismissing Attachment	.01	.01	-.01	.03
Preoccupied Attachment	.00	.01	-.03	.02
Secure Attachment	-.01	.01	-.03	.00

Note. SE = standard error. LLCI = lower level confidence interval, ULCI = upper level confidence interval.

The results of the parallel mediation analysis also permitted the examination of whether or not the predictor variable (ACEs) was related to any of the attachment styles and in turn, whether or not any of the attachment styles were related to the outcome variable (general recidivism). As illustrated in Table 15, ACEs were significantly related to three of the four attachment styles; specifically, there was a positive effect of ACEs on fearful, dismissing, and preoccupied attachment. No significant effects were found for secure attachment.

Table 15

The Effect of ACEs^a on Attachment Style

Attachment Style	<i>b</i>	<i>SE</i>	LLCI	ULCI
Fearful Attachment	.14***	.03	.09	.20
Dismissing Attachment	.07*	.03	.01	.12
Preoccupied Attachment	.10***	.03	.04	.16
Secure Attachment	.03	.03	-.02	.09

Note. ^aACEs = adverse childhood experiences. *** $p < .001$, ** $p < .01$, * $p < .05$. *b* = unstandardized regression coefficient. *SE* = standard error. LLCI = lower level confidence interval, ULCI = upper level confidence interval.

As illustrated by Table 16, the effect of all four attachment styles (fearful, dismissing, preoccupied, and secure) on general recidivism were non-significant.

Table 16

The Effect of Attachment Style on General Recidivism

Attachment Style	<i>b</i>	<i>SE</i>	LLCI	ULCI
Fearful Attachment	-.09	.12	-.32	.14
Dismissing Attachment	.10	.11	-.12	.33
Preoccupied Attachment	-.05	.11	-.26	.16
Secure Attachment	-.17	.10	-.36	.02

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. *b* = unstandardized regression coefficient. *SE* = standard error. LLCI = lower level confidence interval, ULCI = upper level confidence interval.

Finally, the direct effect of ACEs on general recidivism was non-significant ($c_1 = .04, p = .42, CI -.05$ to $.13$). The unstandardized path coefficients corresponding to the parallel mediation analysis just conducted are presented in Figure 8.

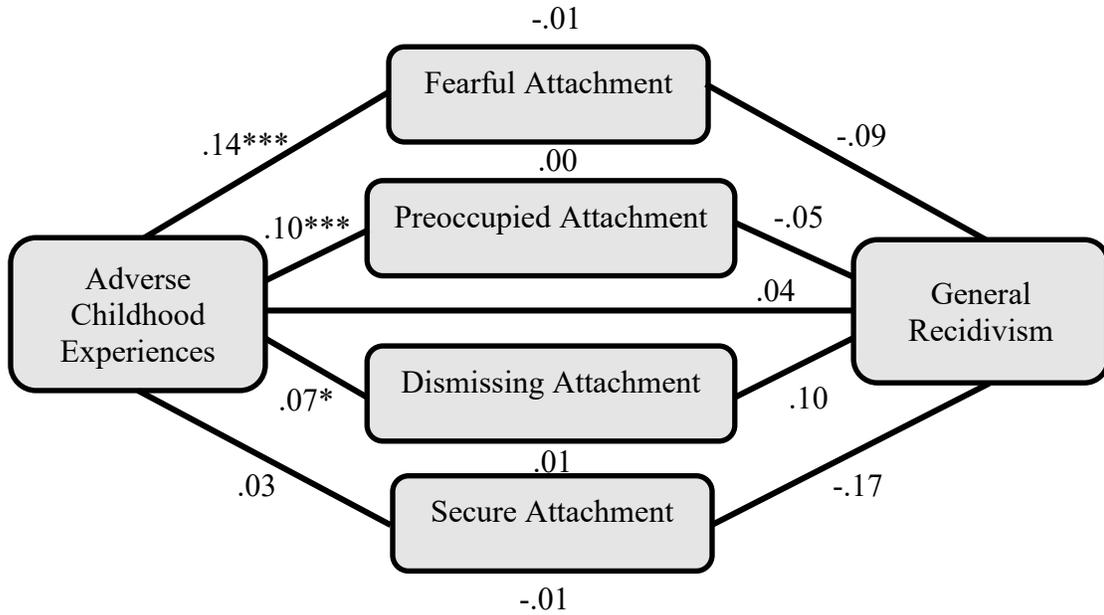


Figure 8. ACEs, attachment style, and recidivism: Unstandardized path coefficients resulting from the parallel mediation model.

Research Question #3a.

A moderated parallel mediation analysis was conducted to explore research question #3a. Recall that this question explores if scores on the four subscales of attachment (fearful, preoccupied, dismissing, and secure; i.e., the mediator variables) mediate the relationship between scores on the poor parental practices variable (the YASI: Family Risk variable; i.e., the predictor variable) and relationally-driven aggression (the relationally-driven index variable; i.e., the outcome variable) and if this mediated effect is moderated by gender. As illustrated in Table 17, the conditional (gendered) indirect effects of all four attachment styles (fearful, dismissing, preoccupied, and secure) on the association between poor parental practices and relationally-driven aggression were non-significant. This is evidenced by the bias-corrected bootstrap confidence intervals (based on 10,000 bootstrap samples; corresponding to each attachment style), which all contained zero.

Table 17

The Gendered Indirect Effects of Attachment Between Poor Parental Practices

Relationally-Driven Aggression

Attachment Style	Males			Females		
	Indirect Effect	LLCI	ULCI	Indirect Effect	LLCI	ULCI
Fearful	.07	-.17	.37	.26	-.01	.63
Dismissing	-.02	-.21	.04	-.09	-.39	.05
Preoccupied	.05	-.08	.20	.19	-.06	.70
Secure	.00	-.07	.11	.00	-.06	.06

Note. LLCI = lower level confidence interval, ULCI = upper level confidence interval.

The results of the moderated parallel mediation analysis also permitted the examination of whether or not the predictor variable (poor parental practices) was directly related to the outcome variable (relationally-driven aggression) and whether or not gender moderated this effect. As illustrated in Table 18, the conditional (gendered) direct effect of poor parental practices on relationally-driven aggression was non-significant as the bias-corrected bootstrap confidence intervals (based on 10,000 bootstrap samples) contained zero for both males and females.

Table 18

The Gendered Direct Effect of Poor Parental Practices on Relationally-Driven

Aggression

Gender	Direct Effect	LLCI	ULCI
Males	.17	-.38	.72
Females	-.44	-1.21	.34

Note. LLCI = lower level confidence interval, ULCI = upper level confidence interval.

As Table 19 illustrates, poor parental practices were significantly related to two of the four attachment styles; specifically there was a positive effect of poor parental practices on both fearful and preoccupied attachment. No significant effects were found for dismissing or secure attachment.

Table 19

The Effect of Poor Parental Practices on Attachment Style

Attachment Style	<i>b</i>	<i>SE</i>	LLCI	ULCI
Fearful Attachment	.27***	.07	.12	.41
Dismissing Attachment	.10	.07	-.04	.23
Preoccupied Attachment	.28***	.07	.15	.42
Secure Attachment	-.01	.07	-.16	.14

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. *b* = unstandardized regression coefficient. *SE* = standard error. LLCI = lower level confidence interval, ULCI = upper level confidence interval.

Finally, as illustrated in Table 20, the effect of attachment style (fearful, dismissing, preoccupied, and secure) on relationally-driven aggression was non-

significant. Furthermore, the interaction between attachment style and gender had no significant effect on relationally-driven aggression.

