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Exploring Psychopathy Predictors in Males and Females

Teresa M. Encalada
Florida International University, xm.encalada@gmail.com

FLORIDA INTERNATIONAL UNIVERSITY

Miami, Florida

EXPLORING PSYCHOPATHY PREDICTORS IN MALES AND FEMALES

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by

Teresa Michelle Encalada

2022

To: Dean John F. Stack, Jr.
Steven J. Green School of International and Public Affairs

This dissertation, written by T. Michelle Encalada, and entitled Exploring Psychopathy Predictors in Males and Females, having been approved regarding style and intellectual content, is referred to you for judgment.

We have read this dissertation and recommend that it be approved.

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Deborah Goldfarb

_____
Robert Peacock

_____
Rob Guerette

_____
Jamie L. Flexon, Major Professor

Date of Defense: July 1, 2022

The dissertation of Teresa Michelle Encalada is approved.

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Dean John F. Stack, Jr.
Steven J. Green School of International and Public Affairs

_____
Andrés G. Gil
Vice President for Research and Economic Development
and Dean of the University Graduate School

Florida International University, July 1,2022

DEDICATION

This dissertation is dedicated to the village of people who have spent generations laying down the foundation for the road that led me here.

To Hoover and Teresa Encalada

Nicole Encalada

Christopher Vanegas

Hon. Dr. Percy Encalada

Hector Encalada

And finally, to Rosa Encalada Erraez.

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ABSTRACT OF THE DISSERTATION

EXPLORING PSYCHOPATHY PREDICTORS IN MALES AND FEMALES

by

Teresa Michelle Encalada

Florida International University, 2022

Miami, Florida

Professor Jamie L. Flexon, Major Professor

Psychopathy is a clinical term used to describe a personality disorder that presents as callousness, lack of empathy, feelings of grandiosity, impulsivity, narcissism, and a lack of guilt or remorse (Cleckley, 1951). Psychopathic individuals are estimated to commit 20 – 40% of violent crimes (Drislane et al., 2019) and makeup between 15% and 25% of the prison population (Kiehl & Hoffman, 2011). As such, psychopathy is one of the most significant criminal justice constructs of the present day because of the heightened and persistent levels of aggression, criminality, and financial damage implemented by psychopathic individuals (DeLisi & Piquero, 2011).

Though the topic has seen an increase in research, and some have lauded psychopathy as the unified theory of crime (DeLisi, 2009), the field has seen a paucity of research concerning the disorder in female youth and gender differences in all aspects. The current research uses Pathway to Desistance study (PTD) data to focus on three research questions, targeting developmental antecedents, the role gender plays in psychopathic development, psychopathic dimensions, and stability in males and females. Two theories are explored to explain the development of psychopathic traits in the

sample and the differences between the genders, including attachment theory, gender schema, and socialization theories.

Study results suggest that race, gender, presence of caring adults, motivation to succeed, and baseline psychopathy scores affect later psychopathic development in males and females. Findings also reveal males and females are affected by different developmental antecedents, and different relationships occur based on gender. Additionally, gender appears to have a modifying effect on the relationship between one protective factor and psychopathy development. Lastly, males reported on average higher total psychopathy scores and higher scores in the callus-unemotional, grandiose-manipulative, and impulsive-irresponsible dimensions. When it comes to psychopathy stability, the findings reveal there is an overall decrease, on average, in final psychopathy scores, as well as in each of the psychopathic dimensions whether examining males or females.

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ABBREVIATIONS AND ACRONYMS

ASPD	Antisocial personality disorder
CU	Callous-unemotional
DI	Daring-impulsive
DSM	Diagnostic and Statistical Manual of Mental Disorders
ETV	Exposure to Violence Inventory
GM	Grandiose-manipulative
IPV	Intimate partner violence
IR	Impulsive-irresponsible
PCL-R	Psychopathy Checklist-Revised
PCL:	Psychopathy Checklist:
YV	Youth Version
PTD	Pathways to Desistance
WASI	Weschler Abbreviated Scale of Intelligence
YPI	Youth Psychopathic Traits Inventory

CHAPTER I: INTRODUCTION

The study of psychopathy dates back to the nineteenth century when institutionalized patients were described as exhibiting *Maine sans delire* (Porter, 1996). These individuals were said to commit inexplicable violent crimes but did not have common traits with other insane patients (Porter, 1996). Psychopathy is documented again in the 1830s when referred to as "moral imbecility," a mental derangement that manifested as immoral and depraved principles but did not impair intellect (Davison, 1990; Porter, 1996). Research continued and resulted in a system describing seven types of psychopathy, including antisocial, liar, swindler, and impulsive (Porter, 1996). During this time, there were occasional mentions of a "hereditary taint" (von Krafft-Ebing, 1939), but the consideration of casual hypotheses was not common until the 1920s (Porter, 1996). At that time, etiological theories became more available (Porter, 1996) and flooded in after Cleckley's (1951) *Mask of Sanity* (Donnelly, 1964; Hare, 1970).

The current literature centers around males and the institutionalized population (Skeem & Cooke, 2010) with increasing consideration towards youth (Edens et al., 2007), female psychopathy (Verona & Vitale, 2018), and developmental antecedents (Krstic et al., 2016). Although this topic is still in its infancy, it has been growing significantly in criminological thought, with researchers going as far as stating psychopathy is the unified theory of crime; arguing it is the most substantial explanation for antisocial behavior and facilitates the study of antisociality across all life stages (DeLisi, 2009).

Psychopathy is an essential construct relevant to the criminal justice system (Harris et al., 2001) as psychopathic individuals account for a substantial amount of

crime. Research estimates suggest that 40% of murderers (Laurell & Dåderman, 2007) and 28% of sex offenders (Jackson & Richards, 2007) qualify for the diagnosis. Psychopathy is said to be an ideal predictor of recidivism. The magnitude of its effect is more significant than other known risk factors for serious violent criminality (Marcus et al., 2006), more so than associating with delinquent peers, drug use, prior delinquent behavior, education, and family background, among other variables (Salekin et al., 2008). That being said, research regarding the interaction between psychopathic traits and traditional criminological variables is notably lacking, specifically as it relates to their influence on delinquency (Flexon & Meldrum, 2013). This research is vital as co-occurring causes of crime are believed to amplify the effects of another (Hay et al., 2006), and could help clarify the relationship between psychopathy and criminality.

Psychopathic Development

Individuals may be born with the traits that contribute to the development of psychopathy, or the disorder may develop from adaptations to abuse, neglect, or rejection experienced in childhood (Karpman, 1941). Researchers have studied psychopathy in different life stages, including childhood (ages 2 to 12), early adolescence (ages 11 to 14), mid-adolescence (ages 15 to 17), late adolescence (ages 18 to 21) (Hardin et al., 2017), and adulthood (21 years of age and older). While evidence supports the concept that psychopathy is moderately stable from adolescence into adulthood (Lynam, Caspi, et al., 2007), studies on temporal stability (Pardini et al., 2003; Pardini & Loeber, 2007) suggest that there might be a developmental period where psychopathic traits are malleable in youth.

Psychopathic development is a continuous process, meaning individuals are constantly undergoing and capable of change (Frick et al., 2014). Psychopathic stability varies across development, making developmental study crucial (Frick et al., 2014). As such, research surrounding psychopathy stability employs three approaches, including (1) rank-order stability, (2) mean-level stability, and (3) individual-level stability (Andershed, 2010). Rank-order stability relies on a test-retest correlation (Andershed, 2010). Mean-level stability refers to the extent to which scores change over time. Lastly, individual-level stability is concerned with stability in subgroups over time (Andershed, 2010). Most studies have used rank-order stability and mean-level stability and report finding stability in the psychopathic population in their studies (Lee & Kim, 2021).

Stability and development of psychopathic traits are influenced by factors such as genetic, neurocognitive (Blair et al., 2006; Viding et al., 2005), temperamental, and emotional (Frick et al., 1999), environmental, social, peer, and parenting variables (Lykken, 1995). Developmental antecedents such as parental relationships (Durand & de Calheiros Velozo, 2018; Gao & Tang, 2013; Kuppens & Ceulemans, 2019), upbringing, environment (Carlson et al., 2015; Young & Widom, 2014), personality traits (Young & Widom, 2014) and child maltreatment (Carlson et al., 2015; Kimonis et al., 2008) have an impact on the development of psychopathic traits. Research suggests risk factors include maltreatment, traumatization (Bernstein et al., 2003; Durand & de Calheiros Velozo, 2018; Krischer & Sevecke, 2008) and unhealthy or inconsistent caregiver relationships (Akers & Jennings, 2019) and are likely to lead to an increase in psychopathy levels (Pardini & Loeber, 2007). Protective factors include parental warmth (Pardini & Loeber, 2007), positive peer relationships (Vagos et al., 2021), and spirituality

(Oman & Lukoff, 2018), among others, and may help shield against the development of psychopathic traits.

Although research has found these risk and protective factors are likely to play a role in psychopathy development, there are many unanswered questions, particularly as it relates to gender differences. For example, maltreatment and trauma are said to play a role in psychopathy development, but they may affect males and females differently (Carlson et al., 2015; Kimonis et al., 2008). This could be due to the distinct types and rates of maltreatment experienced by males and females (Rosenthal, 1988) or gender-unique responses to maltreatment (Boduszek et al., 2019; Gauthier-Duchesne et al., 2017). Studies that look at gender differences in antecedents seem to have conflicting results regarding how different types of maltreatment affect males and females (Bennet & Kerig, 2014; Lindberg et al., 2016). This illustrates the need for additional research on gender differences. Particularly in terms of developmental antecedents and expression of psychopathic traits.

Psychopathic Traits

Understanding psychopathic development is crucial, as is the recognition of psychopathic traits. These traits may manifest in youth as (1) callous-unemotional traits (CU), (2) grandiose-manipulative traits (GM), and (3) daring impulsive traits (DI) (Salekin, 2017) and may present during childhood, adolescence, and adulthood (Lynam & Gudonis, 2005). The current standards state that youth cannot be diagnosed with psychopathy until they reach legal age (Association, 2013). However, the DSM has a complicated history concerning this disorder, as it offers different criteria for psychopathy from 1952 to 2013 (Crego & Widiger, 2015). That being said, the concept

of childhood psychopathy has been supported as far back as the 1950s, when it was said to manifest as hyperactivity, impulsivity, and attention difficulties, in addition to problematic conduct (Cleckley, 1951).

CU traits consist of a lack of guilt and empathy (White & Frick, 2010). They are believed to be central to psychopathy in youth and represent a lack of affective experience (Cooke et al., 2006). CU traits may develop due to childhood maltreatment (Carlson et al., 2015). On the other hand, GM traits present as superficial charm, glibness, and feelings of grandiosity (Salekin, 2016). GM traits are egocentric and stem from a belief in superiority; these traits are often seen in early childhood and progress into adulthood (Salekin, 2016). Lastly, DI traits manifest as impulsivity, risk-taking, and thrill-seeking (Salekin, 2017) and are linked with substance use, aggression, and other behavior problems during adolescence and early adulthood (Salekin, 2016). These traits are also referred to as Impulsive/Irresponsible (IR) traits in the Youth Psychopathic Traits Inventory (YPI).

While the three psychopathic traits are present in males and females, research suggests they may express those traits differently (Durand & de Calheiros Velozo, 2018). Males are believed to demonstrate psychopathic traits through superficiality, grandiosity, and affective deficits (Strand & Belfrage, 2005). Females are said to display psychopathic traits through impulsivity, manipulation, flirtation, and relation aggression (Fulton et al., 2010). Both sexes are believed to have similar rates of impetuousness and parasitic lifestyles (Efferson & Glenn, 2018). Research surrounding gender differences in psychopathy is in its initial stages and much more attention is needed on the topic. Especially in light of the ongoing debates in the field.

The Debate Surrounding Psychopathy

This section bares heavily on the discussion of previous findings presented and reviews the main topics of debate in psychopathy: antisocial behavior, criminality, bias in measurement tools, the underrepresentation of females, and the dark figure of psychopathy. It is important to keep in mind, that a majority of the knowledge we have is contingent on the belief that behavioral issues are a part of psychopathy, as popular measurement tools include a heavy emphasis in this area. That being said, the overemphasis on behavioral problems to identify psychopathic individuals for study provides us with a skewed view of the true attributes of psychopathy, and how the disorder develops, manifests, and may be treated.

As stated, one of the major points of contention is the role of antisocial behavior, criminality, and conduct disorder in psychopathy (Hare & Neumann, 2010; Skeem & Cooke, 2010). Some argue that antisocial behavior and criminality are vital aspects of psychopathy (Hare & Neumann, 2010), while others believe it is an epiphenomenon that is not central to the disorder and is often the result of psychopathy (Skeem & Cooke, 2010). This has bled into a discussion of measurement tools and the heavy emphasis placed on criminality, as seen in widely used instruments such as the Psychopathy Checklist-Revised (PCL-R) (Skeem & Cooke, 2010), which was created for and validated through the use of an institutionalized male population (Grann et al., 1998).

The PCL-R includes a heavy emphasis on antisocial and criminal behavior, as can be seen by including factors such as criminal offending, criminal versatility, and revocation of conditional release (Hare & Neumann, 2006). It is quite reasonable to assume that the power of psychopathy to predict criminality is attributable to including

criminality in its measurement. Further, males are more likely to fit into psychopathy as measured by tools such as the PCL-R, which may cause the over-emphasis on male psychopathy (Grann et al., 1998; Skeem & Cooke, 2010). For example, males are more likely to be involved in criminal behavior and have a criminal record (Skeem & Cooke, 2010). On the other hand, based on limited findings, it appears that females tend to express psychopathy in more subtle ways that may be overlooked by measurement tools (Verona & Vitale, 2018). This is problematic as it provides the field with skewed knowledge of psychopathy that is tailored to males and institutionalized populations (Grann et al., 1998).

Consequently, this results in the understudy of female psychopathy and highlights the argument of an existing gender bias in the diagnostic criteria of psychopathy, much like those found in other disorders such as Antisocial Personality Disorder (ASPD) (Forouzan & Cooke, 2005) and Histrionic Personality Disorder (HPD) (Hamburger et al., 1996). The gender bias could be contributing to the underrepresentation of psychopathy in females as the disorder can often overlap with others that feature antisocial, narcissistic, histrionic, paranoid, and schizotypal personality disorders (Blackburn & Coid, 1998). Hence, females may be wrongfully diagnosed and labeled (Forouzan & Cooke, 2005).

Although some psychopaths are more prone to aggression and violence, others are less so and can succeed in society, and this affords them the ability to escape detection (Flexon, 2018). These individuals are often referred to as successful psychopaths. They are comprised of people who fit some criteria for psychopathy but thrive off of those traits (Cleckley, 1951)—either using them in noncriminal fields such as politics, business,

or law or by committing crimes and successfully avoiding detection or investigation (Cleckley, 1951). Research on this topic is lacking, and there is little empirical research available, mainly due to the extraordinary difficulty of obtaining the necessary subjects (Widom, 1977). Thus, we are more knowledgeable regarding certain types of psychopaths due to the significant attention they attract. Those who are less ostentatious go unidentified and become part of the *dark figure of psychopathy* (Flexon, 2018). In other words, these individuals become part of the psychopathic or psychopathic-like population that is undetected or unexplored in research (Flexon, 2018).

Gender and Crime

Research regarding the relationship between females and the criminal justice system largely surrounds their role as victims and to a lesser extent, offenders. This has served to contextualize much of our understanding of women and crime. For example, researchers have estimated that 1 in every 5 females report experiencing intimate partner violence (IPV) within their lifetime (Steffensmeier & Broidy, 2001). These experiences may include sexual abuse, physical violence, stalking, or psychological aggression and may result in injury, mental health disorders, or in most extreme cases, death (Breiding et al., 2015). With that, explanations of women and their criminality often attach to any related experiences of subjugation and victimhood, e.g., retaliation against an abuser, being forced to engage in crime by a partner, or using drugs to cope with some sort of oppression. This is compounded by the reality that males can also experience these IPV, but they do so at much lower rates, with estimates stating that 1 in 7 males may experience IVP in their lifetime (Breiding et al., 2015). Hence, explanations for male criminality depart from that seen with women by relying less upon their role as the victim

and focusing on their role as the offender. These realities combine to solidify perspectives concerning sex and criminality.

Irrespective of the above, as the field has progressed, female offenders are receiving more attention, and statistics reveal that women are being detained in historic numbers, rising significantly over the last four decades (Swavola et al., 2016). In the last fourteen years alone there has been a 15% increase in the female prison population, while the incarcerated male population had dropped by 9% between 2008 to 2018 (Zeng, 2018). Research surrounding this topic is limited but has shown females entering the prison population are more likely to have a history of abuse, trauma, and mental health problems (Swavola et al., 2016). While this provides clues about criminality, scholars are pressing for theoretical advancement surrounding female criminality, including determining whether sex-specific explicating is even needed.

Females are less likely to commit serious or violent crimes, and the vast majority of females in prison are there for non-violent offenses such as property crimes (32%), drug offenses (29%), and public order offenses (21%), while violent female offenders made up 18% of criminal convictions that resulted in incarceration (Swavola et al., 2016). Of those in prison, Black females are overrepresented in the criminal justice system, making up 30% of all incarcerated females in the U.S, even though they make up 13% of the female prison population (Swavola et al., 2016). Of incarcerated females, 11 to 17% are estimated to be psychopaths, compared to their male counterparts making up 25 to 30% of the prison population (Grann, 2000). Although psychopathic females only make up a small percentage of the prison population, these numbers may not be indicative of

the true extent of female psychopathy as they are more likely to be overlooked by popular measurement tools, express psychopathy in more subtle ways, and fall into the dark figure of psychopathy. However, the extent of their damage can be substantial and, in some ways, maybe more dangerous than males, as it often goes undetected and, as noted, underexplored empirically.