Table 20

The Effect of Attachment Style and Attachment Style x Gender on Relationally-Driven Aggression

Variable	<i>b</i>	<i>SE</i>	LLCI	ULCI
Fearful Attachment	.27	.31	-.34	.89
Dismissing Attachment	-.24	.31	-.84	.37
Preoccupied Attachment	.17	.29	-.41	.75
Secure Attachment	-.38	.29	-.94	.18
Fearful Attachment x Gender	.70	.57	-.43	1.83
Dismissing Attachment x Gender	-.67	.51	-1.66	.33
Preoccupied Attachment x Gender	.50	.51	-.50	1.50
Secure Attachment x Gender	.38	.43	-.47	1.22

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. *b* = unstandardized regression coefficient. *SE* = standard error. LLCI = lower level confidence interval, ULCI = upper level confidence interval.

Research Question #3b.

A moderated parallel mediation analysis was conducted to explore research question #3b. Recall that this question explores if scores on the four subscales of attachment (fearful, preoccupied, dismissing, and secure; i.e., the mediator variables) mediate the relationship between scores on the ACE proxy (the predictor variable) and relationally-driven aggression (the relationally-driven index variable; i.e., the outcome variable). As illustrated in Table 21, the conditional (gendered) indirect effects of all four

attachment styles (fearful, dismissing, preoccupied, and secure) on the association between ACEs and relationally-driven aggression were non-significant. This is evidenced by the bias-corrected bootstrap confidence intervals (based on 10,000 bootstrap samples; corresponding to each attachment style), which all contained zero.

Table 21

The Gendered Indirect Effects of ACEs^a on Relationally-Driven Aggression

Attachment Style	Males			Females		
	Indirect Effect	LLCI	ULCI	Indirect Effect	LLCI	ULCI
Fearful	.04	-.05	.16	.08	-.03	.22
Dismissing	-.03	-.11	.02	-.04	-.12	.01
Preoccupied	.01	-.03	.06	.02	-.04	.13
Secure	.00	-.03	.01	.00	-.02	.02

Note. ^aACEs = adverse childhood experiences. LLCI = lower level confidence interval, ULCI = upper level confidence interval.

The results of the moderated parallel mediation analysis also permitted the examination of whether or not the predictor variable (ACEs) was directly related to the outcome variable (relationally-driven aggression) and whether or not gender moderated this effect. As illustrated in Table 22, the conditional (gendered) direct effect of ACEs on relationally-driven aggression was non-significant as the bias-corrected bootstrap confidence intervals (based on 10,000 bootstrap samples) contained zero for both males and females.

Table 22

The Gendered Direct Effect of ACEs^a on Relationally-Driven Aggression

Gender	Direct Effect	LLCI	ULCI
Males	.14	-.07	.36
Females	-.05	-.21	.31

Note. ^aACEs = adverse childhood experiences. LLCI = lower level confidence interval, ULCI = upper level confidence interval.

As Table 23 illustrates, ACEs were significantly related to three of the four attachment styles; specifically, there was a positive effect of ACEs on fearful, dismissing, and preoccupied attachment. No significant effects were found for secure attachment.

Table 23

The Effect of ACEs^a on Attachment Style

Attachment Style	<i>b</i>	<i>SE</i>	LLCI	ULCI
Fearful Attachment	.15***	.03	.09	.21
Dismissing Attachment	.07*	.03	.02	.13
Preoccupied Attachment	.09**	.03	.04	.15
Secure Attachment	.01	.03	-.05	.06

Note. ^aACEs = adverse childhood experiences. *** $p < .001$, ** $p < .01$, * $p < .05$. *b* = unstandardized regression coefficient. *SE* = standard error. LLCI = lower level confidence interval, ULCI = upper level confidence interval.

Finally, as illustrated in Table 24, the effect of attachment style (fearful, dismissing, preoccupied, and secure) on relationally-driven aggression was non-significant. Furthermore, the interaction between attachment style and gender had no significant effect on relationally-driven aggression.

Table 24

The Effect of Attachment Style and Attachment Style x Gender on Relationally-Driven Aggression

Variable	<i>b</i>	<i>SE</i>	LLCI	ULCI
Fearful Attachment	.29	.27	-.23	.82
Dismissing Attachment	-.35	.26	-.86	.16
Preoccupied Attachment	.12	.25	-.38	.62
Secure Attachment	-.12	.23	-.58	.33
Fearful Attachment x Gender	.24	.46	-.65	1.14
Dismissing Attachment x Gender	-.17	.41	-.97	.63
Preoccupied Attachment x Gender	.14	.41	-.67	.95
Secure Attachment x Gender	.08	.38	-.67	.84

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. *b* = unstandardized regression coefficient. *SE* = standard error. LLCI = lower level confidence interval, ULCI = upper level confidence interval.

Research Question #4a.

A moderated parallel mediation analysis was conducted to explore research question #4a. Recall that this question explores if scores on the four subscales of attachment (fearful, preoccupied, dismissing, and secure; i.e., the mediator variables) mediate the relationship between scores on the poor parental practices variable (the YASI: Family Risk variable; i.e., the predictor variable) and indirect aggression (the indirect aggression subscale; i.e., the outcome variable). As illustrated in Table 25, the conditional (gendered) indirect effects of three attachment styles (fearful, dismissing, and secure) on the association between poor parental practices and indirect aggression were

non-significant. This is evidenced by the bias-corrected bootstrap confidence intervals (based on 10,000 bootstrap samples; corresponding to each attachment style), which contained zero. The conditional indirect effect of preoccupied attachment on the relationship between poor parental practices and indirect aggression, however, was significant for males but not for females. This is evidenced by the bias-corrected bootstrap confidence intervals (based on 10,000 bootstrap samples), which contained zero for females but not for males.

Table 25

The Gendered Indirect Effects of Poor Parental Practices on Indirect Aggression

Attachment Style	Males			Females		
	Indirect Effect	LLCI	ULCI	Indirect Effect	LLCI	ULCI
Fearful	.08	-.26	.50	-.03	-.49	.41
Dismissing	-.02	-.34	.07	-.06	-.48	.06
Preoccupied	.44	.08	1.09	.22	-.23	.91
Secure	.01	-.08	.19	.00	-.19	.13

Note. LLCI = lower level confidence interval, ULCI = upper level confidence interval.

The results of the moderated parallel mediation analysis also permitted the examination of whether or not the predictor variable (poor parental practices) was directly related to the outcome variable (indirect aggression) and whether or not gender moderated this effect. As illustrated in Table 26, the conditional (gendered) direct effect of poor parental practices on indirect aggression was non-significant as the bias-corrected bootstrap confidence intervals (based on 10,000 bootstrap samples) contained zero for both males and females.

Table 26

The Gendered Direct Effect of Poor Parental Practices on Indirect Aggression

Gender	Direct Effect	LLCI	ULCI
Males	1.42	-.02	2.87
Females	.31	-1.61	2.23

Note. LLCI = lower level confidence interval, ULCI = upper level confidence interval.

As Table 27 illustrates, poor parental practices were significantly related to two of the four attachment styles; specifically there was a positive effect of poor parental practices on both fearful and preoccupied attachment. No significant effects were found for dismissing or secure attachment.

Table 27

The Effect of Poor Parental Practices on Attachment Style

Attachment Style	<i>b</i>	<i>SE</i>	LLCI	ULCI
Fearful Attachment	.21**	.07	.07	.36
Dismissing Attachment	.07	.07	-.06	.20
Preoccupied Attachment	.23**	.07	.09	.37
Secure Attachment	-.01	.08	-.17	.14

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. *b* = unstandardized regression coefficient. *SE* = standard error. LLCI = lower level confidence interval, ULCI = upper level confidence interval.

Finally, as illustrated in Table 28, the effect of three attachment styles (fearful, dismissing, and secure) on indirect aggression was non-significant. The effect of preoccupied attachment on indirect aggression, however, was significant. Furthermore,

the interaction between attachment style and gender had no significant effect on indirect aggression.

Table 28

The Effect of Attachment Style and Attachment Style x Gender on Indirect Aggression

Variable	<i>b</i>	<i>SE</i>	LLCI	ULCI
Fearful Attachment	.36	.81	-1.24	1.95
Dismissing Attachment	-.35	.80	-1.93	1.24
Preoccupied Attachment	1.92*	.74	.47	3.38
Secure Attachment	-.42	.63	-1.67	.82
Fearful Attachment x Gender	-.48	1.27	-2.98	2.03
Dismissing Attachment x Gender	-.59	1.28	-3.11	1.93
Preoccupied Attachment x Gender	-.96	1.27	-3.46	1.55
Secure Attachment x Gender	.59	1.03	-1.44	2.62

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. *b* = unstandardized regression coefficient. *SE* = standard error. LLCI = lower level confidence interval, ULCI = upper level confidence interval.

Research Question #4b.

A moderated parallel mediation analysis was conducted to explore research question #4b. Recall that this question explores if scores on the four subscales of attachment (fearful, preoccupied, dismissing, and secure; i.e., the mediator variables) mediate the relationship between scores on the ACE proxy (the predictor variable) and indirect aggression (the indirect aggression subscale; i.e., the outcome variable). As illustrated in Table 29, the conditional (gendered) indirect effects of three attachment styles (fearful, dismissing, and secure) on the association between ACEs and indirect

aggression were non-significant. This is evidenced by the bias-corrected bootstrap confidence intervals (based on 10,000 bootstrap samples; corresponding to each attachment style), which contained zero. The conditional indirect effect of preoccupied attachment on the relationship between ACEs and indirect aggression, however, was significant for males but not for females. This is evidenced by the bias-corrected bootstrap confidence intervals (based on 10,000 bootstrap samples), which contained zero for females but not for males.

Table 29

The Gendered Indirect Effects of ACEs^a on Indirect Aggression

Attachment Style	Males			Females		
	Indirect Effect	LLCI	ULCI	Indirect Effect	LLCI	ULCI
Fearful	.07	-.12	.27	-.06	-.33	.22
Dismissing	-.02	-.15	.05	-.06	-.27	.05
Preoccupied	.12*	.02	.33	.15	-.01	.41
Secure	.00	-.10	.02	.01	-.03	.12

Note. ^aACEs = adverse childhood experiences. LLCI = lower level confidence interval, ULCI = upper level confidence interval.

The results of the moderated parallel mediation analysis also permitted the examination of whether or not the predictor variable (ACEs) was directly related to the outcome variable (indirect aggression) and whether or not gender moderated this effect. As illustrated in Table 30, the conditional direct effect of ACEs on indirect aggression was significant for males but not females as the bias-corrected bootstrap confidence intervals (based on 10,000 bootstrap samples) contained zero for females and not males.

Table 30

The Gendered Direct Effect of ACEs^a on Indirect Aggression

Gender	Direct Effect	LLCI	ULCI
Males	.98*	.41	1.55
Females	-.58	-1.34	.17

Note. ^aACEs = adverse childhood experiences. LLCI = lower level confidence interval, ULCI = upper level confidence interval.

As Table 31 illustrates, ACEs were significantly related to three of the four attachment styles (all except secure attachment). Specifically, there was a positive effect of ACEs on fearful, dismissing, and preoccupied attachment. No significant effects were found for secure attachment.

Table 31

The Effect of ACEs^a on Attachment Style

Attachment Style	<i>b</i>	<i>SE</i>	LLCI	ULCI
Fearful Attachment	.14***	.03	.08	.20
Dismissing Attachment	.07*	.03	.01	.13
Preoccupied Attachment	.09**	.03	.03	.15
Secure Attachment	.02	.03	-.04	.08

Note. ^aACEs = adverse childhood experiences. *** $p < .001$, ** $p < .01$, * $p < .05$. *b* = unstandardized regression coefficient. *SE* = standard error. LLCI = lower level confidence interval, ULCI = upper level confidence interval.

Finally, as illustrated in Table 32, the effect of attachment style (fearful, dismissing, preoccupied, and secure) on indirect aggression was non-significant. Furthermore, the interaction between attachment style and gender had no significant effect on indirect aggression.

Table 32

The Effect of Attachment Style and Attachment Style x Gender on Indirect Aggression

Variable	<i>b</i>	<i>SE</i>	LLCI	ULCI
Fearful Attachment	.49	.67	-.82	1.81
Dismissing Attachment	-.33	.63	-1.57	.91
Preoccupied Attachment	1.42*	.58	.29	2.56
Secure Attachment	-.45	.53	-1.49	.60
Fearful Attachment x Gender	-.94	1.11	-3.13	1.25
Dismissing Attachment x Gender	-.58	1.11	-2.76	1.60
Preoccupied Attachment x Gender	.21	1.06	-1.88	2.29
Secure Attachment x Gender	.78	.83	-1.07	2.64

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. *b* = unstandardized regression coefficient. *SE* = standard error. LLCI = lower level confidence interval, ULCI = upper level confidence interval.

Discussion

Little is known about how familial dysfunction (including poor parental practices and adverse childhood experiences), attachment, recidivism, and both indirect and relationally-driven aggression are linked and how their relationships may differ by gender. Consequently, the goal of the current study was to add to the body of literature and expand upon research that argues the moderating effect (or lack thereof) of gender. Four primary research questions were examined including: (1) Does the nature of attachment style in an adolescent offender sample vary as a function of gender? (2) Is the relationship between poor parental practices or adverse childhood experiences (ACEs) and general recidivism mediated by attachment style? (3) Is the relationship between poor

parental practices or ACEs and relationally-driven aggression mediated by attachment style? And does gender moderate the effect of either poor parental practices, ACEs, or attachment style on relationally-driven aggression? and (4) Is the relationship between poor parental practices or ACEs and indirect aggression mediated by attachment style? And does gender moderate the effect of either poor parental practices, ACEs, or attachment style on indirect aggression?

To test these hypotheses, a variety of descriptive statistics (including *t*-tests and Cohen's *d* analyses), parallel mediation regressions, and moderated parallel mediation regressions were conducted. As previously mentioned, this cross-sectional and longitudinal study used archival data from 312 justice-involved youth between the ages of 12 and 21 from a variety of probation, open and secure custody, and mental health facilities within central and eastern Ontario. To measure poor parental practices, the risk variables from the family subscale of the YASI were used. ACEs were also measured by the YASI, however the ACE proxy contained items that were not included in the more global measure of familial dysfunction (such as abuse and mental health). Adolescent attachment was measured using the Adolescent Relationship Scales Questionnaire (ARSQ). To measure relationally-driven aggression, a variable was created using responses from the original interview information; this variable measured relationally-driven aggression by combining an aggressive offence (uttering threats, assault, and/or homicide) with a known victim (friend, family member, and/or significant other). To measure indirect aggression, the indirect subscale of the Direct and Indirect Aggression Scales (DIAS) was used. Finally, general recidivism was measured by combining institutional admission information from two sources, including the Royal Canadian

Mounted Police (RCMP) and the Ministry of Community Safety and Correctional Services (MCSCS).