The importance of research surrounding psychopathy has gained recognition by criminal justice scholars and has been referred to as the most significant criminal justice construct of the present-day owning to the heightened and persistent levels of aggression, criminality, and financial damage attributed to psychopathic individuals (DeLisi & Piquero, 2011). Furthermore, the study of gender differences in psychopathy has also been called for (Verona & Vitale, 2018), in hopes of shedding light on developmental antecedents, gender-specific psychopathic expression, and informing criminal justice policy and intervention programs.

Significance of the Study

Given the debate surrounding central traits of psychopathy, measurement tools, and the *dark figure of psychopathy*, additional research is needed into developmental antecedents and gender differences. This dissertation focuses on several factors, including demographic information, presence of caring adults, quality of essential relationships, exposure to violence, behavioral problems, and spirituality. These factors play a vital role in early development generally and may be important in many ways to developing psychopathic traits in youth. These variables were chosen based on past research calling for studies using longitudinal data, including risk factors and protective factors (Salekin

et al., 2008). The included factors are speculated to affect the development of psychopathic traits in males and females differently. The findings in this dissertation help inform current literature and provide a better understanding of developmental antecedents and the role of gender in psychopathy.

The study of psychopathy is significant as it has been estimated that these individuals account for 20 – 40% of violent crimes, even though psychopathic males (1-2%) and females (0.3-0.7%) make up low percentages of the community (Drislane et al., 2019). The crimes committed by identified psychopaths are more sadistic than those committed by individuals who do not meet the criteria for psychopathy (Juodis et al., 2014). When it comes to the prison population, it is estimated that psychopaths make up between 15-25% of the total prison population (Kiehl & Hoffman, 2011), with 11% of female offenders and 31% of male offenders meeting some diagnostic criteria (Grann, 2000). Given the persistent findings of aggression, criminality, financial damage to society, and the gravity of perpetration, psychopathy is argued to be one of the most important constructs in the criminal justice system at this time (DeLisi & Piquero, 2011). Moreover, it is one of the priciest psychiatric disorders to address, estimated at $460 billion annually (Kiehl & Hoffman, 2011). Given these estimates, research is needed into the predictors of psychopathic traits and the role gender plays in psychopathy, particularly when it comes to developmental precursors (Nicholls & Petrila, 2005). This is especially true as psychopathic individuals are believed to respond poorly to current intervention methods (Shine & Hobson, 2000), with adults showing low to moderate success in treatment gains (Salekin, Worley, et al., 2010). With that, earlier identification could increase the likelihood of successful intervention, as psychopathic youth appears to

show more promise (Salekin, Worley, et al., 2010), indicating individuals may be more open to change during early developmental stages (Shine & Hobson, 2000).

As previously discussed, most research on this topic has centered around males and institutionalized populations. Therefore, the field is abundant with literature about psychopathy as seen in males (Grann et al., 1998; Krischer & Sevecke, 2008; Skeem & Cooke, 2010). This is problematic because females are less likely to be diagnosed with the disorder and therefore overlooked by researchers (Forouzan & Cooke, 2005). Available literature shows a correlation between experiencing trauma in youth and exhibiting psychopathic traits later in life (Krischer & Sevecke, 2008). Unfortunately, these studies do not delve into how gender affects the outcome. Thus, this research provides the field with a better understanding of gender differences in psychopathy, better-informing intervention methods, policies, and treatment options.

Theoretical Framework

The current study is guided by a theoretical framework surrounding attachment theory, gender schema, and socialization. Attachment theory is believed to explain psychopathic development through the exploration of attachment patterns created early in life. Gender schema and socialization are believed to explain the gender differences in psychopathic development and later expression.

Attachment theory

Attachment theory stems from the work of John Bowlby, who first proposed that early life events can affect childhood development (Bowlby, 1994). This theory has been expanded by many researchers since its inception and has recently been used to shed light

on psychopathy development. This section will introduce attachment theory, with a focus on developmental stages, attachment styles, stability, adult attachment styles, and their relation to psychopathy.

Attachment is considered to be an evolutionary process responsible for increasing the likelihood of survival from childhood to adulthood (Bowlby, 1994; Draper & Belsky, 1990; Rothbard & Shaver, 1994), as children who are near caregivers are more likely to receive protection and comfort, increasing the chances of survival. The process begins at birth and lasts through the first three years of life (Bowlby, 1969), throughout four stages: pre-attachment, indiscriminate attachment, discriminate attachment, and multiple attachments (Schaffer & Emerson, 1964). Attachment bonds are formed through parental interactions, especially in times of distress, and affect the development of a child's internal working model (Bowlby, 1969). This model consists of a set of beliefs about the self and the child's interpretation of their caregiver's behavior. The internal working model impacts emotions, behaviors, and interactions with others.

The internal working model can influence the development of one of four attachment styles including secure attachment, ambivalent-insecure attachment, avoidant-insecure attachment (M. D. Ainsworth et al., 1978), and disorganized-insecure attachment (Main & Solomon, 1986). Children who are securely attached have a positive self-image, as well as a positive image of others (M. D. Ainsworth et al., 1978). These children have learned that their needs will be consistently and positively met. Therefore creating resilience, allowing them the ability for self-regulation and forming a foundation for the expression of emotions to communicate in future relationships (Carlson & Sroufe,

1995). On the other hand, children with ambivalent attachment learn they cannot depend on their caregivers to meet their needs (M. D. Ainsworth et al., 1978). Ambivalent attachment results in feelings of preoccupation, anxiety, and a constant need for validation, and reassurance (Cassidy & Berlin, 1994). Those with an avoidant attachment style often avoid caregivers, showing no preference between them and strangers (M. D. Ainsworth et al., 1978). Individuals with avoidant attachment develop it as a result of abusive or neglectful parenting. Avoidant attachment style results in difficulty with intimacy, dismissive attitudes, and difficulty asking for help (Simpson & Rholes, 2012). Lastly, disorganized attachment is described as having a mix of behaviors, including disorientation and confusion (Carlson & Sroufe, 1995). These children may be resistant or avoidant to their caregivers, as the caregiver could be a source of fear and comfort, likely stemming from inconsistent caregiver behavior (Carlson & Sroufe, 1995).

Research on attachment pattern stability is conflicting, with some longitudinal studies reporting predictable core personality factors and social interactions (Elicker et al., 2016; Grossmann & Grossmann, 1991), while others show instability in the attachment patterns (Egeland & Farber, 1984). This is especially true when controlling for changes in caregiver sensitivity, maternal emotional makeup, and environmental factors (Lewis & Feiring, 1991). Although these bonds can be revised based on parent-child interaction, it becomes more challenging to do so as the pattern of behavior continues later in the childhood development process (Iwaniec & Sneddon, 2001). This supports the notion that adult attachment patterns are an expansion of childhood attachment styles (Main et al., 1985), which are used to guide behavior in future relationships (Bowlby, 1982). Although childhood attachment styles impact future

relationships, attachment patterns can change as friends and partners become targets for attachment in adolescence and young adulthood (Hazan & Zeifman, 1994).

Attachment theory focuses on interpersonal and emotional responses, two aspects central to psychopathy. Individuals who are unable to properly bond with caregivers develop an inner working model of others as being unworthy of trust, concern, or empathy, resulting in the development of a range of callous traits (Bowlby, 1994; Van Ijzendoorn & Zwart-Woudstra, 1995). Although research into attachment styles and psychopathy is sparse and has not received proper attention, attachment theory is believed to shed light on psychopathy development (Bowlby, 1994). This is particularly true for individuals who exhibit emotional detachment mechanisms (Porter, 1996).

Emotional detachment is an affective coping mechanism that refers to a state of disconnect or disengagement from others (Porter, 1996). The dissociative mechanism is said to "turn off" the capacity for empathy through repeated trauma or disillusionment, resulting in emotional dissociation or a disconnect with cognition and behavior (Porter, 1996). Over time, this mechanism can be reinforced by a reduction in psychological distress or trauma associated with prolonged abuse, resulting in rescinded affect (Porter, 1996). This process is evident in many children who experience abusive childhoods, later growing into adulthood and presenting as "hardened" with a "strong/tough demeanor" (Everstine & Everstine, 2019). An important factor to consider is the age of the child, as the onset of abuse will influence development depending on what stage of affective development the child is at (Porter, 1996). This is to say a child might be in the early, late, or complete stage of affective development, therefore directly influencing the level

of resistance to dissociation (Porter, 1996). The earlier in life the child experiences risk factors, the more likely they might be to dissociate and emotionally deactivate, contributing to the development of psychopathic traits.

Gender Schema and Socialization

It is theorized that socialization plays a part in psychopathic expression differences between males and females (Hamburger et al., 1996). Children are socialized differently according to gender (Witt, 1997). They are first exposed to societal expectations, gender roles, and stereotypes through parental interactions, which family then reinforces, schooling, peers, the media, and society at large (Witt, 1997). These differences are subsequently perpetuated throughout childhood, adolescence, and adulthood (Martin et al., 1990).

From a very young age, children are introduced, categorized, and socialized into masculinity and femininity according to the sex they are born with, a process known as sex-typing (Bem, 1981). Sex typing is derived from a cognitive organization process called gender schema and a readiness on the child's behalf to encode and organize the information provided to them (Bem, 1981). Schema development impacts the child's learning of gender-specific information, including characteristics, expectations, and behaviors relating to their biological sex as assigned by their culture (Bem, 1981). Examples include males being taught to be more aggressive, dominant, and competitive, while females are shaped into compliant roles in society (Wood & Eagly, 2012).

Schema theory posits that individuals process information through the lens of the existing gender schema (Bem, 1981). Individuals learn through socialization, and its attributes are linked to their sex and how they associate themselves with these qualities

(Bem, 1981). This internalization process affects individuals' perception, influences recognized characteristics, behaviors, and allows individuals to act in ways that align with the internalized beliefs of how males and females behave within a given society (Bem, 1981). Children learn to evaluate their adequacy through gender schema and often match their preferences, attitudes, behaviors, and traits against the internalized beliefs of gender roles (Bem, 1981). Individuals often regulate their behavior to conform to the cultural definitions of social expectations (Bem, 1981). In this sense, societal expectations relating to gender become a self-fulfilling prophecy (Bem, 1981).

This theory may explain differences in psychopathic traits between males and females (Cale & Lilienfeld, 2002). In conforming to gender stereotypes, male and female children develop different mechanisms to process incoming information about the world around them (Bem, 1981). Children who experience trauma or adverse life events are believed to be impacted by those underlying mechanisms, specifically emotional recognition, and have difficulty discerning their emotional response and that of others (Pollak, 2004). Underlying mechanisms of this sort are believed to be one of the reasons why males and females respond differently to trauma (Camras et al., 1996; Pollak et al., 2000), but this has yet to be thoroughly studied.

Research Questions and Hypotheses

Research Question 1

The first research question asks: How do risk and protective factors affect the psychopathic development of the total sample? This question seeks to build upon past research by using a different measurement tool for psychopathic traits than the PCL-R. The current study will use the YPI, which is believed to be a more accurate and

appropriate device, as it measures more stable and affective features of psychopathy, rather than behavioral manifestations associated with the disorder (Andershed et al., 2002). While this question looks at developmental antecedents to psychopathy implicated in past research, it is unique because it seeks to refine and investigate nuances associated with known and suspected risk and protective factors within a unified, simultaneously estimated model. This strategy also enables comparisons between psychopathy predictors used in the same equation. Such a vetting process is useful as it enables scholars, clinicians, and policymakers to determine which risks pose the most serious threat to the development of psychopathy. In turn, the findings also highlight those protective factors having the greatest impact.

Hypothesis 1

The current study includes possible risk and protective factors as independent variables. Previous research has shown these variables to affect psychopathy development: demographic information (age, gender, ethnicity), presence of caring adults, maternal warmth (Pardini & Loeber, 2007), prosocial peer relationships, friendship quality (Vagos et al., 2021), exposure to violence, victimization (Durand & de Calheiros Velozo, 2018), spirituality (Oman & Lukoff, 2018), motivation to succeed (Schimmenti et al., 2020), and intelligence quotient (IQ) (Kandel et al., 1988). These variables may serve as risk or protective factors depending on the score.

It is hypothesized that risk factors, such as the lack of a caring adult, a lack of prosocial peer relationships, low friendship quality, exposure to violence, victimization, and low IQ, are positively associated with higher psychopathy scores in the total sample. In contrast, protective factors, such as the presence of caring adults, experiences of

maternal warmth, prosocial peer relationships, high-quality friendships, motivation to succeed, and high IQ, are hypothesized to shield against the development of psychopathic traits in the entire sample. The current study predicts that parental warmth and positive peer relationships are two of the greatest protective factors that have significance for males and females. The remaining variables are predicted to have similar effects on males and females.

The current study bases its hypothesis for the first research question on attachment theory (Bowlby, 1982). The included risk factors are believed to show inadequate bonding with parents, peers, and society (Bowlby, 1982), therefore increasing the likelihood of psychopathic development (Pardini & Loeber, 2007). Alternatively, protective factors are believed to signify proper bonding (Bowlby, 1982), which is believed to protect against psychopathic development (Bowlby, 1982; Pardini & Loeber, 2007).

Research Question 2

The second research question, in two parts, focuses on gender aspects of psychopathy, and asks: A) Is there a difference in the risk and protective factors affecting final psychopathy scores in males and females? Furthermore, are different relationships between the variables produced based on sex? Lastly, are psychopathy scores stable throughout adolescence in males and females? B) Does gender modify the relationship between the proposed risk, protective factors, and psychopathy? Research question 2 builds on past research, as it uses variables that are believed to be developmental precursors but focuses on gender differences. This specific question addresses one of the current literature gaps with an adjoining call for increased attention to this particular

matter (Verona & Vitale, 2018). It uniquely focuses on psychopathy stability in males and females, allowing the field to gain a better understanding of psychopathy development, desistance, and how those aspects differ among the sexes. Furthermore, this research question delves deeper into the possible modifying relationship between gender and the developmental antecedents, something which has not been explored thus far.

Hypothesis 2

The hypotheses for the second research question are presented in two parts: A) The current study hypothesizes that males and females are affected by different risk and protective factors. However, research on developmental antecedents has shown conflicting results in the way factors affect psychopathy in males and females (Bennet & Kerig, 2014; Lindberg et al., 2016). All the included variables could impact psychopathy levels, but the role of gender remains unclear. Childhood socialization, gender schema, and internalized gender norms have different underlying mechanisms and are associated with varied responses to the developmental antecedent. Gender differences and coping mechanisms could contribute to psychopathic traits and explain differences in psychopathic development between the genders. That being said, the current study hypothesizes that males are impacted by IQ and prosocial peers. Researchers have shown that IQ is a protective factor against antisocial behavior in males (Kandel et al., 1988). They have also shown that males are more strongly affected by criminal peers (Haynie et al., 2014).On the other hand, maternal warmth, spirituality, and friendship quality are predicted to have a greater impact on females, as they are more likely to experience the encouragement of prosocial activities that foster bonding (Lytton & Romney, 1991). That being said, females are also believed to experience higher levels of parental warmth

(Lytton & Romney, 1991), and spirituality focuses on empathy, compassion, self-insight (Martens, 2001), and high religiosity (Fekih-Romdhane et al., 2020). The current study also hypothesizes that males and females experience changes in psychopathy stability over the 9 years that separate the data points. This is supported by current research which states psychopathy stability varies across development, making developmental study crucial (Frick et al., 2014). Changes in psychopathic stability may be explained through the use of attachment theory, as psychopathic development is argued to stem, partially, from improper bonding.

B) Gender is believed to have a modifying relationship between developmental antecedents and psychopathy development. The interaction between gender and maternal warmth, gender, prosocial peers, gender, and friendship quality is believed to be the most significant, as these areas are considered to have the largest incongruities between males and females. These hypotheses are based on gender schema, socialization, and gender roles and the way they affect observed differences between males and females. Specifically, as it relates to internalized beliefs, societal treatment (Bem, 1981), and individual underlying mechanisms (Gauthier-Duchesne et al., 2017; Sloan-Power et al., 2013). Gender has been shown to play a role in gender-based differences as it relates to parenting, punishment styles, levels of affection (Lytton & Romney, 1991), childhood maltreatment (Durand & de Calheiros Velozo, 2018), and personal responses (Fergusson et al., 2013). These developmental antecedents are believed to directly affect the development of psychopathic traits through attachment and bonding (Bowlby, 1982).

Research Question 3

The third research question contains three parts and focuses on the three psychopathic dimensions: callous-unemotional (CU; 3A), grandiose-manipulative (GM; 3B), and impulsive-irresponsible (IR; 3C). This question asks: How do the risk and protective factors affect the development of each psychopathic dimension in males and females? Furthermore, are the psychopathic dimensions stable throughout adolescence in males and females? This question furthers the field understanding of psychopathy development and provides a comprehensive look into all three dimensions, as opposed to focusing solely on the CU dimension. It is also unique in that looks at psychopathic dimension stability in males and females separately, allowing the field to gain a better understanding of psychopathy development, desistance, and how those aspects differ among males and females.