Gender Differences in Adolescent Attachment Style

The first research question examined whether or not the nature of attachment style varies as a function of gender in an adolescent offender sample. This was an exploratory analysis and therefore there was no hypothesis for this research question. The results revealed that females scored significantly higher on the measures of both fearful and preoccupied attachment (ARSQ subscales) than males, indicating that females have lower self-esteem and feelings of self-worth which are theorized to stem from insensitive and inconsistent parenting that neglects a child's attachment needs (e.g. rejection; Bartholomew, 1990). This is consistent with research stating that females have low self-esteem (Salisbury & VanVoorhis, 2009). In addition, females scored significantly higher on both poor parental practices (including neglect and family conflict) and ACEs (including abuse and trauma), indicating that females experienced more familial dysfunction than did males. Past research shows that females experience greater amounts of childhood abuse than males (Belknap & Holsinger, 2006; Salisbury & Van Voorhis, 2009) and that experiencing childhood abuse may lead to insecure attachment (Alexander, 1993; Edwards et al., 2012; Freyd, 1996; Styron & Janoff-Bulman, 1997). Given this research, the fact that females experienced greater amounts of familial dysfunction (including poor parental practices and ACEs) may explain their higher scores on fearful and preoccupied attachment.

These gender differences in attachment contradict Bartholomew and Horowitz's (1991) research that reported no significant gender differences. Their research, however,

was conducted on a normative sample as opposed to a correctional sample, which may have influenced the results of the current study. Perhaps it is that female justice-involved youth are more likely to have insecure attachments than females from a community sample. Bartholomew and Horowitz, however, used a dichotomous measure of attachment, meaning that they were able to analyze the number of participants that were classified into each of the four types (fearful, dismissing, preoccupied, and secure). It was impossible to dichotomize attachment in the current study because of the lack of validity and reliability of the Adolescent Relationship Scales Questionnaire (ARSQ). Since the ARSQ has not yet been validated in attachment research, there were no meaningful cut off values to dichotomize the four subscales. Furthermore, dichotomizing attachment styles would cut out variance which would in turn negatively impact the power of each analysis. Given that the current study did not dichotomize attachment, it was impossible to determine the percentage of participants that fell under each category and therefore impossible to compare such results to Bartholomew and Horowitz's earlier research.

The Indirect Effect of Attachment Between Poor Parental Practices, ACEs, and General Recidivism

The second research question examined whether or not attachment style mediates the relationship between either poor parental practices or ACEs and general recidivism. It was hypothesized that insecure attachments (fearful, preoccupied, and dismissing) would mediate the relationship between either poor parental practices or ACEs and general recidivism more strongly than secure attachment. Contrary to the hypothesis, results were non-significant for all forms of attachment, indicating that attachment did not act as a mediator between either poor parental practices or ACEs and general recidivism. In

addition, the direct effect of both poor parental practices and ACEs on general recidivism were non-significant, indicating that familial dysfunction (globally) does not influence recidivism.

These results contradict earlier research stating that insecure attachment leads to sexual, violent, and/or criminal offending and adolescent delinquency (Bachman & Peralta, 2002; Grady et al., 2016; Hoeve et al., 2012; Sokol-Katz et al., 1997). Perhaps what is missing from the current study is another mediator to explain how attachment leads to recidivism. Given that insecure attachments lead to relationship dysfunction (Hill et al., 2011)—which has in turn been linked to criminal offending (Salisbury & Van Voorhis, 2009)—it is possible that adult relationship dysfunction (including both intimate and platonic relationships) could influence the effect of attachment on recidivism. Future research should include relationship dysfunction as an additional mediator to analyze this potential effect.

The results of the current study also contradict more general research on the direct effect of familial dysfunction (including poor parental practices and ACEs) on criminal offending. For example, much of the literature states that familial dysfunction is a risk factor for criminal offending and adolescent delinquency and/or deviance (Baglivio et al., 2015; Bright & Jonson-Reid, 2015; Duke et al., 2010; Jones et al., 2016; Justice Policy Institute, 2010). It is unclear why familial dysfunction (globally) was not related to general recidivism in the current study, but perhaps it could be that the gender was not included as a moderator. As stated by Jones and her colleagues (2016), ACEs are related to criminal recidivism for both males and females (though the effect is stronger for females). Given this information, it is possible that familial dysfunction did influence

recidivism, but this effect hidden because it was not included as a moderator in the current study. Future research in this area should examine the effect of gender on the relationship between familial dysfunction and recidivism by including gender as a moderator.

The Gendered and Indirect Effect of Attachment Between Poor Parental Practices, ACEs, and Relationally-Driven Aggression

The third research question examined if the relationship between either poor parental practices or ACEs and relationally-driven aggression is mediated by attachment style and whether or not gender moderates this relationship. Two hypotheses were made: (1) that insecure attachments (fearful, preoccupied, dismissing, and the absence of secure attachments) would mediate the relationship between poor parental practices and relationally-driven aggression more strongly for females than for males and (2) that insecure attachments (and the absence of secure attachment) would mediate the relationship between ACEs and relationally-driven aggression more strongly for females than for males.

Contrary to both hypotheses, the conditional (gendered) indirect effect of attachment style on the relationship between familial dysfunction (including both poor parental practices and ACEs) and relationally-driven aggression was non-significant. This finding replicates gender-neutral findings (Farnicka & Grzegorzewska's, 2015; Konishi & Hymel, 2014) and contradicts research on the gendered link between insecure attachment and relational aggression (Beckner, 2005; Feiring et al., 2002), as well as theory and research on the effect of relational and/or familial dysfunction on female aggression (Cernkovich et al., 2008; Chesney-Lind, 2006; Salisbury & Van Voorhis,

2009). It is possible that the link between attachment and the relationally-driven index offence variable was masked due to the low occurrence (25 out of 288) of offences that satisfied both conditions of a known victim (family, friend, or significant other) and an aggressive offence (homicide, assault, and uttering threats). There were several offence categories (such as weapons offences and arson/property offences) that were discounted because they contained violations that were not aggressive (i.e., careless storage of a firearm), although others were clearly aggressive (i.e., pointing a firearm at a victim). It is very likely that the number of relationally-driven index offences would increase if every aggressive offence had been accounted for in the current study, which could have then influenced the regression analyses. Future research in this area should combat this issue by coding offences based on whether or not they are considered aggressive.

Interestingly, all forms of insecure attachment (fearful, preoccupied, and dismissing) were significantly associated with ACEs but only fearful and preoccupied attachment were significantly related to poor parental practices. Based on research emphasizing the especially detrimental effect of abuse and trauma on the development of healthy attachment, it may be that ACEs are especially important (compared to poor parental practices) to the development of insecure attachment. This may be because ACEs include specific items relating abuse, trauma, and mental health. It could be that some items that are accounted for by ACEs (such as emotional, physical, and sexual abuse, and mental health problems in the home environment) predict fearful and preoccupied attachment better than poor parental practices (such as neglect and family conflict). For example, it is possible that ACEs (more so than poor parental practices) foster dysfunctional behaviours and negative emotions (such as jealousy, arguing, and an

inability to deal with confrontation), which may in turn increase one's likelihood of developing low self-worth, low self-esteem, and a distrust of others (characteristics of insecure attachments). This interpretation is entirely speculative, however, and more research in this area is needed to test this relationship.