Hypothesis 3

The hypotheses for the third research question are presented in three parts: A) The CU dimension has three subscales: remorselessness, unemotionality, and callousness. It is hypothesized that exposure to violence, victimization, and low levels of religiosity is associated with the CU dimension in the full sample. Protective factors, such as maternal warmth, the presence of caring adults, high levels of religiosity, prosocial peer relationships, and high-quality friendships are hypothesized to shield against the development of the CU dimension in the full sample. This argument is supported by research stating that exposure to trauma during childhood affects inhibition that could result in dissociation from affective experiences (Porter, 1996) and may develop traits in the CU dimension. Additional supportive research states parenting is related to CU traits, and youth who experience higher levels of parental warmth are more likely to have lower

CU traits (Waller et al., 2018). The current study hypothesizes that similar effects for prosocial peer relationships and high friendship quality will be found. Although researchers have looked at gender differences in psychopathy development, it has been limited and has produced conflicting results for females (Bennet & Kerig, 2014; Lindberg et al., 2016). Consequently, it is unclear how these risk and protective factors affect males and females differently. When it comes to CU dimension stability, the current study takes an exploratory approach and hypothesizes there will be changes in CU dimension stability in males and females, as research has stated psychopathy stability varies across development, therefore, highlighting the importance of developmental study (Frick et al., 2014). The expected changes in CU dimension stability might be explained through the use of attachment theory, as psychopathic development is argued to stem, partially, from improper bonding.

B) The GM dimension consists of four subscales: dishonest charm, grandiosity, lying, and manipulation. Factors relating to early trauma, such as exposure to violence and victimization, are believed to impact GM dimension development (Erwin et al., 2000). Researchers have shown that trauma experienced early in life has an impact on cognition development (Erwin et al., 2000) and interpersonal traits (Bisby et al., 2017; Fanti et al., 2013). When sustained, they can result in blunted affect, little connection to others, and a plethora of psychiatric problems (Bisby et al., 2017; Fanti et al., 2013). These findings are supported by attachment theory, specifically regarding emotional detachment mechanisms (Bowlby, 1969). The current study hypothesizes that sustained emotional detachment results in rescinded effect, resulting in GM dimension development. However, the role of gender in this development is more difficult to

discern. The current study hypothesizes that male and female GM dimension development is affected by varied factors, but the effects remain unclear. The gender-specific development and manifestation of GM dimension traits is hypothesized to be due to underlying mechanisms stemming from gender schema, socialization, and gender roles. When it comes to GM dimension stability, it is hypothesized that there will be changes in GM dimension stability in males and females. Although past research supports the notion of variability in psychopathic stability throughout development (Frick et al., 2014), the current study is among the first to look at differences in all psychopathy dimension stability in males and females, and therefore takes an investigative approach to this research question.

C) The IR dimension consists of thrill-seeking, impulsiveness, and irresponsibility. The current study hypothesizes that motivation to succeed and IQ will be related to the IR dimension of psychopathy. It has been argued that intellectual deficits may be related to impulsivity (Vitacco et al., 2008). This claim has been bolstered by reports of a negative correlation between IQ, impulsivity, and stimulation-seeking behaviors (Vitacco et al., 2005). Therefore, the current study expects to find IQ and motivation to succeed to be correlated with the IR dimension of psychopathy. The current study does not expect to see differences between males and females concerning IQ or motivation to succeed. However, it does expect to find gender differences in the IR dimension, as the three psychopathic dimensions are believed to be somewhat interrelated (Bergstrøm & Farrington, 2018). These hypotheses were based on attachment theory, gender schema, and socialization. As stated earlier, attachment theory is believed to explain psychopathic development, while gender differences are believed to be explained

by gender schema, socialization, and gender roles. The current study argues that psychopathy development, and therefore psychopathic dimensions, are explained by the included theories. Lastly, the current study takes an exploratory approach to IR dimension stability in males and females, hypothesizing there will be changes in stability throughout adolescence. As mentioned, past research supports the notion of variability in psychopathic stability throughout development (Frick et al., 2014), and the current study is advancing the field by studying differences in IR dimension stability in males and females.

Overview of Methodology

To address the above, data used for this study are culled from the Pathways to Desistance Study (Mulvey et al., 2014), a multi-site, longitudinal study looking at serious offenders transitioning from adolescence to adulthood. From November 2000 to January 2003, the study followed 1,354 youths, aged 14 to 17 years old, from Maricopa County and Philadelphia County court systems. The individuals included in the study were all found guilty of a crime, largely felonies, and excluded individuals with property offenses, weapon offenses, and those who commit sexual assault (Mulvey et al., 2014). The remaining participants and their parents provided informed consent for the study. The data was collected through interviews at the participants' homes, libraries, or institutionalized settings through computer-assisted interviews (Mulvey et al., 2014). The dataset also includes information attained through collateral reporters, FBI arrest records, and court records from each jurisdiction. This dataset contains many variables looking at upbringing, individual traits, development, and the community, while also including two measures of psychopathy, including the Psychopathy Checklist-Revised and the Youth

Psychopathy Inventory (YPI). Notably, the baseline interview provides information concerning the youth before intake, making it valuable for assessing characteristics that existed before the adolescents' involvement in the study and criminal justice system.

There are three stages to the study that aims to evaluate each hypothesis in turn. The first hypothesis was tested using multiple linear regression analysis and used psychopathy scores as the dependent variables which will be explained in further detail in Chapter 3. The second hypothesis was analyzed through multiple linear regression equations, using the same dependent and independent variables as the first question and gender as a moderator. This analytical method allowed the relationship between the dependent and independent variables to be evaluated while also considering the impact of gender as a possible modifier. Lastly, the third hypothesis was assessed with three multiple regression analyses to analyze how the independent variables relate the three psychopathic dimensions, CU, GM, and IR. Different models were used for males and females. Finally, *t*-tests were used to compare the sexes and explore stability.

Chapter Summary

Although psychopathic individuals make up a small percentage of the non-institutionalized population, according to some measures, they account for many violent crimes (Drislane et al., 2019) and a substantial portion of the prison population (Kiehl & Hoffman, 2011). However, drawing conclusions from the body of research surrounding psychopathy is problematic for reasons already discussed. The present research attempts to overcome these deficits toward understanding the pathways to psychopathy. Research on psychopathic development is vital as it provides the opportunity to recognize developmental antecedents (Shine & Hobson, 2000). The study of gender differences

further drives this goal, as it can result in tailored programs to specifically address the risks and needs of males and females. This study can offer guidelines that may inform appropriate treatment at an earlier age when individuals are more adaptable (Shine & Hobson, 2000), allowing for the possibility of considerable crime reduction. The following section will delve deeper into a detailed review of the existing literature.

CHAPTER II: LITERATURE REVIEW

Psychopathic traits are present in males and females (Ritchie et al., 2018) in all life stages (Lynam & Gudonis, 2005) and are believed to exist on a spectrum (Coid & Ullrich, 2010). The construct of adult psychopathy has been mirrored in the study of psychopathy in youth (Andershed et al., 2002), and callous-unemotional traits have been used in research as an equivalent to adult psychopathy (Scheepers et al., 2011). Although there is a debate surrounding the criteria and best measurement tool to diagnose psychopathy in individuals accurately (Hare & Neumann, 2010; Skeem & Cooke, 2010), research indicates a level of parity in psychopathic diagnostic features over time.

Children cannot be formally diagnosed as psychopaths until they reach the age of 18 (Association, 2013). However, available literature explores the disorder in different life stages, including childhood (ages 2 to 12), early adolescence (ages 11 to 14), mid-adolescence (ages 15 to 17), late adolescence (ages 18 to 21) (Hardin et al., 2017), and adulthood (21 years of age and older). For example, children with high levels of psychopathy display an array of traits that fall into one of three categories, including callous-unemotional traits (CU), grandiose-manipulative traits (GM), and daring impulsive traits (DI) (Salekin, 2017). This is not dissimilar to other age categories.

Psychopathy and Development: Early Childhood Through Adolescence

Researchers have argued that, for some, psychopathic traits develop as a response to environmental factors, such as abuse and sustained trauma, experienced in early childhood (Bowlby, 1982; Karpman, 1941; Krischer & Sevecke, 2008; Krupić et al., 2020). These factors include parenting, bonding, attachment, and peer relationships.

One area of interest is how child-rearing strategies affect psychopathic development pertaining to the four parenting styles: authoritarian, authoritative, permissive, and uninvolved (Baumrind, 1991). Authoritarian parents are rigorous and place high expectations on their children, often focusing on obedience, control, and discipline rather than nurturing behaviors (Baumrind, 1991). In contrast, authoritative parenting differs in that caregivers are nurturing, responsive and supportive while setting firm boundaries (Baumrind, 1991). These caregivers engage their children in conversation and listen to their viewpoints but do not always accept them (Baumrind, 1991). Low demands and high responsiveness characterize permissive parents. They are very loving but provide few guidelines and rules (Baumrind, 1991). Uninvolved parenting can be characterized by a lack of responsiveness to the child's needs. They make no demands and are often dismissive, indifferent, and neglectful (Baumrind, 1991).

Parenting practices, such as authoritarian parenting, may have a prolonged impact on a child's conduct and attitude and have been associated with developing psychopathic traits (Flexon & Encalada, 2020; Krupić et al., 2020). This could be due to the damaging effect of high arousal during parental interaction and behavioral correction. The authoritarian parenting style allows aggressive parenting that emotionally floods the child and results in anxiety (Flexon & Encalada, 2020). This type of parenting style overwhelms the child and does not allow them to process the lesson the parent is attempting to teach, instead, the child associates feelings of insecurity and helplessness with their parental figure (Hoffman & Saltzstein, 1967). The child's increased anxiety levels during interactions with their caregiver can promote psychopathic traits developing throughout childhood (Sng et al., 2018). Psychopathic traits which develop due to trauma

or disillusionment are often referred to as secondary psychopathy (Karpman, 1941). Interestingly, anxiety is a hallmark feature of the secondary form of psychopathy, and secondary psychopathy is most often linked with early childhood trauma (Karpman, 1941, 1948; Flexon & Encalada, 2020).

Another critical factor to consider is attachment patterns and their role in psychopathic trait development. Attachment theory postulates that an early relationship between children and their caregiver is the first attempt to bond with another individual (Bowlby, 1982). Successful bonding manifests as the ability to build trust in their caregiver and experience availability, responsiveness, forgiveness, and use the caregiver as a secure base to facilitate environmental exploration (Bowlby, 1982). This theory suggests individuals with affectionless personalities could not properly bond with caregivers and did not have parental models depicting others as trustworthy and empathetic, resulting in a wide range of callous traits (Bowlby, 1982). This belief is bolstered by research indicating that those who can form secure attachment styles during early childhood are more likely to experience moral emotions such as empathy (Lynam & Gudonis, 2005). In addition, psychopathic individuals often report having insecure attachment patterns in early life (Frodi et al., 2001).

Two recent doctoral dissertations addressed psychopathy development using the same dataset as the current study, the Pathway to Desistance (PTD) study dataset. The first focused on juvenile offenders, traumatic experiences, gang involvement, and psychopathic traits (Moore, 2021). The study used the PCL: YV psychopathy measure included in the PTD study and found that maternal warmth, parental hostility, exposure to violence, and gang involvement were significant predictors of antisocial psychopathic

traits (Moore, 2021). This study did not explore gender differences but included recommendations for future research to focus on this area (Moore, 2021).

The second dissertation focused on adolescent sleep, social relationships, and parental behaviors as risk and protective factors concerning psychopathic traits (Backman, 2021). This doctoral dissertation included four studies using different datasets, including the PTD data for the third and fourth studies (Backman, 2021). These studies included psychopathy levels as measured by the YPI and relationships with peers, romantic partners, and parents (Backman, 2021; Backman et al., 2021). Results showed high-quality peer and romantic relationships were associated with lower levels of psychopathic traits (Backman, 2021). Participants who reported not being involved in a romantic relationship had lower mean levels of psychopathic traits than those in relationships that were classified as low-quality (Backman, 2021; Backman et al., 2021). Similarly, results from a fourth study showed maternal warmth was negatively associated with psychopathic traits and offending. On the other hand, parental warmth was protective from psychopathic traits but not delinquency (Backman, 2021). Lastly, maternal, and paternal hostility was positively associated with psychopathic traits and criminal offending (Backman, 2021). Ultimately, findings revealed that parenting quality is important in adolescence and may be a risk or protective factor for psychopathic traits (Backman, 2021). The current study builds on this by including a wider array of possible risk and protective factors and exploring gender differences in psychopathic development.

The factors mentioned thus far are often found as possible antecedents to secondary psychopathy. The term secondary psychopath was created to understand

individuals meeting primarily behavioral criteria for diagnosis that were thought to be an adaptation to abuse, neglect, and rejection experienced in childhood (Karpman, 1941). Some research shows male and female children are believed to experience different types of abuse and neglect at different rates (Rosenthal, 1988) and respond differently to the trauma they have experienced (Boduszek et al., 2019). However, differences in this aspect may be due to differences in reporting, as opposed to true differences in experienced abuse. True gender differences in responses to developmental antecedents may impact the development of psychopathic traits through emotional regulation development, just as it does with other forms of psychopathology and externalized behaviors (Gauthier-Duchesne et al., 2017). Behaviors can manifest as excessive anger, hostility, depression, anxiety, guilt, and impulsivity (Karpman, 1955).

Studies have found that individuals who experience early trauma, such as sexual abuse, are more likely to have higher levels of anxiety (Briere et al., 1988; Fergusson et al., 2013; Schulte et al., 1995). The presence of anxiety is crucial because it is a critical marker of secondary psychopathy (Cleckley, 1951). This feature is not present in primary psychopathy (Vaillancourt & Brittain, 2019), which may be genetically based (Lykken, 1957), and is associated with the belief that secondary psychopathy is more problematic (Flexon, 2016). The presence of anxiety in secondary psychopathy has been linked to increased levels of co-morbidity, problematic behaviors, increased likelihood of hostility, dissociative disorders, and neuroticism (Skeem et al., 2011). Secondary psychopathy is also associated with promoting externalized behaviors, such as reactionary violence, as a response to perceived aggression (Skeem et al., 2011).

In contrast to secondary psychopathy, primary psychopathy is characterized by a lack of conscience, an inability to form attachments, an absence of anxiety or guilt (Karpman, 1955). Individuals in this variant are often referred to as the "true psychopaths" as they lack demonstrable anxiety and are believed to be born with the disorder (Karpman, 1955). Studies investigating the genetic link to psychopathy have found genetic influences only explain about one-third of the variance in each of the three subscales used, including affective, behavioral, and antisocial on the Psychopathy Checklist: Youth Version (PCL: YV), while nonshared environmental influences accounted for the remaining two-thirds of variance (Tuvblad et al., 2014). Individuals in this variant are more resilient to stress, more emotionally stable, and psychopathically healthier than those in the second variant (Skeem et al., 2011).

Although research often approaches the topic of psychopathy as a unitary measure, it is important to detail the two variants as they provide insight into possible pathways of development. Behavioral outcomes are not central to psychopathy (Andershed et al., 2002), and therefore research should rely on measures without a heavy emphasis on the behavioral facet, as done in the current study. This approach can provide a better understanding of the true psychopathic traits, which in turn can help influence treatment options.

Studies looking into intensive treatment found positive results in reducing violence and criminal behavior in individuals with high psychopathy levels (Olver et al., 2013; Seivewright et al., 2002; Skeem et al., 2002). This is especially important as it has been estimated that adult psychopaths make up between .5 to 1 % of the population yet account for over half of all severe crimes (Wynn et al., 2012). Further, 20–25% of the

male population (Wynn et al., 2012) and 15% of the female population (Cale & Lilienfeld, 2002) in prisons qualify for the diagnosis when measured by the PCL-R (Wynn et al., 2012). Of the two variants, there is a possibility that secondary psychopathy can be mitigated (Skeem et al., 2011). This is due to the belief that this variant is not an innate psychopath and was created by circumstances, which is a crucial distinction as it offers insight into possible antecedents and, therefore, interventions.

The Role of Child Maltreatment and Nascent Psychopathy

Childhood maltreatment has been found to affect the development of psychopathic traits (Krischer & Sevecke, 2008). There are five types of maltreatment: emotional abuse, physical abuse, emotional neglect, physical neglect, and sexual abuse (Bernstein et al., 2003). Individuals who experience maltreatment show long-term effects that carry into adulthood (Cicchetti & Toth, 2005) and are four times more likely than individuals who did not experience abuse to develop personality disorders later in life (Johnson et al., 1999).

Available research shows different types of victimization are positively related to different facets of psychopathy (Durand & de Calheiros Velozo, 2018), including interpersonal, affective lifestyle, and overt antisocial features (Hare, 2020). Sexual abuse is positively associated with interpersonal facet scores, physical abuse is positively associated with lifestyle and antisocial facets, and psychological maltreatment negatively relates to the affective facet (Krstic et al., 2016). This is congruent with findings that antisocial youth often have experiences of inconsistent and harsh parenting and abuse (Akers & Jennings, 2019), which could affect cognitive and emotional development in

childhood (Hare et al., 2000), leading to the development of psychopathic traits (Lynam & Gudonis, 2005).

Several traits associated with psychopathy are part of normal adolescence, including impulsivity and narcissism (Flexon & Meldrum, 2013; Salekin et al., 2008). This is one of the reasons youths cannot be diagnosed with psychopathy until they reach adulthood. However, childhood psychopathy has been recognized since the 1950s (Cleckley, 1951) and is believed to persist through adolescence and adulthood (Lynam & Gudonis, 2005). This is supported by the knowledge that an individual's personality goes through an extended developmental process (Baumeister et al., 1994) with trait and characteristic adaptations (Cloninger et al., 1998) that stabilize with age (Caspi et al., 2005). In other words, temperament and personality development can be understood through childhood antecedents (Caspi et al., 2005).

Central Traits of Psychopathy in Youth

The risk factors, as mentioned above, are believed to play a part in psychopathic development (Durand & de Calheiros Velozo, 2018), although the mechanisms of said development are not clear (Efferson & Glenn, 2018). It has further been argued that psychopathy manifests in youth as callous-unemotional traits (CU), grandiose-manipulative traits (GM), and daring impulsive traits (DI) (Salekin, 2017).

Callous-Unemotional Traits

Callous-unemotional traits are central to psychopathy in youth (Skeem & Cooke, 2010) and are comprised of a lack of guilt and empathy (White & Frick, 2010). These traits are often described as lacking affective experience (Cooke et al., 2006) and are

believed to be the hallmark of psychopathy (Cleckley, 1951). This belief has developed a prominent literary and empirical focus on CU traits when examining children and has resulted in CU traits serving as a proxy of adult psychopathy in children (Scheepers et al., 2011) and adolescents. Some debate in this area ensues regarding the role conduct disorder plays in conjuncture with CU traits in predicting adult psychopathy, as opposed to CU traits alone (Kimonis et al., 2013).

CU traits are argued to develop due to childhood maltreatment (Carlson et al., 2015) and are hypothesized to be stable through development, as they have been found in late childhood through early adulthood (Lynam, Caspi, et al., 2007). As stated earlier, CU traits have been the focus of research instead of GM and DI traits. Some have argued that all of these traits play a part in psychopathy, and looking at CU traits alone is reductive (Salekin, 2017). This alternative argument is that research should focus on a multidimensional psychopathic personality, including GM and DI traits (Salekin, 2017). The literature has yet to demonstrate agreement on this point, as shown by findings that individuals with high CU traits are more likely to have DI traits but not GM traits (Bergstrøm & Farrington, 2018).

Grandiose-Manipulative Traits

Often an understudied aspect of psychopathy in youth, grandiose-manipulative traits present as superficial charm, glibness, and feelings of grandiosity (Salekin, 2016). They are believed to lead to proactive aggression, often observed as bullying, excessive dominance, violence toward peers, telling calculated lies, and intentionally misleading others (Salekin, 2016). GM traits are believed to be egocentric and come from a desire to be the focus of attention and belief of superiority; these traits are observable in early

childhood and span into adulthood (Salekin, 2016). A recent study examining the childhood risk factors (low attainment, low nonverbal IQ, parenting practices, parental characteristics, socioeconomic family factors) associated with psychopathic traits looked at CU, GM, and DI traits to find how childhood stressors affect psychopathic traits differently (Bergstrøm & Farrington, 2018). The study found that individuals with high CU traits and high GM traits were more likely to experience harsh or erratic discipline and have a convicted parent, which could indicate intergenerational aggression (Bergstrøm & Farrington, 2018).

Daring-Impulsive Traits

Daring impulsive traits can be characterized as impulsivity, risk-taking, and thrill-seeking (Salekin, 2017). Though less focus has been put on GM and DI traits, their importance was recognized thanks to the early distinguishability of these traits in children and their association with adverse outcomes (Salekin, 2016). DI traits specifically are linked with substance use, aggression, and other behavior problems during the adolescent and young adult years (Salekin, 2016). A combination of high DI and CU traits signals a group characterized by high childhood risk factors and poorer adult life outcomes. This was also the case for high CU and GM traits but to a lesser extent (Bergstrøm & Farrington, 2018). Individuals with high CU traits and high DI traits were thought to be the group with the most significant risk of having adverse life outcomes (Bergstrøm & Farrington, 2018). This group was more likely to experience a more extensive range of risk factors such as harsh erratic discipline, poor child-rearing, poor supervision, convicted parents, and parental disharmony. It showed long-term impairment by

predicting self-reported offending, convictions, fighting, drug abuse, and drinking problems (Bergstrøm & Farrington, 2018).

Debate on Psychopathy

The field of psychopathy is currently engaging in some debate about the central traits of the disorder (Coid & Ullrich, 2010; Hare, 2003b; Kosson et al., 2006) and, therefore, measurement tools (Skeem & Cooke, 2010). Popular measurement tools emphasize criminal offending and antisocial behavior (Skeem & Cooke, 2010). This is problematic as individuals without a history of those behaviors are unlikely to surpass the necessary score to qualify for a psychopathy diagnosis (Skeem & Cooke, 2010). The field lacks clear unanimity regarding the role criminality and anti-social behavior play in psychopathy. In part, this lack of consensus may lead to the under-representation of psychopathy generally and of females with this diagnosis (Messerschmidt, 2007) as females are less likely to engage in criminal activity (Messerschmidt, 2007). It appears that females express psychopathy differently than males (Mikulich-Gilbertson et al., 2007) and are missed by widely used measurement tools (Verona & Vitale, 2018).

This view has been voiced in the current literature. It has led to the request for an increase in research regarding the gender differences in psychopathic manifestation, onset, and seriousness (Nicholls & Petrila, 2005) using tools that do not rely heavily on criminal offending (Goulter et al., 2017; Salekin, Lee, et al., 2010; Salekin et al., 2008).

Psychopathy Measurement Tools

As discussed briefly above, one of the most critical aspects of psychopathy research relates to the tools used to measure it. There are two historical conceptualizations of psychopathy. The first is Cleckley's (1951) depiction of the

disorder as a masked psychiatric illness that presents itself through social charm, lack of anxious depressive symptoms, and hides pathology related to reckless, unrestrained behavior and a lack of concern for the welfare of others. The second conceptualization views psychopathy as a predatory and aggressive form of felonious deviancy observed through emotional callousness, an exploitative nature, and brutality toward others (Tuvblad et al., 2019).

Measurement tools have been developed around these conceptualizations, with the most popular being a tool developed by Dr. Robert Hare in the 1970s, referred to as The Hare Psychopathy Checklist-Revised or simply, PCL-R (Louth et al., 1998). This tool is a hybrid of Hervey Cleckley's conceptualization in the *Mask of Sanity* and the American Psychiatric Association and is the first time researchers appear to agree upon a conceptualization (Crego & Widiger, 2016). The PCL-R is composed of a two-part, semi-structured interview and a review of the individuals' criminal records. This tool includes a 20-item scale, and each item is assigned an individual score based on how accurately it describes the patient in question and is later added together for a final score ranging from 0 to 40 (Hare, 1991). If that individual reaches a score of 30 or above, they qualify for a diagnosis of psychopathy (Hare, 1991; Louth et al., 1998). Since the development of this tool, other methods have been created, many of which are based on the PCL-R (Edens et al., 2001). Examples include the PCL: YV and PCL: SV. The PCL-R was widely accepted and incorporated into the field as researchers realized the PCL-R seemed to predict violence and criminal recidivism; however, much debate surrounds the topic of diagnosis, as researchers have concerns regarding the criteria and measurement tools used (Skeem & Cooke, 2010). Of the concerns are the heavy reliance on criminal behavior and

the analogous in the measurement of psychopathy and undercounting females as a result of overemphasizing males in the current literature (Skeem & Cooke, 2010).

Psychopathy Checklist-Revised

The PCL-R is divided into Factor 1 (Interpersonal and Affective Facet) and Factor 2 (Lifestyle and Antisocial Facet) (Hare, 1991; Hare, 2020). Factor 1 focuses on the interpersonal (Facet 1) and affective facets (Facet 2) (Hare, 2020). The Interpersonal facet comprises questions targeting glibness, grandiosity, pathological lying, and manipulation (Hare, 2020). The Affective facet focuses on lack of remorse, shallow emotions, callousness, and failure to accept responsibility (Hare, 2020). On the other hand, Factor 2 is made up of Lifestyle (Facet 3) and Antisocial facets (Facet 4) (Hare, 2020). The Lifestyle facet focuses on proneness to boredom, parasitic lifestyle, lack of realistic long-term goals, impulsivity, and irresponsibility (Hare, 2020). Lastly, the Antisocial facet is made up of questions on behavioral controls, early behavioral problems, delinquency, revocation of conditional release, and criminal versatility (Hare, 2020).

The PCL-R was initially based on the Cleckleyan conceptualization of psychopathy (Crego & Widiger, 2016), and with time became widely accepted as the gold standard measure for psychopathy (Skeem & Cooke, 2010). Its predictive validity for recidivism and the field's wide acceptance of this tool has led to the belief that psychopathy is what the PCL-R measures (Skeem & Cooke, 2010). This belief is proof of the failure to distinguish between constructs and measures. It is vital to remember that measures do not have explanatory power, this lies solely on constructs, and the PCL-R is not a construct (Skeem & Cooke, 2010).

The debate regarding the conceptualization of what is being measured by the PCL-R was brought up because the tool was developed and validated on correctional and forensic populations (Grann et al., 1998). This is problematic because it relies heavily on criminal offending and institutional records (Grann et al., 1998), as can be seen by the inclusion of delinquency, revocation of conditional release, and criminal versatility under the antisocial facet (Hare, 1991). Not only are these traits not part of the disorder, but such records are often incomplete and omit essential information, affecting the produced score's reliability (Skeem & Cooke, 2010). Consequently, individuals without a history of violence or criminal behavior, such as females, are less likely to pass the threshold score for psychopathy diagnosis – even if they have pronounced interpersonal and affective traits of psychopathy (Skeem & Cooke, 2010). This issue, along with the field's willingness to adopt the PCL-R and measures based on it, such as the PCL-Youth Version, Youth Psychopathic Traits inventory, and Child Problematic Traits Inventory, among others, results in the current literature being abundant with examples of unsuccessful psychopathy (Skeem & Cooke, 2010).

The disconnect between the early conceptualization of psychopathy and measurement tools such as the PCL-R has been ignored for decades (Cooke & Michie, 2001). This is problematic given that the tool looks at a mix of basic tendencies, including core emotional detachment and characteristic adaptations, which look primarily to criminal behavior while ignoring heroism, business prowess, and other successful adaptations (Cooke & Michie, 2001). The main question comes down to whether or not anti-social features such as criminality are central to psychopathy or a behavioral manifestation of the condition (Cooke & Michie, 2001).

Criminal Behavior and the Dark Figure of Psychopathy

As mentioned above, the PCL-R and psychopathy measurement tools emphasize criminal offending, which can miss people who are less likely to be involved in criminality. These could include females (Hare et al., 2000), noninstitutionalized populations, and others in the *dark figure of psychopathy* (Flexon, 2018), resulting in limited knowledge regarding these individuals. Others who may be included in the dark figure of psychopathy include successful psychopaths.

Though psychopathy is usually thought of as a negative trait linked to serial killers or other dangerous individuals, it is believed that psychopaths can reach societal success (Cleckley, 1949), and the field has requested more attention in this area (Skeem et al., 2011). It is argued that traits often found in psychopaths can manifest in ways that would allow them to thrive in the workforce (Cleckley, 1949) and may be present in positions such as lawyers, surgeons, police officers, and CEOs (Dutton, 2012).

A 2019 study conducted a meta-analysis on the association between psychopathy and leadership. The results showed that individuals with psychopathic tendencies are more likely to emerge as leaders and may have increased effectiveness ratings (Landay et al., 2019). Furthermore, the analysis suggested that gender modified the relationship between these variables, and females are more likely to be penalized for displaying psychopathic traits, while males are more likely to be rewarded for similar behaviors (Landay et al., 2019).

The field calls for an increase in the literature surrounding psychopathy and its moderators, such as gender specifically (Landay et al., 2019), as there is a gender bias in psychopathy similar to that of other disorders such as Antisocial Personality Disorder

(ASPD) (Forouzan & Cooke, 2005). This gender bias could be contributing to the under-representation of females diagnosed with psychopathy as the disorder can often overlap with others that feature antisocial, narcissistic, histrionic, paranoid, and schizotypal personality disorders (Blackburn & Coid, 1998), thus leading to females being mislabeled (Forouzan & Cooke, 2005).

Antisocial Behavior

Antisocial behavior is another point of contention when it comes to the core traits of psychopathy. Some believe symptoms of psychopathy may play a causal role in antisocial behaviors (McDermott et al., 2000). This might be the case in interpersonal symptoms such as grandiosity, affective deficits, and impulsivity (Blackburn, 1988). Grandiosity may incline individuals to engage in sadistic acts driven by a desire to control or humiliate others (Blackburn, 1988). Affective deficits, such as lack of empathy or anxiety, failure to inhibit antisocial urges, and, lastly, impulsivity, increase the likelihood of engaging in antisocial behaviors or criminality without considering consequences (Blackburn, 1988). Although individuals with high psychopathic traits may be at a higher risk for engaging in these acts, many do not find themselves victims of those pitfalls (Dutton, 2012; Lykken, 1995). The theory suggests antisocial behavior can result from various issues, including biological, psychological, and social influences (Gottfredson & Hirschi, 1990).

Debate ensues as researchers attempt to clarify the relationship between psychopathy, antisocial behavior, and Antisocial Personality Disorder (ASPD), with some suggesting psychopathy, exists on a continuum and is a severe form of ASPD (Coid & Ullrich, 2010). Others argue ASPD may be a separate clinical syndrome with a slight

overlap (Kosson et al., 2006). Still, others point out that most individuals who meet the criteria for ASPD do not meet the criteria for psychopathy (Hare, 2003b). Yet, many parallels between the two disorders exist, possibly due to the reflection of the same genetic and developmental processes (American Psychiatric Association, 1980; Kosson et al., 2006). This view states that the diagnostic criteria may differ between the constructs related to sensitivity, specificity, and reliability and may reflect different methods of assessing the same syndrome (American Psychiatric Association, 1980).

ASPD is one of the most reliably diagnosed conditions among personality disorders and is challenging to care for, as some psychiatrists believe it to be untreatable (Meloy & Yakeley, 2011). There is some overlap in the criteria required to diagnose an individual with both ASPD and psychopathy, specifically in terms of impulsivity, deceitfulness, and lack of remorse (Association, 2013; Meloy & Yakeley, 2011). The relationship between psychopathy and ASPD diagnostic criteria, as measured by the DMS, is controversial due to the disorder being described differently by the APA in 1952, 1968, 1980, 1987, 1994, and 2013 (Crego & Widiger, 2015). In a study on psychopathy advances, researchers advise using tools that focus on psychopathic personality traits, as antisocial behavior is believed to be an outcome of psychopathy instead of an integral part of the diagnosis (Boduszek et al., 2016).

Gender and Psychopathy

Historically, a majority of psychopathy studies have focused on males. Many researchers believe this is due to the availability of data on male psychopaths, which can be traced back to the debate regarding measurement tools and the overemphasis on criminality (Skeem et al., 2011). Females are known to have lower scores on the PCL-R

than males, and this remains true of the prison population and those in forensic psychiatry samples (Hare et al., 2000). Lower PCL-R scores for females are expected as there is a high disparity in criminality between males and females, with males contributing to a majority of all reported crimes (Campaniello, 2019). Gender has been a strong predictor of criminal involvement; this remains true across different cultures and races (Messerschmidt, 2007). As a result, there is a severe under-representation of empirical attention given to the construct of female psychopathy (Forouzan & Cooke, 2005). There are five aspects to consider regarding gender differences: development, underlying mechanisms, interpersonal characteristics, behavioral manifestations, and social norms (Carabellese et al., 2019).

Psychopathy Development

As stated at the beginning of the chapter, many environmental factors are believed to affect psychopathic development, including parenting styles, parenting behaviors (Lykken, 1995), child maltreatment (Pardini & Loeber, 2007), and trauma experienced in early life (Bernstein et al., 2003; Durand & de Calheiros Velozo, 2018; Krischer & Sevecke, 2008). Estimates show one in seven children are abused in the United States per year (Prevention, 2020). Although male and female children report abuse at similar rates (Victims, 2020), these numbers are likely inaccurate depictions of the true number of individuals experiencing childhood maltreatment, as abuse often goes unreported (Buckingham & Daniolos, 2013). Although it is believed that males and females respond differently to the trauma they have experienced (Boduszek et al., 2019), some argue there are similarities in the pervasiveness and structure of psychopathy among males and females (Warren et al., 2003). The differences are observed in developmental processes,

such as emotional regulation, that may impact the development of psychopathic traits, as it does with other forms of psychopathology and externalized behaviors (Gauthier-Duchesne et al., 2017).

It is estimated that 75% of the variance in psychopathic traits experienced by females and 1% of the variance in psychopathic traits experienced by males with the disorder is due to environmental factors such as lack of warm parental relationships and child safety (Boduszek et al., 2019). Research regarding developmental antecedents has found different types of victimization were positively associated with different facets of psychopathy (Durand & de Calheiros Velozo, 2018) but shows conflicting associations between these forms of abuse and gender-specific psychopathy development (Bennet & Kerig, 2014; Lindberg et al., 2016). Repeated exposure to trauma during childhood contributes to affect inhibition, and when sustained, has a negative influence on interpersonal and affective progression (Erwin et al., 2000) and can result in dissociation from affective and cognitive experiences (Porter, 1996). This dissociation often presents as blunted affect, little connection to others, and comorbidity of psychiatric problems such as anxiety, depression, mood disorders, personality disorders, substance use, and other conditions (Fanti et al., 2013; Goulter et al., 2017). These psychiatric problems represent internalized behaviors that disproportionately affect females (Eisenbarth et al., 2019).