The Gendered and Indirect Effect of Attachment Between Poor Parental Practices, ACEs, and Indirect Aggression

The fourth and final research question examined if the relationship between either poor parental practices or ACEs and indirect aggression is mediated by attachment style and whether or not gender moderates this relationship. Two hypotheses were made: (1) that insecure attachments (fearful, preoccupied, dismissing, and the absence of secure attachments) would mediate the relationship between poor parental practices and indirect aggression more strongly for females than for males and (2) that insecure attachments (and the absence of secure attachment) would mediate the relationship between ACEs and indirect aggression more strongly for females than for males. Contrary to both hypotheses, the indirect effect of preoccupied attachment on the relationship between both poor parental practices and ACEs on indirect aggression was significant for males but not females, while the mediating effect of the other three types of attachment (fearful, dismissing, and secure) was non-significant for both genders.

As stated previously in the section on attachment theory, the preoccupied individual develops self-acceptance through outside approval and is particularly concerned with the status of his/her relationships (Bartholomew & Horowitz, 1991). (Bartholomew & Horowitz, 1991). Given this information, it is entirely possible that the preoccupied individual is more sensitive to peer influences (i.e., criminal associates) and

may be more likely to be pressured into behaving aggressively than those with fearful, dismissing, or secure attachments. For example, if a preoccupied individual were to come into contact with criminal associates, his/her eagerness to please may then become a risk factor for indirect aggression. Furthermore, an over-dependence on others is a trait that is distinct to preoccupied attachment and may therefore explain why no significant effects were found with fearful, dismissing, and secure attachment. It is unclear, however, why this effect is significant for males and not females. Along with including criminal associates as an additional mediator, future research should focus on explaining why preoccupied attachment may be a risk factor for indirect aggression in males but not females.

Implications

There are a few theoretical and practical implications that should be discussed. Firstly, the current study found that both ACEs and poor parental practices are associated with both fearful and preoccupied attachment. Recall that individuals with fearful and preoccupied attachment score negative in the self, meaning that they have low self-esteem and low self-worth (Bartholomew & Horowitz, 1991). In terms of theoretical implications, the results of the current study suggest that poor parental practices and ACEs likely precede fearful and preoccupied attachment. These results also support past research on familial dysfunction and insecure attachment. Secondly, the results of the current study show that although both ACEs and poor parental practices predicted fearful and preoccupied attachment, ACEs were also related to dismissing attachment. ACEs (even more so than poor parental practices) may therefore be especially influential in the development of insecure attachment. Overall, both poor parental practices and ACEs are

important in the development of insecure attachment should thus be incorporated into modern attachment theory.

The results of the current study have a number of practical implications for treatment programs and risk assessment. Firstly, the majority of the results replicate gender-neutral findings and therefore support (in terms of familial dysfunction) gender-neutral treatment programs and risk assessment tools. However, the results did suggest that males with preoccupied attachment are more likely to engage in indirect aggression than females with preoccupied attachment. It is therefore possible that males with preoccupied attachment may be more sensitive to peer pressure than females with preoccupied attachment, and thus the effect of criminal associates may be more important for males with preoccupied attachment than females. If further research in this area confirms these results, preoccupied attachment should be implemented as a treatment target for practitioners and as a screening tool for risk assessment developers. Secondly, the results of this study show that females are significantly more likely to experience poor parental practices and ACEs than their male counterparts. These findings emphasize the importance for the inclusion of family risk variables (including neglect, family conflict, abuse, and trauma) in correctional treatment programs for women and girls.

Limitations

The current study has a number of limitations that should be discussed. As mentioned previously, the measure of adolescent attachment (the Adolescent Relationship Scales Questionnaire) is not widely used and has not been adequately validated in previous research. Furthermore, the reliability of the Adolescent Relationship Scales Questionnaire (ARSQ) was quite poor. In order to increase the reliability of the

ARSQ, a principal components analysis (PCA) was conducted and five items were removed from the total scale (dismissing: 1 removed; preoccupied: 1 removed; secure: 3 removed). Overall, this measure may not contain enough items to tap into the real differences between the four types of attachment, as research using other measures of attachment (such as the Adult Attachment Interview) has revealed that criminal offenders tend to have insecure attachment styles, unstable relationships, and less emotional attachment to others (Ross & Pfäfflin, 2007).

Another limitation of the current study was that the research design was partially retrospective and cross-sectional where all variables were assessed at the same time (aside from recidivism). Cross-sectional designs (compared to longitudinal designs, for example) do not allow for conclusions to be drawn about the sequence in which variation occurs between two variables. A longitudinal design would have been beneficial because it would have allowed for the examination of any sequential relationships between attachment, poor parental practices, ACEs, and both indirect and relationally-driven aggression.

A third limitation is that the three types of insecure attachment (fearful, dismissing, and preoccupied) may not be dysfunctional at all; instead, insecure attachment may be a rational response to poor parental practices. For example, a child that is raised without adequate care or attention may develop low self-worth and may then be more likely to seek approval elsewhere – behaviours that are characteristic of preoccupied attachment. In this sense, preoccupied attachment is not necessarily seen as dysfunctional, but rather a rational response to specific childhood circumstances.

However, insecure attachment should still be viewed as dysfunctional if it consistently and negatively impacts the individual's daily life.

Another limitation of the current study was sample size and sampling bias. Because there are more justice-involved males than females, it is difficult to attain a large number of females as participants. In an attempt to increase the number of female participants, the original research was conducted in locations where there were high numbers of justice-involved females. Even still, the current study consisted of 211 males and only 101 females; this unequal ratio of male and female participants is yet another limitation to the current study. A larger sample size is needed with a more equal ratio of male to female participants in order to understand gender differences associated with the variables in this study.

One last study limitation is the amount of missing data. The majority of participants at the Centre for Addictions and Mental Health (CAMH) did not get assessed using the Youth Assessment and Screening Instrument (YASI). This is problematic given that two of the predictor variables in the current study are adapted from the YASI. Consequently, 24% of participants were not assessed using the YASI. Given that SPSS Process does not deal with missing data, these cases were removed using casewise deletion. It would have been beneficial to conduct the analyses using a statistical package that has the power to deal with missing data of this magnitude (such as MPLUS); future research should consider using more sophisticated and challenging imputation techniques for missing data such as maximum likelihood estimation.

Suggestions for Future Research

To fully understand the relationship between poor parental practices, ACEs, attachment, indirect and relationally-driven aggression, and general recidivism, future research should first and foremost conduct a meta-analysis to analyze results from a variety of sources and examine trends within the research. Future studies should also distinguish between the different types of insecure attachment, rather than simply lumping them all together in one global category. In addition, future research should include multiple mediator models to examine the effect of adult relationship dysfunction and criminal associates on recidivism and both indirect and relationally-driven aggression.

As previously mentioned, it would have been beneficial to conduct the current study using a fully longitudinal rather than a cross-sectional (aside from the recidivism variable) design. This would have allowed for the examination of any sequential relationships between attachment, poor parental practices, ACEs, and both indirect and relationally-driven aggression. Future studies in this area should therefore conduct longitudinal rather than cross-sectional research. Furthermore, these studies should aim for a bigger sample size with a more equal male to female participant ratio (without sampling bias) as this would have helped to increase the power of the analysis in the current study. Finally, future research should work on validating the ARSQ and increasing its reliability.

Conclusion

There is very little research on how familial dysfunction (including poor parental practices and ACEs), attachment, recidivism, and both indirect and relationally-driven aggression are linked and how these relationships may differ by gender. The current

study examined the gender differences associated with the relationship between familial dysfunction (including poor parental practices and ACEs separately) and relationally-driven aggression, and indirect aggression, through the mediation of attachment style (fearful, dismissing, preoccupied, and secure). Through the use of moderated parallel mediation analyses, results indicated that three of the four attachment styles (fearful, dismissing, and secure) did not mediate the relationship between familial dysfunction and relationally-driven aggression, indirect aggression, or recidivism, and that gender did not moderate this relationship. The only significant effect to emerge was the mediation effect of preoccupied attachment on the association between familial dysfunction and indirect aggression; however, this effect was only significant for males. If future research in this area confirms these results, preoccupied attachment should be implemented as a treatment target for practitioners and as a screening tool for risk assessment developers. It is important to note as well that the results confirmed that ACES were related to fearful, dismissing, and preoccupied attachment and that poor parental practices were related to fearful and preoccupied attachment. In closing however, the attachment measure used in the current study was not found to be reliable. Consequently, future studies in this area should first and foremost focus on developing a valid and reliable measure of adolescent attachment.