There are some contradictory findings regarding how specific types of maltreatment distinctly affect males and females. For example, findings show sexual, physical, and emotional abuse are more strongly correlated with psychopathy in males (Krischer & Sevecke, 2008). In comparison, strong correlations exist between female

psychopathy and foster care placement changes (Sevecke et al., 2016). Others have found that all types of maltreatment appear to impact overall psychopathy scores, but sexual abuse appears to be more strongly correlated to psychopathy levels in females (Boduszek et al., 2019). This finding could result from differences in reporting sexual abuse or actual developmental differences leading to psychopathic traits (Boduszek et al., 2019).

Manifestation

Psychopathy is rarely found in the noninstitutionalized population, with 1-2% of males and 0.3-0.7% of females accounting for the disorder (Drislane et al., 2019). However, these figures do not reflect the dark figure of psychopathy that goes undetected. The disorder is most often found in the institutionalized population, with 31% (Grann, 2000) of males and 15% of females meeting diagnostic criteria (Cale & Lilienfeld, 2002) using largely measures that include behavioral facets.

Males are generally more likely to have higher psychopathy levels, for reasons already discussed, and are known to be more deeply affected by feelings of grandiosity, early behavioral problems and become involved in crime at a much younger age than females (Verona & Vitale, 2018). Males are believed to exhibit higher levels of physical aggression (Ficks et al., 2014), often committing violent crimes which are more sadistic than those committed by non-psychopathic males (Juodis et al., 2014). On the other hand, psychopathic expressions appear to be more nuanced in females. Females with very high levels of psychopathy can often present with the interpersonal traits of glibness and narcissism, a grandiose sense of self-worth, and superficial charm similar to males (Forouzan & Cooke, 2005). They are more likely to be involved in bullying behaviors and perpetrate psychological harm than males (Cooper, 2008). Females with moderate

levels of psychopathy are considered to manifest the disorder as manipulative behavior, exaggerated femininity, flirtation, sexual promiscuity, verbal aggression, and relational aggression (Efferson & Glenn, 2018; Fulton et al., 2010).

Research suggests that although male psychopaths are more outwardly aggressive, they still exhibit relational aggression, manifesting as backstabbing, spreading rumors, and other malevolent behaviors looking to damage relationships (Crick & Grotpeter, 1995). Males are believed to exhibit these behaviors at similar levels as females (Skeem et al., 2011) and do so as a means of personal gain and power (Efferson & Glenn, 2018; Lynam, Derefinko, et al., 2007). It is important to note that female psychopathic aggression can surpass males in severity and prevalence but is often overlooked due to its manifestation (Forouzan & Cooke, 2005). If crimes are committed, they are usually non-violent offenses and tend to be robberies and fraud (Skeem & Mulvey, 2001). These traits are believed to have a deferred onset, usually during late adolescence, and involve verbal aggression, envy, and self-injury (Weizmann-Henelius et al., 2010).

Males with high psychopathy levels might experience co-morbidities with antisocial personality disorder, narcissistic personality, sadistic personality, borderline, negativistic, and paranoid personality spectra (Millon, 2011). Females with moderate levels of psychopathy can often be more difficult to recognize (Efferson & Glenn, 2018). Some overlap has also been noted between female psychopathy and borderline personality disorder (BPD) (Carabellese et al., 2019). This is especially true for females who experience extreme emotional dysregulation and manipulative callousness (Hicks et al., 2010). Females who fall into this category can often experience psychopathic interpersonal characteristics, such as garrulousness, superficial charm, and a strong sense

of self, though these are most often seen in very high levels of the disorder (Cooke et al., 2005).

The disorder's psychological mechanisms are believed to differ between the genders (Carabellese et al., 2019) as males and females could display the same behavior, but the underlying mechanism and motivation differ. For example, sexual promiscuity is a tool used by psychopathic females to manipulate partners to reach financial, social, or narcissistic goals (Verona et al., 2012), while psychopathic males do so while seeking sexual gratification (Cooke et al., 2005). Unfortunately, the underlying mechanisms are not yet fully understood (Efferson & Glenn, 2018).

Another aspect to consider regarding the masking of psychopathic traits entails societal norms that allow females to hide within socially accepted conventions (Forouzan & Cooke, 2005). Female psychopaths are likely to victimize those with whom they share an intimate relationship, such as family, friends, or acquaintances, rather than strangers (Efferson & Glenn, 2018), possibly making it less likely to be reported or documented. Gender norms also play a factor in the masking of psychopathic female traits, specifically as it relates to parasitic lifestyle factors (Forouzan & Cooke, 2005). Parasitic lifestyle factors include a craving for stimulation, lack of plans for the future, impulsiveness, and irresponsibility (Forouzan & Cooke, 2005). Parasitic behavior can be seen as emotional, financial, and resource-draining of others (Forouzan & Cooke, 2005). This behavior is believed to be less visible in females as social norms allow females to be dependent, in an array of ways, on those with whom they share close relationships without being labeled parasitic (Forouzan & Cooke, 2005).

In sum, males and females appear to share some psychopathic traits but also have some differences in psychopathic manifestation. These differences could be due to unique underlying mechanisms that result in gender-specific manifestations, or because of societal norms that allow for the masking of psychopathic traits. Many questions remain in terms of the relationship between psychopathy and gender; additional research is necessary.

Theoretical Orientation

This section addresses the theoretical framework for the current study in two parts. The first discusses attachment theory, as it is believed to impact psychopathic development. The second focuses on gender schema theory, socialization, and gender roles, to address differences in psychopathic expression in males and females.

Attachment Theory

Attachment is described as an emotional bond to another individual (Bowlby, 1969). The process undergoes four stages of attachment development including pre-attachment, indiscriminate attachment, discriminate attachment, and multiple attachments (Schaffer & Emerson, 1964). The first stage starts at birth and lasts about 6 weeks. During this period, the child does not show attachment to a specific individual and mainly communicates by crying and fussing – naturally garnering attention from their caregiver (Schaffer & Emerson, 1964). The next stage is indiscriminate attachment and spans from 6 weeks to 7 months. At this time, the child beings to show an inclination toward the primary caregiver and develops trust that their needs will be met (Schaffer & Emerson, 1964). The next stage spans from the 7^{th} to 11^{th} months of life and is

characterized by a strong attachment to one individual. During this stage, the child will show signs of separation anxiety, and protest when separated from their primary caregiver (Schaffer & Emerson, 1964). Finally, the multiple attachment stage beings around 9 months of age. In this stage, children start developing strong emotional bonds with others, beyond the primary attachment figure (Schaffer & Emerson, 1964).

These bonds are formed through parental interactions, especially in times of distress, and result in the development of the child's internal working model (Bowlby, 1969). This model consists of the child's interpretation of their caregiver's behavior, is used to create a prototype of future relationships, and acts as an internal guidance system for future behavior. It impacts emotions, behaviors, and interactions outside of the conscious awareness, affecting behavior in all relationships (Bowlby, 1969). The internal working model can lead to one of four attachment styles: secure attachment, ambivalent-insecure attachment, avoidant-insecure attachment (M. D. Ainsworth et al., 1978), and disorganized-insecure attachment (Main & Solomon, 1986).

Children who can form secure attachments can depend on caregivers when upset or scared (M. Ainsworth et al., 1978). These children may show signs of distress when separated from their parents and joy when reunited. Securely attached children are more likely to have a representational model of available, responsive, and helpful attachment figures (Bowlby, 1982). It is estimated that 60% of children develop a secure attachment to their caregiver (Moullin et al., 2014). On the other hand, ambivalent attachment is evident by high signs of distress when the child and parent are separated (M. Ainsworth et al., 1978). These children exhibit clingy and dependent behavior but are not accepting

of their caregivers when they attempt to interact with them. These children learn cannot depend on their caregiver to meet these needs and are difficult to comfort when upset. Ambivalent attachment style is considered to be uncommon, with 7 to 15% of U.S children being affected (Lyons-Ruth & Block, 1996).

Avoidant attachment is shown by tendencies to avoid caregivers and showing no preference between the caregiver and strangers (M. Ainsworth et al., 1978). These children are independent and do not seek comfort when they are upset. This style is likely to develop from insensitive caregivers who reject the child's needs. It is estimated that 25% of children develop an avoidant attachment to their caregiver (Moullin et al., 2014). Lastly, disorganized attachment is characterized by a mix of behaviors including disorientation and confusion (Carlson & Sroufe, 1995). They may be avoidant or resistant to their caregiver. This lack of clear attachment is likely stemming from inconsistent caregiver behavior. In these cases, parents may be a source of fear and comfort. It is estimated that 15% of children develop a disorganized attachment to their caregiver (Moullin et al., 2014).

Research on attachment pattern stability is somewhat conflicting, as some longitudinal studies have found core personality factors and social interactions to be predictable over time (Elicker et al., 2016; Grossmann & Grossmann, 1991), while others show instability in the attachment patterns (Egeland & Farber, 1984; Erickson et al., 1985; Lewis & Feiring, 1991). Changes in attachment patterns were found when controlling for shifts in caregiver sensitivity (Erickson et al., 1985), maternal personality, emotional make-up (Egeland & Farber, 1984), and environmental factors such as the

child's vulnerability (Lewis & Feiring, 1991). While these bonds can be altered based on the parent-child interaction (Bowlby, 1969), change becomes increasingly difficult as the pattern of behavior continues later into the development process (Iwaniec & Sneddon, 2001). It is therefore believed that adult attachment is an expansion of childhood attachment styles, and organized into four patterns: insecure/autonomous, insecure/avoidant, insecure/dependent, and insecure/disorganized (Main et al., 1985)

Although research has explored general attachment and its relation to psychopathy, the relationship remains unclear. A 2017 study attempted to clarify the connection between attachment styles and psychopathic traits (Christian et al., 2017). The authors report several psychopathic traits were associated with insecure attachment styles. For example, avoidant attachment style was found to be positively associated with the affective domain, particularly for callousness. Similarly, an anxious attachment was positively associated with behavioral aspects of psychopathy, including disinhibition and antisociality. Although these findings lend support to the connection between attachment theory and psychopathy, additional research into this topic is needed.

Attachment theory is believed to be particularly important in explaining psychopathic development because it focuses on interpersonal and emotional development, which are central aspects of psychopathy. It is theorized that individuals who are unable to securely bond with their caregiver develop an inner working model of others as being undeserving of trust, empathy, or concern, causing the development of callous traits. This process is said to be influenced by an affective coping mechanism referred to as detachment (Porter, 1996). The detachment mechanism is meant to

disconnect or disengage an individual from trauma or disillusionment, creating a disconnect between cognition and behavior. If an individual experiences prolonged trauma, abuse, or disillusionment, the mechanism can be reinforced by a reduction in psychological distress. Although this mechanism allows the individual to escape the traumatic event, if used over an extended period it can also result in a repealed affect, and "turns off" the capacity for empathy. The effects of detachment can vary depending on where the child was in their developmental process when they became exposed to trauma. This is to say a child might be in early, late, or complete affective development, thus directly influencing the level of resistance to dissociation. The earlier in life the child experiences risk factors, the more likely they might be to dissociate and emotionally deactivate, contributing to the development of psychopathic traits.

Socialization and Gender Roles

It is theorized that gender schema, socialization, and gender roles could play a part in how psychopathic traits are expressed in males and females (Hamburger et al., 1996). Males and females are socialized differently from birth, according to their gender (Bem, 1981). Social role theory proposes that males are more likely to be aggressive due to socialization and gender roles which expect males to be dominant and competitive, while females are shaped to fit into compliant roles in society (Wood & Eagly, 2012). This is enforced throughout childhood through interactions with parents, teachers, peers, and the media (Archer, 2009; Bandura, 1973).

Gender schema theory suggests children create a schema to help organize and process existing and incoming information gathered through socialization (Bem, 1981). This schema contains information on gender expectations (Bem, 1981). As children grow

and learn about which attributes are linked to their sex, they align themselves with those traits and internalize these lessons to meet societal expectations (Bem, 1981). In conforming to societal expectations and stereotypes of masculinity and femininity, children develop different mechanisms to process information as they interact with the world around them (Bem, 1981).

Males and females who experience trauma are believed to be impacted by these underlying mechanisms that affect emotional recognition and result in difficulty recognizing their emotional response and that of others (Pollak, 2004). Underlying mechanisms of this sort are believed to be one of the reasons why males and females respond differently to trauma (Camras et al., 1996; Pollak et al., 2000). In addition, reformulation of social role theory proposes that physical features such as size and strength play a role in sex-typical development, as males may rely more heavily on their larger size and greater strength. At the same time, females may be more likely to resort to concealed forms of aggression to minimize the risk associated with physical aggression (Thomson et al., 2016).

Parent and parental interactions are among the first and largest influences on socialization and acceptance of gender roles (Rudman, 2004). This is often done by encouraging specific roles, punishment styles, and levels of affection (Lytton & Romney, 1991). Males are often encouraged into pursuing “male” roles such as being masculine, strong, powerful, and competitive, while females are encouraged into “female” roles such as being polite, accommodating, and nurturing (Hamburger et al., 1996). These differentiations bleed into punishment styles, with Western males being more likely to

experience physical punishment than females and experiencing less parental warmth than females (Lytton & Romney, 1991).

These factors, among others, result in males being socialized to be more aggressive and unemotional, while females are socialized to behave with increased sensitivity, better communication skills, awareness of what is deemed socially desirable, and develop greater emotional recognition skills (de Vogel & Lancel, 2016; Delk et al., 2017). These teachings can be seen in manifestation differences between male and female psychopaths. Males seemingly express psychopathy through overt aggression, and following what they have been taught is socially acceptable through socialization and gender roles (Wood & Eagly, 2012). On the other hand, it is argued that females express psychopathy in more subtle ways, such as manipulation, flirtation, verbal aggression, and relational aggression (Efferson & Glenn, 2018). This is in line with female socialization (Forouzan & Cooke, 2005). Female manifestation is not as overt, which helps circumvents detection and decreases the likelihood of being officially recorded in most capacities (Forouzan & Cooke, 2005). In this respect, societal norms and gender roles may play a part in masking psychopathic traits, as several characteristics can be dismissed as "normal" under gender roles (Forouzan & Cooke, 2005). This is particularly true in terms of parasitic lifestyle. Parasitic lifestyle is often believed to be a component of psychopathy that is more easily recognizable in males (Forouzan & Cooke, 2005) although equally present in both genders (Efferson & Glenn, 2018). Social norms deem it more acceptable for females to be dependent on family members, male partners, and other support systems in several ways, including financially, while avoiding stigma or

being labeled parasitic. The same behavior in males is considered a cause for concern, and therefore more visible (Forouzan & Cooke, 2005).

The concept that societal norms affect psychopathic visibility is supported by research on psychopathy across the globe (Neumann et al., 2012). Neumann et al. conducted a study on 58 nations and used the Self-Report Psychopathy Scale to measure psychopathy (2018). Results showed females are more likely to endorse items on psychopathy measurement tools differently depending on the region of the world they inhabit. On the other hand, males report less change depending on the region they live in (Neumann et al., 2012). These findings offer an example of how differences in societal expectations and cultural context affect gender-specific psychopathic manifestations, supporting the notion that gender roles and socialization may affect psychopathy differences in males and females.

Chapter Summary

This section provided an in-depth overview of the available literature as it relates to risk and protective factors identified as important to psychopathy. In doing so, the differences in psychopathic development between the genders were discussed, as were the different manifestations of psychopathy, debates regarding measurement tools, central traits to the disorder, and the dark figure of psychopathy. It explored theoretical explanations for the differences in psychopathic development between males and females, including attachment theory (Bowlby, 1969), gender schema theory, and the role socialization and gender roles (Bem, 1981) play in childhood development.

This chapter notes psychopathic traits are believed to result from traumatic environmental factors, including child maltreatment, inconsistent parenting, peer rejection, poor neighborhood conditions, and other variables (Frick, 2004). In addition to these risk factors, others may play a part in the protection against psychopathic development, including parental warmth (Pardini & Loeber, 2007), positive peer relationships (Vagos et al., 2021), spirituality (Oman & Lukoff, 2018), and high IQ (Kandel et al., 1988). The extent to which these factors affect males and females during development is not yet fully understood, and there is some conflicting evidence on these factors' effect on the genders (Bennet & Kerig, 2014; Lindberg et al., 2016). Problematically, a plethora of findings, whether looking at psychopathy generally or by sex, rely on measures of psychopathy that are controversial because they rely heavily on behavioral indicators. This dissertation will fulfill an important void in the research by using a more appropriate measurement tool, and an in-depth look at gender differences in psychopathy, psychopathic dimension, risk, and protective factors.

The next chapter will focus on the data and methodology used in the current study.

CHAPTER III: DATA AND METHODS

The current study includes three primary research questions with sub-questions focused on psychopathy risk factors, protective factors, and gender differences. This chapter presents the data, method of analysis, research questions, and related hypotheses.

Psychopathy Sample

This study uses longitudinal data from the Pathway to Desistance (PTD) study on serious offenders transitioning from adolescence to adulthood. The PTD study presented data on 1,354 youths between 14 and 17 years old who were found guilty of felony-level offenses, with some committing serious misdemeanor crimes (e.g., property crimes, sexual assault, or weapon offenses) in the Maricopa County and Philadelphia County court systems (Mulvey et al., 2014). PTD data collection commenced in late 2000 and limited the number of individuals who had committed a drug offense to avoid over saturation of these offenses – individuals who committed these crimes make up 15% of the PTD sample population (Mulvey et al., 2014). The PTD data included an oversampling of felony offenders and excluded those with property offenses, weapon offenses, and those who commit sexual assault (Mulvey et al., 2014). The remaining participants and their parents provided consent to participate in the study.

Data collection took place in multiple sites, including libraries, participants' homes, and institutional facilities, via computer-assisted interviews (Mulvey et al., 2014). The data set includes an initial interview and 10 follow-up interviews that occurred every 6 months for the first 3 years and annually for the remainder of the study, which lasted 7 additional years. The interviews originally occurred over two sessions but were later condensed into one 2-hour session. The PTD study includes data on the participants'

background characteristics, individual traits, psychosocial development, personal attitudes, family information, personal relationships, and community context. Additional information was collected from each jurisdiction through collateral reports, such as FBI arrest records and court records.

The use of PTD data was deemed suitable for the current study due to a higher concentration of individuals with psychopathic traits, data on female psychopathy, and the inclusion of an appropriate psychopathy measure. As stated earlier, individuals with psychopathy commit 20 – 40% of violent crimes (Drislane et al., 2019) and makeup between 15% and 25% of the prison population (Kiehl & Hoffman, 2011). Therefore, it would be reasonable to expect a higher number of individuals with psychopathic traits in a sample of adjudicated youth. This is beneficial as it gives more reliable and precise results and can be applied to a larger population (Johanson & Brooks, 2010). The inclusion of data on females with psychopathic traits facilitates needed attention to the topic and comparison between males and females. Finally, the use of the Youth Psychopathic Traits Inventory (YPI) allows for a fresh perspective as it omits behavioral indicators as part of the measure. Therefore, allowing for clarification of the way risk and protective factors influence core psychopathic feature development.

Variables

Dependent Variables

Four dependent variables were selected from the eleventh and final waves of the PTD study. Research questions 1 and 2 used the variable "SA YPI: Total Score" as the dependent variable. This variable is made up of the sum of all 50 items in the YPI. The total psychopathy score ranged from 55 to 186, with a mean of 98.85 and SD = 22.05.

The third research question used the three dimensions of psychopathy as singular dependent variables in three separate analyses. Research question 3A used "SA YPI: Callous-Unemotional Dimension" and is a sum of 15 items in the CU dimension. The participants ranged in scores on the CU dimension from 15 to 53, with a mean of 30.84 and *SD* = 6.49. Question 3B used "SA YPI: Grandiose-Manipulative Dimension". This variable is a sum of 20 items in the GM dimension. The GM dimensions scores ranged from 20 to 76, with a mean of 35.73 and *SD* = 10.55. Finally, question 3C used "SA YPI: Impulsive-Irresponsible Dimension" and is the sum of 15 items in the IR dimension. The IR dimension ranged in scores from 15 to 60, with a mean of 32.28 and *SD* = 8.45 (see Table 1). These variables were all measured using the YPI (Andershed et al., 2002), and are hereby referred to as the final psychopathy score, final CU dimension, final GM dimension, and final IR dimension scores.

The YPI is a tool for identifying youth aged 12 or older who engage in persistent, frequent, and serious antisocial behavior into adulthood (Andershed et al., 2002). Like the PCL: YV, the YPI was based on modern adult models of psychopathy (Cooke & Michie, 2001; Skeem & Cauffman, 2003). The YPI is unique because it focuses on core features of psychopathy and community-based development (Andershed et al., 2002; Skeem & Cauffman, 2003).

The YPI is a 50-item measure of self-reported data focused on interpersonal, affective, and lifestyle traits instead of the behavioral consequences of the psychopathic personality (Andershed et al., 2002). Each item is scored through a 4 point Likert scale and organized items into one of three psychopathic dimensions, which can be further broken down into psychopathy subscales (Andershed et al., 2002). The CU dimension

includes remorselessness, unemotionality, and callousness subscales. The GM dimension includes dishonest charm, grandiosity, lying, and manipulation subscales. Finally, the IR dimension incorporates DI traits such as thrill-seeking, impulsiveness, and irresponsibility subscales. The YPI consists of 10 scales designed to capture the core traits included on the PCL-R, including dishonest charm, grandiosity, lying, manipulation, remorselessness, callousness, unemotionality, impulsiveness, irresponsibility, and thrill-seeking (Andershed et al., 2002) while excluding seven features, which were believed to be developmentally inappropriate (Andershed et al., 2002; Cooke & Michie, 2001; Edens et al., 2001). Thus, the YPI is looking at stable features instead of traits that may be outgrown throughout development (Andershed et al., 2002; Skeem & Cauffman, 2003). Higher scores on YPI indicate higher levels of psychopathic traits and dimensions (Andershed et al., 2002). Researchers have reported internal consistency based on a Cronbach's alpha of 0.74 for CU, 0.84 for GM, 0.78 for IR, and 0.88 for the YPI total (Andershed et al., 2002).

The focus on the core traits of psychopathy aligns with research suggesting the need to differentiate between youth with early-onset conduct problems and impulsivity and those who show callous and unemotional behaviors (Frick et al., 1999). The goal of the YPI is to assess target traits in a comprehensive, indirect, and nontransparent manner, in which the items do not present psychopathic traits as deficits but as qualities that appear natural or alluring to those with psychopathy. Adopting such a strategy reduces an individual's likelihood of viewing the traits as socially undesirable or malignant (Skeem & Cauffman, 2003), producing reliable results. YPI was developed and validated with a

community-based sample; this is important as it could provide a more accurate understanding of psychopathic traits in youth (Skeem & Cauffman, 2003).

Table 1
Descriptive Statistics (Continuous Variables)

	N	Min.	Max.	Mean	SD
Caring Adult	1261	0	7	4.60	1.33
Maternal Warmth	1125	1.00	4.00	3.19	.72
Prosocial Peer relationships	1179	1	5	3.71	1.17
Friendship Quality	1180	1.30	4.00	3.35	.48
Exposure to Violence	1261	0	6	1.18	1.47
Victimization	1261	0	4	.27	.68
Religion	1257	0	4	1.80	1.36
Motivation to Succeed	1255	1.00	5.00	3.30	.62
IQ	1342	55	128	84.52	13.03
Psychopathy Score (11)	1131	55	186	98.85	22.05
GM Dimension (11)	1131	20	76	35.73	10.55
CU Dimension (11)	1131	15	53	30.84	6.49
IR Dimension (11)	1131	15	60	32.28	8.45
Psychopathy Score Baseline	1079	42	191	109.12	23.35
GM Dimension Baseline	1079	12	80	40.19	11.77
CU Dimension Baseline	1079	17	58	33.3	6.86
IR Dimension Baseline	1079	15	60	35.60	8.29
Valid N (listwise)	748				

Independent Variables

The first wave of the PTD study includes the Psychopathy Checklist: Youth Version (PCL: YV) as a psychopathy measure, but the second wave and all subsequent data collection points use the YPI. The YPI was deemed an appropriate instrument, as it is a measure of stable psychopathic traits instead of behavioral responses to the disorder (Andershed et al., 2002). Therefore, the second wave was used as a baseline for the

current study and is referred to accordingly through the remainder of the study. A period of nine years separates the baseline and final waves used in the current study.

The independent variables fall into five organizational categories (demographics, important relationships, environmental factors, individual characteristics, and baseline psychopathy scores) consisting of several variables, including age, gender, ethnicity, presence of caring adults, maternal warmth, prosocial peer relationships, friendship quality, exposure to violence, victimization, spirituality, motivation to succeed, IQ, and baseline psychopathy scores. All independent variables, except demographic variables, are continuous and may be risk or protective factors based on the reported score. For example, high scores of maternal warmth indicate the respondent reported experiencing high levels of maternal warmth, making it a protective factor. Alternatively, low scores of maternal warmth indicate the participant reported experiencing low levels of maternal warmth, making it a risk factor.

Demographic Variables

The demographic variables include age, gender, and race. The variable for age is continuous. The participants ranged in age from 14 to 20 years, with a mean age of 16.55, SD = 1.15. The current study had one 20 year old in the study and included that case in the analyses. Gender is a dichotomized variable (0 = male, 1 = female). According to the descriptive statistics, males comprised 86.5% of the sample, and females comprised 13.5%. The PTD study collected race and ethnicity data on participants who identify as Black, White, Hispanic, Asian, Pacific Islander, and "Other", it then combined Asian and Pacific Islander individuals with the group "Other" due to small frequency counts (Mulvey et al., 2014). The race and ethnicity categories are mutually exclusive. The PTD

study included information on participants who identified as Black (41.4%), Hispanic (33.5%), White (20.2%), and "Other" (4.8%) (see Table 2). However, the current study dummy coded the race and ethnicity variable (0 = non-White, 1 = White).

Table 2
Descriptive Statistics (Categorical)

	N	%
Males	1094	86.50
Females	171	13.50
Age 14	43	3.20
Age 15	221	16.30
Age 16	311	23.00
Age 17	387	28.60
Age 18	291	21.50
Age 19	11	.80
Age 20	1	.10
White	274	20.20
Non-White	1080	79.80
Black	561	41.40
Hispanic	454	33.50
"Other"	65	4.80
Valid N (listwise)	748	

Important Relationships

The study includes four variables relating to meaningful relationships: the presence of caring adults, maternal warmth, prosocial peer relationships, and friendship quality. These variables are continuous, and higher scores indicate higher levels of the respected measures. The PTD included a modified version of the Contact with Caring Adults Inventory (Boulder, 1990; Nakkula et al., 1990) to measure the presence of caring adults. This measure included eight domains of questions aimed at better understanding

the presence of caring adults in the participants' life. The current study used the "Diversity of Social Support" variable, which identified the unique individuals mentioned in each of the eight domains and summarized them for a total score. The Diversity of Social Support variable ranges from 0 to 7 caring adults. These individuals may be parents, family members, teachers, friends' parents, social workers, etc. A majority of participants reported having at least one caring adult in their life, with a mean of 4.60, *SD* = 1.33. The PTD also included an adapted version of the Quality of Parental Warmth and Hostility Inventory (Conger et al., 1994) for information on maternal warmth. The current study used the variable "Parent Warmth – Mother", which was created by the PTD study and consisted of a mean score from 9 items targeting maternal warmth. Possible scores ranged from 1.00 to 4.00. The participants reported a mean maternal warmth of 3.19, *SD* = .720 (see Table 1).

The participants also provided information about their prosocial peer relationships and friendship quality via a series of questions about their four closest friends from the Characteristics of Friends Measure developed through the PTD as adaptations of The Quality of Relationship Inventory (Pierce, 1994). The current study used the variable "S1 CharFriends: Count of 4 closest friends ever arrested" to measure prosocial peer relationships. Responses for that question range from 0 to 4, with higher scores indicating the participant had a higher number of friends who had been arrested. However, the variable was reverse coded for the current study. The new scores ranged from 1 to 5, and higher scores now indicate more prosocial peer relationships, where the participants have fewer friends who have been arrested. The participants reported a mean of 3.71 prosocial peers, *SD* = 1.17. The PTD researchers also adapted the Friendship Quality Scale from

the Quality of Relationships Inventory (Pierce, 1994). This measure focused on the participants' five closest friends and used 10 items to assess the support respondents derived from these friendships. The current study used the variable "S1 FQual: Friendship - Quality of Relationship" to measure friendship quality. The PTD used 10 items to assess friendship quality, and then added them together, with the mean produced and organized into a scale. The scores for friendship quality ranged from 1.30 to 4.00, with a mean of 3.35 and *SD* = .489 (see Table 1).

Environmental Factors

This study includes two variables affecting environmental conditions, including exposure to violence and victimization to gain a better understanding of the participants' histories of direct and indirect victimization. These variables are continuous, and higher scores indicate higher exposure to violence and victimization. The Exposure to Violence Inventory (ETV) (Selner-O'Hagan et al., 1998) was the instrument used to measure the respondents' exposure to violence. The ETV measures the history of violence in which the respondent was the victim and the witness. The current study includes "S1 ExpV: Witnessed Score" from the PTD as the measure for exposure to violence, which is derived from seven items on the ETV. The scores ranged from 0 to 6, with a mean of 1.18, *SD* = 1.47 (see Table 1). The ETV also provided information on exposure to violence where the participant was the victim. The current study included the variable "S1 ExpV: Victim Score" from the PTD as a measure of victimization. The scores ranged from 0 to 4, with a mean of .27, *SD* = .686 (see Table 1).

Individual Characteristics

Three variables comprised the category for individual characteristics, including spirituality, motivation to succeed, and IQ. These variables are continuous, and higher scores indicate higher levels of the corresponding variables. The current study used the variable "S1 Religion: I experience a close personal relationship to God" from The Importance of Spirituality measurement (Maton et al., 1996) from the PTD to measure spirituality. The participants reported a mean of 3.20, *SD* = 1.36. Next, the current study used the variable "S1 Motivate: Motivation to Succeed". This variable was a mean of six items measuring motivation to succeed through the Motivation to Succeed Scale (Eccles et al., 1998) in the PTD. The participants reported a mean score of 3.30, *SD* = .62. Lastly, the current study used the variable "S0 WASI: Enter Full-Scale IQ", which was assessed through The Weschler Abbreviated Scale of Intelligence (WASI) (Weschler, 1999) measure and has scores on a continual scale. IQ variable was used from the first wave of the PTD study, as it was the only time IQ was measured. The participants ranged in IQ scores from 55 to 128, with a mean of 84.52 and *SD* = 13.03 (see Table 1).

Baseline Psychopathy Scores

This study included the baseline psychopathy scores as part of the independent variables. This was done to address the longitudinal nature of the current study and control for changes in psychopathy scores.

Research Questions 1 and 2 used the variable "S1 YPI: Total Score" as the baseline psychopathy scores and an independent variable. The scores for baseline

psychopathy ranged from 42 to 191, with a mean of 109.12, *SD* = 23.57 (see Table 1). Higher psychopathy scores indicate higher psychopathy levels. The third research question contained three parts and different baseline psychopathy dimension scores as part of the independent variables. Research question 3A uses the variable "S1 YPI: Callous-Unemotional Dimension" to concentrate on CU dimension scores, and ranged from 17 to 58, with a mean of 33.36, *SD* = 6.86. Question 3B used the variable "S1 YPI: Grandiose-Manipulative Dimension" to address GM dimension scores, and ranged from 12 to 80, with a mean of 40.19, *SD* = 11.77. Question 3C incorporated "S1 YPI: Impulsive-Irresponsible Dimension" to focus on the IR dimension scores, and ranged from 15 to 60, with a mean of 35.60 and *SD* = 8.292 (see Table 1).

Interaction Effects

The current study looks at magnification in addition to additive effects. This is done in an attempt to fully understand the relationship between gender, risk, and protective factors. To this end, a total of 15 interaction effects were created for Research Question 2B. These interaction effects were created through the "compute variable" function in SPSS version 27.0 (Corp., 2020) and were created by multiplying gender by each independent variable included in the study (Appendix Table A). The interaction effects include gender*age, gender*White, gender*caring adult, gender*maternal warmth, gender*prosocial peer relationships, gender*friendship quality, gender*exposure to violence, gender*victimization, gender*spirituality, gender*IQ, gender*baseline psychopathy scores. Descriptive statistics for these variables do not hold interpretive value. Once these variables were created they were assessed for multicollinearity and several (gender*age, gender*caring adult, gender*maternal warmth, gender*prosocial

peer relationships, gender*friendship quality, gender*motivation to succeed, gender*IQ and gender*baseline psychopathy scores) VIF scores ranged from 9.191 to 238.424. These scores are problematic, as VIF scores over 10 are a sign of multicollinearity and reduce the precision of the estimated coefficients (Belsley et al., 2005). In response, the current study used a Bivariate Correlation analysis to assess the relationship between the independent variables.

The current study continued to address the problem by exploring centered interaction effects. Some debate ensues on this topic, on one hand, some researchers strongly recommend the centering of interaction variables to avoid multicollinearity and lowering VIF scores (Robinson & Schumacker, 2009). This process includes subtracting the mean from each score, producing a centered variable score (Aiken et al., 1991). Once the centered independent variable is created, it is multiplied by each independent variable to produce a centered interaction effect. By doing so, different regression weights are generated for the predictors and meaningful interpretation results are produced (Robinson & Schumacker, 2009). However, other researchers do not promote the centering of interaction effects (Echambadi & Hess, 2007). Not only does mean-centering not change the computation precision of parameters, the sampling accuracy of the main effects, or interaction effects, but there are no changes to R^2 scores (Echambadi & Hess, 2007).

The current study vetted both strategies for interaction terms. Initially, centered interaction effects were created through the "compute variable" function in SPSS. Each independent variable was centered by subtracting the mean from the total score. Once the centered variable was created, the centered interaction effects were created by multiplying gender by each of the centered independent variables. The centered

interaction effects were then analyzed again and the new VIF scores were below three, which proved to be acceptable. Finally, the interaction effects were included in a stepwise regression and the results were compared to the none-centered interactions. The results showed minimal changes, and therefore the original, non-centered interaction effects were used in the current study.

The following section will detail the preliminary analyses.

Preliminary Analyses

Although the PTD had high retention rates (90%; (Mulvey et al., 2014), this study used a sample of 748 youths aged 14 to 20 at the time of the current study's baseline interview. The difference in sample size occurred due to missing data. A missing variable analysis showed that 20 variables were missing over 5% of the data, including baseline psychopathy score (20.30%), baseline CU dimension (20.30%), baseline GM dimension (20.30%), baseline IR dimension 2 (20.30%), final psychopathy score (16.50%), final CU dimension (16.50%), final GM dimension (16.50%), final IR dimension (16.50%), maternal warmth (16.90%), prosocial peer relationships (12.90%), friendship quality (12.90%), motivation to succeed (7.30%), victimization (6.90%), exposure to violence (6.90%), caring adult (6.90%), age (6.60%), and gender (6.60%).