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2

17. I worry about having people not accept me.	1	2	3	4	5	6	7

Appendix B

Coding the ACE from the YASI

ACE Items	YASI Items
1. Emotional abuse	<ul style="list-style-type: none"> • Parents/caregivers are hostile toward youth, berating, belittling • Emotional abuse perpetrated by parent, stepparent, other adult, or currently
2. Physical abuse	<ul style="list-style-type: none"> • Physical violence between parents and children • Physical abuse perpetrated by parent, stepparent, other adult, or currently
3. Sexual abuse	<ul style="list-style-type: none"> • Sexual abuse perpetrated by parent, stepparent, other adult, or currently
4. Alcohol/drugs in home	<ul style="list-style-type: none"> • Circumstances of family members who are living in the household (alcohol/drug problems with mother, father, stepparent, sibling, or other) • Historic problems of family members who lived in the environment in which the youth was primarily raised (alcohol/drug problems with mother, father, stepparent, sibling, or other)
5. Mental health problems in home	<ul style="list-style-type: none"> • Circumstances of family members who are living in the household (mental health problems with mother, father, stepparent, sibling, or other) • Historic problems of family members who lived in the environment in which the youth was primarily raised (mental

	health problems with mother, father, stepparent, sibling, or other)
6. Parental criminality	<ul style="list-style-type: none"> • Circumstances of family members who are living in the household (mother, father, stepparent, sibling, or other with a youth/adult criminal and/or violent criminal record) • Historic problems of family members who lived in the environment in which the youth was primarily raised (mother, father, stepparent, sibling, or other with a youth/adult criminal and/or violent criminal record)
7. Physical neglect	<ul style="list-style-type: none"> • Times kicked out of home • Court finding of child neglect
8. Emotional neglect	<ul style="list-style-type: none"> • Rewards for good behaviour (affection, praise, or other tangible means) are never appropriate or there are no rewards • No family support network • Family provides no opportunities for involvement in family activities • Family provides no opportunities for growth • Youth does not feel close to or have a good relationship with any family member • Parents/caregivers are hostile toward youth, berating, belittling or are indifferent, uncaring, uninterested, and unwilling to help

<p>9. Violence toward mother</p>	<ul style="list-style-type: none"> • Physical violence between parents
<p>10. Parents separated or divorced (unstable home)</p>	<ul style="list-style-type: none"> • Total number of placements with Children’s Aids Society (for any reason) • History of being in a foster home • History of living independently (as a youth) • History of homelessness/shelter • Other (depending on location)

Appendix C
Family Domain from the YASI Full Assessment

Part B: Family History

00 Family items do not apply (not scored)							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B00	Boolean	True					
			Maximum scores:				

1a Times kicked out of home:							PS
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B01a	Integer						
			Maximum scores:	0			

1b Times run away:							PS
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B01b	Integer						
			Maximum scores:	0			

Sum of B01a + B01b							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B01		0		0			
		1-6		4			
		7+		6			
			Maximum scores:	6			

2 Has there ever been a family court finding of child neglect:							PS
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B02	Integer	0	No	0			
		1	Yes	2			
			Maximum scores:	2			

3 Compliance with parental rules:							PS
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B03	Integer	1	Youth usually obeys, and follows rules		0		4

		2	Youth sometimes obeys, or obeys some rules		1		0
		3	Youth often disobeys rules		5		0
		4	Youth consistently disobeys, and/or is hostile		6		0
		5	No pro-social rules in place		6		0
		0	Not Applicable		0		0
			Maximum scores:		6		4

4							Circumstances of family members who are living in the household:		PS
Field	Type	Value	Associated phrase	SR	DR	SP	DP		
B04a1	Boolean	<i>True</i>	MOTHER: Not Applicable		0				
B04b1	Boolean	<i>True</i>	MOTHER: No Problems		0				
B04c1	Boolean	<i>True</i>	MOTHER: Alcohol/Drug Problems		+ 1				
B04d1	Boolean	<i>True</i>	MOTHER: Mental Health Problems		+ 2				
B04e1	Boolean	<i>True</i>	MOTHER: Youth/Criminal Record		+1				
B04f1	Boolean	<i>True</i>	MOTHER: Youth/Violent Criminal Record		+ 2				
			Maximum scores (Mother):		3				
Field	Type	Value	Associated phrase	SR	DR	SP	DP		
B04a2	Boolean	<i>True</i>	FATHER: Not Applicable		0				
B04b2	Boolean	<i>True</i>	FATHER: No Problems		0				
B04c2	Boolean	<i>True</i>	FATHER: Alcohol/Drug Problems		+ 1				
B04d2	Boolean	<i>True</i>	FATHER: Mental Health Problems		+ 2				
B04e2	Boolean	<i>True</i>	FATHER: Youth/Criminal Record		+1				
B04f2	Boolean	<i>True</i>	FATHER: Youth/Violent Criminal Record		+ 2				
			Maximum scores (Father):		3				
Field	Type	Value	Associated phrase	SR	DR	SP	DP		
B04a3	Boolean	<i>True</i>	STEP-PARENT: Not Applicable		0				

B04b3	Boolean	<i>True</i>	STEP-PARENT: No Problems		0		
B04c3	Boolean	<i>True</i>	STEP-PARENT: Alcohol/Drug Problems		+ 1		
B04d3	Boolean	<i>True</i>	STEP-PARENT: Mental Health Problems		+ 2		
B04e3	Boolean	<i>True</i>	STEP-PARENT: Youth/Criminal Record		+1		
B04f3	Boolean	<i>True</i>	STEP-PARENT: Youth/Violent Criminal Record		+ 2		
			Maximum scores (Step-parent):		3		
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B04a4	Boolean	<i>True</i>	SIBLING: Not Applicable		0		
B04b4	Boolean	<i>True</i>	SIBLING: No Problems		0		
B04c4	Boolean	<i>True</i>	SIBLING: Alcohol/Drug Problems		+ 1		
B04d4	Boolean	<i>True</i>	SIBLING: Mental Health Problems		+ 2		
B04e4	Boolean	<i>True</i>	SIBLING: Youth/Criminal Record		+1		
B04f4	Boolean	<i>True</i>	SIBLING: Youth/Violent Criminal Record		+ 2		
			Maximum scores (Sibling):		3		
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B04a5	Boolean	<i>True</i>	OTHER: Not Applicable		0		
B04b5	Boolean	<i>True</i>	OTHER: No Problems		0		
B04c5	Boolean	<i>True</i>	OTHER: Alcohol/Drug Problems		+ 1		
B04d5	Boolean	<i>True</i>	OTHER: Mental Health Problems		+ 2		
B04e5	Boolean	<i>True</i>	OTHER: Youth/Criminal Record		+1		
B04f5	Boolean	<i>True</i>	OTHER: Youth/Violent Criminal Record		+ 2		
			Maximum scores (Other):		3		
			Maximum scores (Entire Item):		15		
Apply cutoff to B04DR Sum. If sum = 1-2 , B04DR = 1 If sum = 3, B04DR = 3							

If sum = 4+ = B04DR = 5

5 Historic problems of family members who lived where the youth was primarily raised:							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B05a1	Boolean	<i>True</i>	MOTHER: Not Applicable	0			
B05b1	Boolean	<i>True</i>	MOTHER: No Problems	0			
B05c1	Boolean	<i>True</i>	MOTHER: Alcohol/Drug Problems	+ 1			
B05d1	Boolean	<i>True</i>	MOTHER: Mental Health Problems	+ 1			
B05e1	Boolean	<i>True</i>	MOTHER: Youth/Criminal Record	+ 1			
B05f1	Boolean	<i>True</i>	MOTHER: Youth/Violent Criminal Record	+ 1			
			Maximum scores (Mother):	3			
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B05a2	Boolean	<i>True</i>	FATHER: Not Applicable	0			
B05b2	Boolean	<i>True</i>	FATHER: No Problems	0			
B05c2	Boolean	<i>True</i>	FATHER: Alcohol/Drug Problems	+ 1			
B05d2	Boolean	<i>True</i>	FATHER: Mental Health Problems	+ 1			
B05e2	Boolean	<i>True</i>	FATHER: Youth/Criminal Record	+ 1			
B05f2	Boolean	<i>True</i>	FATHER: Youth/Violent Criminal Record	+ 1			
			Maximum scores (Father):	3			
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B05a3	Boolean	<i>True</i>	STEP-PARENT: Not Applicable	0			
B05b3	Boolean	<i>True</i>	STEP-PARENT: No Problems	0			
B05c3	Boolean	<i>True</i>	STEP-PARENT: Alcohol/Drug Problems	+ 1			
B05d3	Boolean	<i>True</i>	STEP-PARENT: Mental Health Problems	+ 1			
B05e3	Boolean	<i>True</i>	STEP-PARENT: Youth/Criminal Record	+ 1			

B05f3	Boolean	<i>True</i>	STEP-PARENT: Youth/Violent Criminal Record	+ 1			
			Maximum scores (Step-parent):	3			
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B05a4	Boolean	<i>True</i>	SIBLING: Not Applicable	0			
B05b4	Boolean	<i>True</i>	SIBLING: No Problems	0			
B05c4	Boolean	<i>True</i>	SIBLING: Alcohol/Drug Problems	+ 1			
B05d4	Boolean	<i>True</i>	SIBLING: Mental Health Problems	+ 1			
B05e4	Boolean	<i>True</i>	SIBLING: Youth/Criminal Record	+ 1			
B05f4	Boolean	<i>True</i>	SIBLING: Youth/Violent Criminal Record	+ 1			
			Maximum scores (Sibling):	3			
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B05a5	Boolean	<i>True</i>	OTHER: Not Applicable	0			
B05b5	Boolean	<i>True</i>	OTHER: No Problems	0			
B05c5	Boolean	<i>True</i>	OTHER: Alcohol/Drug Problems	+ 1			
B05d5	Boolean	<i>True</i>	OTHER: Mental Health Problems	+ 1			
B05e5	Boolean	<i>True</i>	OTHER: Youth/Criminal Record	+ 1			
B05f5	Boolean	<i>True</i>	OTHER: Youth/Violent Criminal Record	+ 1			
			Maximum scores (Other):	3			
			Maximum scores (Entire Item):	15			

6	Youth's current living arrangements: (not scored)						
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B06a	Boolean	<i>True</i>	Mother				
B06b	Boolean	<i>True</i>	Father				
B06c	Boolean	<i>True</i>	Step-Parent				
B06d	Boolean	<i>True</i>	Siblings				

B06e	Boolean	<i>True</i>	Other Relative				
B06f	Boolean	<i>True</i>	Other Adult				
B06g	Boolean	<i>True</i>	Foster/Group Home				
B06h	Boolean	<i>True</i>	Independent				
B06i	Boolean	<i>True</i>	No permanent address/shelter				
B06j	Boolean	<i>True</i>	Other				
B06jText	Text		Other (specify)				
			Maximum scores:				

7 Parental/custodial supervision:							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B07	Integer	1	Good supervision		0		2
		2	Some good supervision		2		0
		3	Some inadequate supervision		3		0
		4	Frequently inadequate supervision		4		0
		5	Consistently inadequate supervision		5		0
		0	Not Applicable		0		0
			Maximum scores:		5		2

8 Appropriate consequences for bad behaviour:							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B08	Integer	1	Consistently appropriate consequences		0		2
		2	Usually appropriate consequences		0		1
		3	Sometimes appropriate consequences		2		0
		4	Usually not appropriate consequences		5		0
		5	Never appropriate consequences		5		0
		0	Not Applicable		0		0
			Maximum scores:		5		2

9 Appropriate rewards for good behaviour:							
--	--	--	--	--	--	--	--

Field	Type	Value	Associated phrase	SR	DR	SP	DP
B09	Integer	1	Consistently appropriate rewards		0		2
		2	Usually appropriate rewards		0		1
		3	Sometimes appropriate rewards		2		0
		4	Usually not appropriate rewards		5		0
		5	Never appropriate rewards		5		0
		0	Not Applicable		0		0
			Maximum scores:		5		2

10 Parental attitude toward youth's maladaptive behaviour:							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B10	Integer	1	Clearly disapproves...		0		
		2	Some disapproval...		0		
		3	Minimizes, denies, justifies...		6		
		4	Accepts...		6		
		5	Proud of...		6		
		0	Not Applicable		0		
			Maximum scores:		6		

11 Support network for family; extended family and friends who can provide additional support:							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B11	Integer	1	Strong family support network				1
		2	Some family support network				0
		3	No family support network				0
		0	Not Applicable				0
			Maximum scores:				1

12 Family member(s) youth feels close to or has good relationship with:							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B12a	Boolean	<i>True</i>	Mother/female caretaker				+1
B12b	Boolean	<i>True</i>	Father/male caretaker				+1
B12c	Boolean	<i>True</i>	Female sibling				+1
B12d	Boolean	<i>True</i>	Male sibling				+1

B12e	Boolean	<i>True</i>	Extended family				+1
B12f	Boolean	<i>True</i>	No one				
			Maximum scores:				1

13	Family provides opportunities for youth to participate in family activities and decisions affecting the youth:						
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B13	Integer	1	Family engages in regular or frequent activities...				3
		2	Engages in some family activities				0
		3	No engagement in activities as a family				0
		0	Not Applicable				0
			Maximum scores:				3

14	Family provides opportunities for youth to learn, grow and succeed:						
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B14	Integer	1	Ongoing opportunities for growth provided				2
		2	Some opportunities for growth provided				0
		3	No opportunities for growth provided				0
		0	Not Applicable				0
			Maximum scores:				2

15	Parental love, caring, and support of youth:						
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B15	Integer	1	Consistent love, caring and support		0		2
		2	Usually demonstrates love, caring and support		0		1
		3	Inconsistent love, caring and support		4		0
		4	Indifferent, uncaring, uninterested, unwilling to help		5		0

		5	Hostile toward youth, berating and belittling		6		0
		0	Not Applicable		0		0
			Maximum scores:		6		2

16 Level of conflict between parents, between youth and parents, and among siblings:							
Field	Type	Value	Associated phrase	SR	DR	SP	DP
B16a	Boolean	<i>True</i>	No conflict		+0		
B16b	Boolean	<i>True</i>	Some conflict that is well managed		+ 1		
B16c	Boolean	<i>True</i>	Some conflict that is distressing		+5		
B16d	Boolean	<i>True</i>	Verbal intimidation, yelling, heated arguments		+ 5		
B16e	Boolean	<i>True</i>	Threats of physical violence		+ 6		
B16f	Boolean	<i>True</i>	Physical violence between parents		+ 6		
B16g	Boolean	<i>True</i>	Physical violence between parent, children		+ 6		
B16h	Boolean	<i>True</i>	Physical violence between siblings		+ 6		
B16i	Boolean	<i>True</i>	Not Applicable		0		
			Maximum scores:		35		