A Little's MCAR test of the missing values showed a *p*-value of 1.00, indicating data missing at random. The data underwent analysis for patterns using multiple imputations and produced a missing value patterns chart. The findings confirmed the missing data did not show a clear pattern. At this point, there were multiple imputations conducted to replace the missing data. The analysis used five imputations for an appropriate estimate of the missing values, producing a sample size of 1,255 participants.

The means and standard errors were compared between the original and pooled imputed samples. The results showed high similarities, with slight mean variations and changes ranging +/-1.00 in standard error. The original sample size was selected for the study because of the similarities in the data.

Preliminary and subsequent analyses were conducted through the use of SPSS version 27.0 (Corp., 2020). The following section will detail each of the research questions.

Research Question 1

Question

The first research question asked: How do risk and protective factors affect the psychopathic development of the total sample?

Hypothesis

The current study hypothesizes risk factors such as the lack of a caring adult, a lack of prosocial peer relationships, low friendship quality, exposure to violence, victimization, and low IQ, are positively associated with higher psychopathy scores in the total sample. In contrast, protective factors, such as the presence of caring adults, experiences of maternal warmth, prosocial peer relationships, high-quality friendships, high spirituality motivation to succeed, and high IQ, are hypothesized to shield against the development of psychopathic traits in the full sample.

The current study predicts that maternal warmth, high spirituality, positive peer relationships, and friendship quality are four of the greatest protective factors for males and females. This is supported by past research, which has shown protective variables

such as parental warmth (Pardini & Loeber, 2007), positive peer relationships (Vagos et al., 2021), and spirituality (Oman & Lukoff, 2018) guard against psychopathic trait development. This hypothesis is based on attachment theory, as the included variables are believed to impact bonding with caregivers, peers, and the community. Proper bonding is hypothesized to shield against psychopathic development and factors which result in proper bonding are considered to be protective factors. The current study hypothesizes psychopathic development could be affected at any point during youth development and may be impacted through any of the included risk and protective factors.

Variables

Dependent Variable. The dependent variable for this research question is a continual measure of the final psychopathy. This variable was used to evaluate the effect of the risk and protective factors on the final psychopathy score (see Table 1).

Independent Variables. The independent variables included age, gender, race (see Table 2), the presence of caring adults, maternal warmth, prosocial peer relationships, friendship quality, exposure to violence, victimization, spirituality, motivation to succeed, IQ, and baseline psychopath scores (see Table 1).

Analytic Strategy

The first research question used a stepwise multiple regression analysis to find a relationship between the experienced factors and the final psychopathy score. The stepwise multiple regression analysis was a means to evaluate the strength of the relationship between the dependent variable and the independent variables for the total sample (N = 748). The nature of the stepwise regression iteratively analyzes the statistical

significance of each dependent variable in the linear regression, producing a final model that only contains significant variables (George & Mallery, 2019).

The included variables underwent analysis to ensure the necessary assumptions were met. The dependent and independent variables in this analysis have a linear relationship. The variables underwent review for multicollinearity and produced VIF scores that ranged from 1.00 to 1.38 and showed no issues with multicollinearity. The data were examined for residual independence and showed independence; the constant variance and the residuals had a normal distribution. The variables underwent assessment for outliers. A few variables contained outliers, including age (7), caring adult (4), friendship quality (12), victimization (15), motivation to succeed (13), IQ (2), final psychopathy score (4), and baseline psychopathy scores (2). These scores fell within the range of possible scores and were believed to be plausible scores. Therefore, they were included as part of the data set, because stronger experiences might have a greater impact on psychopathy development. This analysis showed the necessary assumptions were met, and the multiple regression was an appropriate statistical method.

Research Question 2

Question

The second research question focused on the relationship between risk factors, protective factors, psychopathy, and gender. This question contained two parts. Question 2A asked: Is there a difference in the risk and protective factors affecting males' and females' psychopathy development? Furthermore, do different relationships occur based on gender? Lastly, are psychopathy scores stable throughout adolescence in males and

females? Question 2B asked: Does gender have a modifying effect on the relationship between the included risk factors, protective factors, and psychopathy development? These questions aid in furthering psychopathy literature by uniting possible developmental antecedents into a single model and focusing on psychopathy development in males and females. It uniquely focuses on psychopathy stability in males and females, allowing the field to gain a better understanding of psychopathy development, desistance, and how those aspects differ among the sexes. Furthermore, this research question delves deeper into the possible modifying relationship between gender and the developmental antecedents, something which has not been explored thus far.

Hypothesis

These hypotheses are based on attachment theory, gender schema, and socialization and are presented in two parts: A) All of the included variables are expected to impact psychopathy levels, and different variables are believed to be significant for males and females. Gender-specific predictions are difficult to make, as research on the developmental differences of psychopathy remains understudied (Verona & Vitale, 2018), and has shown conflicting results in the way factors affect psychopathy in males and females (Bennet & Kerig, 2014; Lindberg et al., 2016). The current study hypothesizes IQ and prosocial peer relationships more strongly impact males. This is due to IQ being a protective factor against antisocial behavior in males (Kandel et al., 1988) and males being more strongly affected by criminal peers (Haynie et al., 2014). Females are believed to be impacted by spirituality, maternal warmth, and friendship quality, as they are more likely to experience the encouragement of prosocial activities that foster bonding with family and peers and experience parental warmth (Lytton & Romney,

1991). These factors are believed to be indicative of gender differences in socialization and gender norms. Lastly, the current study also hypothesizes males and females experience changes in psychopathy stability over the 9 years that separates the data points. This hypothesis is supported by research stating psychopathy stability fluctuates across development, making developmental study crucial (Frick et al., 2014). Changes in psychopathic stability are supported through attachment theory, as psychopathic development is argued to stem, partially, from improper bonding.

B) The current study hypothesizes gender has a modifying effect on the relationship between risk factors, protective factors, and psychopathy. The interaction between gender and maternal warmth, gender and prosocial peers, gender, and friendship quality is believed to be the most significant, as these areas are believed to have some of the largest discrepancies between males and females. These hypotheses are based on gender schema, socialization, and gender roles and the way they affect observed differences between males and females regarding internalized beliefs, societal treatment (Bem, 1981), and individual underlying mechanisms (Gauthier-Duchesne et al., 2017; Sloan-Power et al., 2013). Researchers have shown gender-based differences in parenting, punishment styles, levels of affection (Lytton & Romney, 1991), childhood maltreatment (Durand & de Calheiros Velozo, 2018), and personal responses (Fergusson et al., 2013). These experiences, or developmental antecedents, are believed to directly affect the development of psychopathic traits through attachment and bonding (Bowlby, 1982).

Variables

Dependent Variable. Research Question 2A and 2B both used final psychopathy scores as the dependent variable (Table 1). This was done to assess the effect of the independent variables on the final psychopathy score (see Table 1).

Independent Variables. Question 2A used demographic information (see Table 2), the presence of caring adults, maternal warmth, prosocial peer relationships, friendship quality, exposure to violence, victimization, spirituality, motivation to succeed, full IQ, and baseline psychopathy scores (see Table 1). Question 2B used all of the above-mentioned independent variables and included interaction effects (see Figure 1).

Analytic Strategy

Question 2A used two *t*-tests and multiple regression analyses (George & Mallery, 2019). The first *t*-test was an independent sample *t*-test. It was used to compare the results of the regression, with the goal being to determine whether a significant difference exists between the final psychopathy score results for males and females. The second was a paired sample *t*-test, used to analyze psychopathic stability over a period of 9 years. The assumptions for the *t*-tests were met before the statistical method was used. The *t*-tests occurred with continuous, normally distributed, and homogenous data. Research question 2A then used multiple regression analyses aimed to evaluate if the risk and protective factors produced different coefficients for males and females, and if so, whether the differences were significant. This was done through stepwise multiple regression and a full regression model.

The current study conducted two stepwise multiple regressions, one for male and one for female participants. The sample size of the PTD study was 748 youths, 623 of whom identified as male and 125 as female. Despite the gap in gender representation, the female group exceeded the minimum requirement of cases for a multiple regression for that group alone. The stepwise multiple regression analysis was an appropriate method to evaluate the relationship between variables. The assumptions for the method were met before conducting the analysis. The independent and dependent variables have a linear relationship. No multicollinearity exists between the variables, as shown by VIF scores (ranging from 1.03 to 1.387) under 10. The data aligned with the assumptions for independence, constant variance, and normally distributed residuals. The analysis showed several outliers, including age (7), caring adult (4), friendship quality (12), victimization (15), motivation to succeed (13), IQ (2), final psychopathy score (4), and baseline psychopathy (2). After examination, the data set included the outliers because they all fell within the range of the provided scales.

Next, the current study conducted a full multiple regression analysis using all of the independent variables on males and females separately. The full regression is appropriate as this method allowed the current study to assess the relationship between all of the developmental antecedents and the final psychopathy scores (Aiken et al., 2003; Aiken et al., 1991). Therefore, aiding in a better understanding of the relationship between risk factors, protective factors, and psychopathy development in males and females separately.

Research question 2B used one multiple regression analysis (George & Mallery, 2019), and this analysis aimed to find whether gender had a modifying effect on the

relationship between risk factors, protective factors, and psychopathy scores to ascertain how the interaction between gender and each risk and protective factor affects the final psychopathy score. As stated above, this method is believed to be appropriate as uses statistical significance to identify which independent variables have an impact on the dependent variable (Johnsson, 1992). Next, the full regression was conducted using all of the independent variables and the interaction effects. The full regression allowed the current study to assess the relationship between all of the independent variables and the final psychopathy scores (Aiken et al., 2003).

Research Question 3

Question

The final research question consisted of an analysis of three sections: CU (3A), GM (3B), and IR (3C) dimensions. Research Question 3 asked: How do the risk and protective factors affect the development of each psychopathic dimension in males and females? Furthermore, are the psychopathic dimensions stable throughout adolescence in males and females? This question is important as it furthers the field's understanding of psychopathy development and provides a comprehensive look into all three dimensions, as opposed to focusing solely on the CU dimension. It is also unique in that looks at psychopathic dimension stability in males and females separately, allowing the field to gain a better understanding of psychopathy development, desistance, and how those aspects differ among males and females.

Hypothesis

The hypotheses for the third research question are based on the attachment theory (Bowlby, 1969), gender schema (Bem, 1981), socialization, and the gender roles framework (Witt, 1997). While attachment theory is believed to explain overall psychopathic development in males and females, gender schema, socialization, and gender roles are believed to explain gender-specific development. Furthermore, each psychopathic dimension is believed to be affected by different risk and protective factors. The hypotheses are presented in three parts.

A) It is hypothesized that the CU dimensions will correlate to risk factors, such as exposure to violence and victimization. Exposure to trauma in childhood contributes to affect inhibition that could result in dissociation from affective experiences (Porter, 1996) and CU traits. On the other hand, protective factors such as the presence of caring adults, maternal warmth, religion, prosocial peer relationships, and high friendship quality could shield against CU dimension development. This is supported by research showing youth experiencing higher levels of parental warmth are more likely to have lower CU traits (Waller et al., 2018). Gender differences are expected to be present in the development of CU traits. These gender differences are believed to stem from differences in socialization and gender schema. For example, males may be less likely to communicate emotions, especially negative emotions, opting for an aggressive response that is more socially acceptable (de Vogel & Lancel, 2016; Delk et al., 2017). Females are encouraged to share their feelings and may garner an increased positive response from caregivers (de Vogel & Lancel, 2016; Delk et al., 2017). This difference in communication is believed to affect relationship quality (Popov & Ilesanmi, 2015), and could lead to gender differences in

CU development. Lastly, the current study looks at psychopathic stability in males and females. When it comes to CU dimension stability, the current study takes an exploratory approach and hypothesizes there will be changes in CU dimension stability in males and females, as research has stated psychopathy stability varies across development, therefore, highlighting the importance of developmental study (Frick et al., 2014). The expected changes in CU dimension stability might be explained through the use of attachment theory, as psychopathic development is argued to stem, partially, -from improper bonding

B) The GM dimension is hypothesized to correlate with early trauma in the form of exposure to violence and victimization. Research has shown that early trauma has an impact on cognition (Erwin et al., 2000) and interpersonal traits, resulting in blunted affect, little connection to others, and a plethora of psychiatric problems (Bisby et al., 2017; Fanti et al., 2013). This is supported by attachment theory and the possible role of emotional detachment mechanisms in rescinded affect (Bowlby, 1969). As stated by Bowlby, the age of trauma onset is of particular importance because it can lead to varying degrees of rescinded affect. Gender differences in psychopathic development may be further explained by the diverse types and rates of trauma experienced by males and females (Rosenthal, 1988). They may also be explained by differences in underlying coping mechanisms stemming from socialization, societal treatment, gender schema, and gender roles. The current study also looks at GM dimension stability. The current study hypothesizes that there will be changes in GM dimension stability in males and females. Although past research supports the notion of variability in psychopathic stability throughout development (Frick et al., 2014), the current study is among the first to look at

differences in all psychopathy dimension stability in males and females, and therefore takes an investigative approach to this research question.

C) Researchers have studied the psychopathic dimensions but have overwhelmingly focused on the CU dimension. As such, little information is available on the GM and IR dimension, particularly in terms of gender differences. That being said, it is believed that the three psychopathic dimensions might influence each other and may be interrelated to some extent (Bergstrøm & Farrington, 2018), but more research in this area is needed. The current study used all three psychopathic dimensions to avoid a reductionist approach to the study of psychopathy, as recommended by Salekin (2017).

It is hypothesized that motivation to succeed and IQ would relate to the IR dimension of psychopathy due to a negative correlation between IQ, impulsivity, and stimulation-seeking behaviors (Vitacco et al., 2005). Consequently, it is expected that IQ and motivation to succeed would correlate with the IR dimension of psychopathy. The current study does not expect to find gender differences in terms of motivation to succeed or IQ, but it does expect to find gender differences in the IR dimension, due to the relationship between the three psychopathic dimensions and the expected gender differences in the CU and GM dimensions. These gender differences are believed to be due to gender schema, socialization, and gender roles. Lastly, the current study takes an exploratory approach to IR dimension stability in males and females, hypothesizing there will be changes in stability throughout adolescence. As mentioned, past research supports the notion of variability in psychopathic stability throughout development (Frick et al., 2014), and the current study is advancing the field in terms of studying differences in IR dimension stability in males and females.

Variables

Dependent Variables. The third research question included three dependent variables: final CU dimension, final GM dimension, and final IR dimension (see Table 1). These dependent variables were assessed individually in their corresponding analysis to find how the independent variables affect specific psychopathic dimensions.

Independent Variables. The variables included in this stage of the analysis included the demographics (see Table 2), presence of caring adults, maternal warmth, prosocial peer relationships, friendship quality, exposure to violence, victimization, spirituality, motivation to succeed, and IQ. This question also includes the corresponding baseline psychopathy dimensions for the CU, GM, and IR dimensions (see Table 1).

Analytic Strategy

Research questions 3A (dependent variable: CU dimension), 3B (dependent variable: GM dimension), and 3C (dependent variable: IR dimension) use the same analytical approach: two *t*-tests, two stepwise multiple regressions, and two full multiple regression analyses. The first analysis was an independent sample *t*-test, used to compare the mean of the male and female groups corresponding final psychopathic dimension score (George & Mallery, 2019). The second was a paired sample *t*-test, used to study psychopathic dimension stability over a period of nine years (George & Mallery, 2019).

The necessary assumptions were met, and the *t*-tests were judged to be an appropriate statistical method for finding significant differences in the means of the two groups for questions 3A, 3B, and 3C. The variables have a normal distribution and align with the assumption of homogeneity. Although the current sample is made up of 86.58%

male participants, 161 females were included in the current study; thus, there is a sufficient sample for conducting a *t*-test.

Next, two stepwise multiple regression analyses (George & Mallery, 2019), are conducted (one for males and one for females) to discern the effect of the risk and protective factors on the corresponding psychopathic dimension. Finally, a full multiple regression analysis was conducted for males and females separately. This method is appropriate as it facilitates the assessment of the relationship between all of the independent variables and the final psychopathy scores (Aiken et al., 2003). The assumptions for each analytical method were met before execution. Questions 3A, 3B, and 3C have a linear dependent and independent variable. The PTD data showed VIF scores lower than 10, indicating no issues with multicollinearity. The data aligned with the assumptions for independence, constant variance, and normally distributed residuals. The data showed the existence of some outliers: age (7), caring adult (4), friendship quality (12), victimization (15), motivation to succeed (13), IQ (2), baseline GM dimension scores (3), baseline CU dimension score (6), baseline IR dimension score (2), final GM dimension score (4), final CU dimension score (4), final IR dimension score (4). The outliers underwent examination for inclusion in the dataset. One outlier was excluded, for the baseline CU dimension score, as this score was exceptionally low and appeared to be a mistake. The rest of the outliers fell within the range of the provided scales and were included in the study. Multiple regression was an appropriate procedure for this study, as it enabled the evaluation of the relationship between the dependent variable of each analysis and the risk factors and protective factors.

Chapter Summary

This section provides an in-depth review of the data, variables method of analysis, research questions, and related hypotheses. The current study uses data from the PTD study and examines 748 youth aged 11 to 17 (Mulvey et al., 2014). The three primary questions contain sub-questions focused on psychopathy risk factors, protective factors, and gender differences. The chapter provides three theories to support the related hypotheses including attachment theory (Bowlby, 1969), socialization, and gender schema. Several research methods are used through SPSS 27 (Statistics, 2013) to address these questions, including stepwise regression and t-tests. The next chapter will detail the analyses results.