Apply these weights to B16DR – sum: 1-4=1 weight, 5-10=4 weight, 11+=6 weight

Part B: Family				Totals			
B	Aggregate Scores for this domain						
			Associated phrase	SR	DR	SP	DP
			Zero				
			Low				
			Moderate				
			High				
			Maximum scores:				
PS check if: IF Item 1 (B01a+B01b) = 1 or more OR Item 2 Risk (B02DR) = 3 or more OR Item 3 Risk (B03DR) = 1 or more							

OR Item 4 (B04x1, B04x2) = 1 or more (Note this is only parent checkboxes – series 1 and 2)
then display pre-screen flag

Appendix D

Dynamic and Static Risk Items: Scoring Poor Parental Practices from the YASI

FAMILY	VALUES	RECODE	MAX
Times kicked out/locked out or runaway (num)	<ul style="list-style-type: none"> • 0 • 1-6 • 7+ 	<ul style="list-style-type: none"> 0 1 2 	2
Has there been a court finding of child neglect	<ul style="list-style-type: none"> • No • Yes 	<ul style="list-style-type: none"> 0 1 	1
Historic circumstances of family members – <i>mother, father, step-parent, sibling, other</i>	<ul style="list-style-type: none"> • N.A. • No problems • Alcohol/drug problems • Mental health problems • JD/criminal record • Violent JD /criminal record 	<ul style="list-style-type: none"> 0 0 +1 +1 +1 +1 	4
<i>FAMILY_StaticRisk TOTAL</i>			7
Parental/custodial supervision	<ul style="list-style-type: none"> • Good supervision • Some good supervision • Some supervision or N/A • Some inadequate supervision • Consistently inadequate supervision 	<ul style="list-style-type: none"> 0 0 0 1 2 	2
Circumstances of family members – <i>mother, father, step-parent, sibling, other</i>	<ul style="list-style-type: none"> • N.A. • No problems • Alcohol/drug problems • Mental health problems • JD/criminal record • Violent JD /criminal record 	<ul style="list-style-type: none"> 0 0 +1 +2 +1 +2 	6
Appropriate consequences for bad behaviour	<ul style="list-style-type: none"> • Consistently appropriate consequences • Sometimes appropriate consequences 	<ul style="list-style-type: none"> 0 0 	2

	• Some consequences are used or N/A	0	
	• Usually not appropriate consequences	1	
	• Never appropriate or no consequences	2	
Appropriate rewards for good behaviour	• Consistently appropriate rewards	0	2
	• Sometimes appropriate rewards	0	
	• Some rewards are used or N/A	0	
	• Usually not appropriate rewards	1	
	• Never appropriate or no rewards	2	
Parental attitude towards youths maladaptive behaviour	• Clearly disapproves of youth's maladaptive behaviour	0	3
	• Shows some disapproval of behaviour	0	
	• Minimizes, denies, justifies, excuses maladaptive behaviour, blames others/circumstances	1	
	• Accepts youth's maladaptive behaviour as okay	2	
	• Proud of youth's maladaptive behaviour	3	
Parental love, caring and support of youth	• Consistent love, caring, and support	0	2
	• Inconsistent love, caring, and support	0	
	• Some caring or N/A	0	
	• Indifferent, uncaring, uninterested, unwilling to help	1	
	• Hostile toward youth, berating, belittling	2	
	• Not applicable	0	17
	• No conflict	0	

Level of conflict between parents, youth and parents, and among siblings	<ul style="list-style-type: none"> • Some conflict, well-managed • Some conflict, distressing • Verbal intimidation, yelling, heated arguments • Threats of physical violence • Physical violence between parents • Physical violence between parents & children • Physical violence between sibling 	<p>+1</p> <p>+2</p> <p>+2</p> <p>+3</p> <p>+3</p> <p>+3</p> <p>+3</p>
<hr/>		
<i>FAMILY_DynamicRisk</i>	34	
<hr/>		
TOTAL		

Max total of combined static and dynamic family risk factors: 41

Appendix E

Direct/Indirect Aggression Scales

Answer the questions by circling the number which seems to describe your behavior during the last six months in the closest way. Circle your response.

0 = never, 1 = seldom, 2 = sometimes, 3 = quite often, 4 = very often

	Never Seldom Sometimes Quite Often Very Often
1. When you have gotten angry or have had problems with someone how often have you shut the person out of the group?	0 1 2 3 4
2. When you have gotten angry or have had problems with someone how often have you become friends with another as a kind of revenge?	0 1 2 3 4
3. When you have gotten angry or have had problems with someone how often have you ignored the person?	0 1 2 3 4
4. When you have gotten angry or have had problems with someone how often have you gossiped about the person?	0 1 2 3 4
5. When you have gotten angry or have had problems with someone how often have you told bad or false stories about the person?	0 1 2 3 4
6. When you have gotten angry or have had problems with someone how often have you secretly planned to bother the person?	0 1 2 3 4
7. When you have gotten angry or have had problems with someone how often have you said bad things behind the person's back?	0 1 2 3 4
8. When you have gotten angry or have had problems with someone how often have you said to others, "Let's not be with him/her!"	0 1 2 3 4
9. When you have gotten angry or have had problems with someone how often have you told the person's secrets to someone else?	0 1 2 3 4
10. When you have gotten angry or have had problems with someone how often have you written small notes criticizing the person?	0 1 2 3 4

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11. When you have gotten angry or have had problems with someone how often have you criticized the person's hair or clothing?	0 1 2 3 4
12. When you have gotten angry or have had problems with someone how often have you tried to get others to dislike the person?	0 1 2 3 4

Appendix F

Component Matrices for the Principal Components Analysis Conducted on the
Adolescent Relationship Scales Questionnaire

Table F1

Component Matrix for the Fearful Subscale

Item	Component 1
I find it hard to count on other people	.74
I worry that I will be hurt if I become too close to others	.77
I find it difficult to trust others completely	.75
I am kind of uncomfortable being emotionally close to people	.58

Note. One component extracted, no items were removed.

Table F2

Component Matrix for the Dismissing Subscale

Item	Component 1	Component 2
It is very important to me to feel independent	.77	.15
I am comfortable without close relationships	.35*	.65
It is very important for me to do things on my own	.80	.10
I'd rather not have other people depend on me	.50	-.68
I prefer not to depend on people	.74	-.20

Note. Two components extracted. * = items that were removed before conducting final analyses.

Table F3

Component Matrix for the Preoccupied Subscale

Item	Component 1	Component 2
I am comfortable without close emotional relationships (reverse keyed)	-.02*	.99
I want to be completely emotionally close with others	.71	.13
I worry others don't value me as much as I value them	.79	-.09
I find that people don't want to get as close as I would like	.73	.00

Note. Two components extracted. * = items that were removed before conducting final analyses.

Table F4

Component Matrix for the Secure Subscale

Item	Component 1	Component 2
I find it easy to get emotionally close to others	.62	.14*
I worry about being alone (reverse keyed)	-.77	.36*
I am comfortable depending on other people	.53	.53
I am comfortable having other people depend on me	.36	.75
I worry about having people not accept me (reverse keyed)	-.70	.49*

Note. Two components extracted. * = items that were removed before conducting final analyses.