CHAPTER IV: ANALYSIS

The fourth chapter provides an in-depth presentation of the analyses. It will discuss findings for research questions 1, 2, and 3.

Research Question 1

The first research question focuses on the final psychopathy scores in youth aged 14 to 20, and how it is affected by the included risk and protective factors. This question builds on past research in two parts. First, the Youth Psychopathic Traits Inventory (YPI) is used as it is considered to be a more appropriate measurement tool for psychopathy than that commonly used in past studies because it focuses on stable affective features of psychopathy instead of behavioral manifestations associated with the disorder (Andershed et al., 2002). Second, it uses risk and protective factors identified by past research but is unique in refining and investigating the nuances within a unified model. The first research question uses attachment theory (Bowlby, 1969) to help guide the theoretical framework and build a hypothesis.

Attachment theory focuses on interpersonal and emotional responses, two fundamental aspects of psychopathy. The theory states that those who are unable to properly bond with caregivers develop beliefs of others as being undeserving of trust, concern, or empathy, causing the development of a range of callous traits (Bowlby, 1994; Van Ijzendoorn & Zwart-Woudstra, 1995). Emotional detachment mechanisms are believed to be particularly important in psychopathy development, as emotional detachment is described as "turning off" the capacity for empathy in response to repeated trauma or disillusionment, resulting in an emotional disconnect with cognition and behavior (Porter, 1996). If sustained, the emotional detachment mechanism can be

reinforced through the reduction in psychological distress or trauma associated with prolonged abuse, resulting in rescinded affect (Porter, 1996). The age of the child during the onset of abuse is believed to be important, as the child might be in the early, late, or complete stage of affective development when experiencing trauma. Therefore, the stage of affective development directly influences the level of resistance to dissociation (Porter, 1996). The earlier in life the child experiences risk factors, the more likely they might be to dissociate and emotionally deactivate, contributing to the development of psychopathic traits (Porter, 1996).

The current study uses attachment theory to formulate a hypothesis. The hypothesis states that factors that show proper bonding, such as the presence of caring adults, experiences of maternal warmth, prosocial peer relationships, high-quality friendships, motivation to succeed, and high IQ, were expected to act as protective factors against psychopathic development. Alternatively, factors that signify a failure to properly bond, such as the lack of caring adults, lack of prosocial peers, low friendship quality, exposure to violence, victimization, and low IQ, were expected to act as risk factors for psychopathy development. These hypotheses were tested through a stepwise regression table, a reduced form table, and a full regression model.

The stepwise regression used several iterative steps to select statistically significant variables to construct a final regression model, which would present the independent variables affecting final psychopathy scores. The supplemental reduced form table was created by including an additional independent variable into the regression model and was provided as a check of the character and nature of the independent variables' relationships with each other and to determine how any associations among

them may impact the results. Finally, a full regression equation including all of the variables used in the analyses is provided to the reader for clarity of the original model tested. This is also done out of caution as the stepwise method can have problems, particularly when not all of the available predictors have been identified. This may result in an underspecified model. Consistency of findings among these methods allows for confidence in the results and signals robustness of the findings. The method is thought to be appropriate, as it uses statistical significance to identify which independent variables have an impact on the dependent variable (Johnsson, 1992) and allows the current study to find which risk and protective factors affect psychopathy development in the full sample.

The first research question uses the final psychopathy score, as measured by the YPI in the Pathway to Desistance (PTD) study, as the dependent variable. The final psychopathy score variable is a continuous variable with scores ranging from 55 to 186. The independent variables were selected through careful study of the literature and include age (Gill & Crino, 2012), gender (Strand & Belfrage, 2005), race and ethnicity (Jackson et al., 2007; Vitacco et al., 2005), presence of caring adults, maternal warmth (Pardini & Loeber, 2007), prosocial peer relationships, friendship quality (Vagos et al., 2021), exposure to violence, victimization (Durand & de Calheiros Velozo, 2018), spirituality (Oman & Lukoff, 2018), motivation to succeed (Schimmenti et al., 2020), IQ (Kandel et al., 1988), and Baseline psychopathy scores. These variables are continuous and may serve as risk or protective factors depending on where they fall on the spectrum. For example, a high score in maternal warmth indicates the respondent reported experiencing high levels of maternal warmth, making the variable a protective factor. On

the other hand, a low score in maternal warmth indicates the respondent reported experiencing low levels of maternal warmth, making the variable a risk factor. This same logic applies to all the continuous independent variables included in the study.

Findings for the first research question are presented in three parts: the stepwise regression, a supplemental reduced form table, and the full regression. As seen in Table 3 and 3a (continued), the stepwise regression conducted five iterations before producing final results and shows an adjusted R^2 value of .20. The adjusted R^2 is commonly reported for stepwise regressions and provides a more accurate account of the relationship between the dependent and independent variables by accounting for the number of independent variables in the model (Leach & Henson, 2007). Due to this, the current study reports the adjusted R^2 for the full regression table. Although the R^2 is conventionally reported and does indicate how well the independent variables fit the model, it does not takes the number of independent variables into account (Leach & Henson, 2007). That being said, the adjusted R^2 for the current model indicates that 20% of the total variance of the dependent variable, final psychopathy scores, is explained by the variables included in the sixth iteration. The current study is using a significance level of ($p. \leq .05$) for all analyses. The table shows four variables were found to be statistically significant including, gender ($\beta = -.07$, $p. \leq .03$), race ($\beta = .101$, $p. \leq .00$), baseline psychopathy ($\beta = .41$, $p. \leq .00$), presence of caring adults ($\beta = .07$, $p. \leq .02$), and motivation to succeed ($\beta = -.06$, $p. \leq .04$). The standardized coefficients show baseline psychopathy scores are the strongest predictor of final psychopathy scores in males and females ($p. \leq .00$).

Table 3

Stepwise Regression - Final Psychopathy Scores in Males and Females

Variable	b	SE b	β	Sign.	VIF
Step 1					
Constant	53.35**	3.44		.00	
Controls					
Baseline Psychopathy Score	.41**	.03	.43	.00	1.00
Adjusted R2	.19				
F	176.33			.00	
Step 2					
Constant	52.76	3.43		.00	
Controls					
White***	4.71**	1.79	.08	.00	1.00
Baseline Psychopathy Score	.41**	.03	.43	.00	1.00
Adjusted R2	.19				
F	92.32			.00	
Step 3					
Constant	49.79	3.67		.00	
Controls					
White***	4.62**	1.79	.08	.01	1.00
Baseline Psychopathy Score	.41**	.03	.43	.00	1.00
Protective Factors					
Caring Adult	1.21*	.54	.07	.02	1.00
Adjusted R2	.20				
F	63.53			.00	
Step 4					
Constant	50.93	3.70		.00	
Controls					
Gender	-4.16*	1.92	-.07	.03	1.01
White***	4.91**	1.79	.09	.00	1.00
Baseline Psychopathy Score	.40**	.03	.42	.00	1.00
Protective Factor					
Caring Adult	1.24*	.54	.07	.02	1.00
Adjusted R2	.20				
F	49.05			.00	

Table 3a (Continued)

Step 5					
Constant	60.27	5.93		.00	
Control					
Gender	-4.07*	1.91	-.07	.03	1.01
White***	5.51**	1.81	.10	.00	1.03
Baseline Psychopathy Score	.39**	.03	.41	.00	1.04
Protective Factors					
Caring Adult	1.25*	.54	.07	.02	1.00
Motivation To Succeed	-2.44*	1.21	-.06	.04	1.06
Adjusted R2	.20				
F	40.21			.00	

***Non-White is the reference category. ** $p. \leq .01$ * $p. \leq .05$

The results in Table 3a show the final stepwise iteration and demonstrate a positive association between race (b = 5.51), the presence of a caring adult (b = 1.25), baseline psychopathy scores (b = .39), and final psychopathy scores in the older youth. These unstandardized beta coefficients show that White respondents report an average of 5.51 higher points in final psychopathy scores when compared to Non-White (Black, Hispanic, and "Other") participants. The results furnished in Table 3a also show an increase in the presence of caring adults (such as social workers, teachers, caseworkers, etc.), which is associated with a slight increase in final psychopathy scores in males and females and is unable to curtail psychopathic development. Additionally, a one point increase in baseline psychopathy scores are shown to have a .392 point increase in final psychopathy scores.

The equation (see Table 3a) also revealed a negative association between respondents' gender (b = -4.07), motivation to succeed (b = -2.44), and final psychopathy scores. These unstandardized beta coefficients show that females on average report lower

psychopathy scores than males. Lastly, an increase in motivation to succeed was shown to lower final psychopathy scores by 2.44 points.

Table 3b was created as a supplement to the stepwise regression and shows comparable results to those found in the final iteration of Table 3a. As seen in Table 3b, all of the included variables were found to be significant, except for the motivation to succeed variable. The current study sought to further vet the relationship between these variables through VIF score exploration and the use of a bivariate correlation analysis. This was done to examine the relationship between these variables and investigate why the motivation to succeed variable is no longer significant in the supplemental analysis.

As shown in Table 3b, the VIFs range from 1.00 to 1.08, showing no issues with multicollinearity. A bivariate correlation analysis showed weak but significant correlations between motivation to succeed and baseline psychopathy scores ($r = -.17$, $p. \leq .00$), final psychopathy scores ($r = -.10$, $p. \leq .00$), race ($r = -.17$, $p. \leq .00$), and presence of caring adults ($r = .07$, $p. \leq .00$). Gender ($r = .04$, $p. \leq .09$) was the only insignificant correlation. Although motivation to succeed significantly correlates with the above-mentioned variables, it is not significant in the reduced form table when controlling for baseline psychopathy scores, gender, race, and presence of caring adults. This variable fluctuates in and out of significance in the analyses, likely because of conceptual issues, the presence of indirect effects, or a possible omitted variable bias. The motivation to succeed variable continues to be of interest and may be and may be of importance in future research.

Table 3b

Reduced Form Table – Final Psychopathy in Males and Females

Variable	1	2	3	4	5	VIF (5)
Control						
Baseline Psychopathy Scores	.41**	.41**	.40**	.40**	.39**	1.05
Gender		-5.23**	-5.59**	-5.65**	-5.48**	1.01
White***			4.78**	4.76**	5.10**	1.04
Protective Factors						
Caring Adult				.87	.97*	1.00
Motivation To Succeed					-1.40	1.08

***Non-White is the reference category. ** $p. \leq .01$ * $p. \leq .05$

The analyses for the first research question are housed in Table 4, which presents the full multiple regression table explaining final psychopathy scores in males and females. This model shows an R^2 of .21 and an adjusted R^2 value of .20. The adjusted R^2 indicates that 20.30% of the total variance of the dependent variable is explained by the included independent variables.

Table 4 goes on to show gender ($\beta = -.07$, $p. \leq .03$), race ($\beta = .08$, $p. \leq .01$), presence of caring adults ($\beta = .07$, $p. \leq .02$), motivation to succeed ($\beta = -.07$, $p. \leq .04$) and baseline psychopathy scores ($\beta = .40$, $p. \leq .00$) continue to be significant variables in predicting final psychopathy scores in males and females. The standardized beta coefficients indicate baseline psychopathy score has the strongest effect on final psychopathy scores in the older participants, this is in line with the stepwise regression depicted in Table 3a.

Table 4

Full Regression - Final Psychopathy Scores in Males and Females

Variable	b	S E b	β	Sign.
(Constant)	62.36	14.33		.00
Gender	-4.17*	1.97	-.07	.03
Age	-.02	.63	-.00	.96
White***	4.72**	1.97	.08	.01
Caring Adult	1.23*	.55	.07	.02
Maternal Warmth	-.61	1.08	-.02	.56
Prosocial Peer relationships	.53	.63	.02	.39
Friendship Quality	-.63	1.57	-.01	.68
Exposure to Violence	.32	.58	.02	.58
Victimization	.76	1.21	.02	.52
Religion	-.29	.59	-.01	.62
Motivation to Succeed	-2.53*	1.23	-.07	.04
IQ	.03	.06	.02	.55
Psychopathy Scores Baseline	.37**	.03	.40	.00
R Square	.21			
Adjusted R Square	.20			

***Non-White is the reference category. ** $p. \leq .01$ * $p. \leq .05$

The unstandardized beta coefficients show White (b = 4.72) participants report higher psychopathy scores when compared to Non-White (Black, Hispanic, and "Other") participants. The presence of caring adults (b = 1.23) such as social workers, teachers, or parents continues to show a positive association with final psychopathy scores, indicating an increase in presence of caring adults was unsuccessful in reducing psychopathic development in males and females. Similarly, baseline psychopathy scores (b = .37) also show a positive association with final psychopathy scores, showing a one point increase in baseline psychopathy scores results in a .37 increase in final psychopathy scores. Table 4 also shows a negative association between gender (b = -4.17), motivation to succeed (b = -2.53) and final psychopathy scores. These findings indicate that females report lower

psychopathy scores than males on average. Furthermore, an increase in the motivation to succeed negatively affects final psychopathy scores. These findings support those of the stepwise regression illustrated in Table 3a. They also support the findings in Table 3b, except for the motivation to succeed variable, which is in line with Table 3a.

Research Question 2

The second research question delves deeper into the relationship between risk factors, protective factors, psychopathy, and gender. This question is broken into two sections and discussed in further detail below.

Question 2A

Research question 2A asked: Is there a difference in risk and protective factors affecting males and females? Furthermore, do different relationships occur based on gender? Lastly, are psychopathy scores stable throughout adolescence and demonstrated similarly in males and females? This question helps clarify conflicting literature and focus much-needed attention on gender differences in psychopathy development, facilitating a better understanding of the way risk and protective factors distinctively affect the genders. It is also unique in that it looks at psychopathy stability in males and females separately, allowing the field to gain a better understanding of psychopathy development, desistance, and how those aspects differ among males and females. The current study used childhood socialization, gender schema (Bem, 1981), and gender norms as theoretical frameworks to guide the construction of a hypothesis.

As stated in research question 1, attachment theory is believed to shed light on the development of psychopathic traits in males and females, but gender schema,

socialization, and gender roles are believed to explain gender differences in psychopathic development. From birth, children undergo different experiences based on gender (Bem, 1981). This process is known as sex-typing and leads to the development of a cognitive organizational tool referred to as gender schema (Bem, 1981). The schema impacts the child's learning of gender-specific information including characteristics, expectations, and behaviors related to their sex as assigned by their culture (Bem, 1981). Males learn to be aggressive, dominant, and competitive, while females learn to fit compliant roles in society (Wood & Eagly, 2012). The internalization of these characteristics, society's treatment, and gender roles (Bem, 1981) impact the belief of self and how individuals behave within society (Bem, 1981). Children learn to conform their preferences, attributes, and behaviors against the learned gender roles (Bem, 1981), possibly leading to several differences in development, particularly the likelihood of internalization or externalization of behaviors and the development of underlying coping mechanisms. The current hypothesis is that childhood socialization, gender schema, and gender norms, affect gender-specific psychopathic development. These nuances may not be noticed by popular psychopathy measurement tools, leading to the under-counting of psychopathic females who do not display traditionally male psychopathic tendencies. This is supported by past research stating males express psychopathy through aggression, criminal behavior and are more likely to have a criminal record (Skeem & Cooke, 2010), while females express psychopathy in more understated ways, such as manipulation, flirtation, verbal aggression, and relational aggression (Efferson & Glenn, 2018).

Although research on developmental antecedents has shown conflicting results in the way factors affect psychopathy in males and females (Bennet & Kerig, 2014; Lindberg et

al., 2016), the current study hypothesizes males are more strongly impacted by IQ and prosocial peers. This hypothesis is based on past research stating IQ is a protective factor against antisocial behavior in males (Kandel et al., 1988), and males are strongly affected by criminal peers (Haynie et al., 2014). Females are hypothesized to be more impacted by maternal warmth, spirituality, and friendship quality. As past research shows, females are not only more likely to experience the encouragement of prosocial activities that foster bonding (Lytton & Romney, 1991) but also experience higher levels of parental warmth (Lytton & Romney, 1991), and this helps to buffer against later, downstream psychopathy. The current study also looks at psychopathic stability in males and females and hypothesizes they may experience changes in psychopathy stability over the nine years that separates the data points. This is supported by current research that demonstrates psychopathy stability varies across development, making developmental study crucial (Frick et al., 2014). Changes in psychopathic stability may be explained through the use of attachment theory, as psychopathic development is argued to stem, partially, from improper bonding.

These hypotheses were tested through the use of two stepwise regressions, two reduced form tables, and two full regressions. Each of these analyses was completed for males and then females. Additionally, an independent sample *t*-test, and a paired sample *t*-test were used to finalize analyses on Research Question 2A. As stated above, the stepwise regression was an appropriate analysis for this research question due to its use of statistical significance to produce a fine-tuned model of the best predictor variables (Johnsson, 1992). The use of stepwise regression on the male and female groups individually allowed for exploratory research into the variables uniquely affecting the

genders. The reduced form tables were provided as supplements to evaluate the variables in the stepwise regression as previously explained and the full regression was provided for clarity of the original model tested. This question used final psychopathy scores as the dependent variable and used age, gender, ethnicity, the presence of caring adults (i.e., parents, teachers, and social workers), maternal warmth, prosocial peer relationships, friendship quality, exposure to violence, victimization, spirituality, motivation to succeed, IQ, and baseline psychopathy scores as the independent variables for the above-mentioned analyses. Lastly, the independent sample *t*-test was used to compare males' and females' final psychopathy scores, to analyze if there is a difference between the groups. A paired sample *t*-test was then used to test psychopathy stability in males and females and finalize analyses on research question 2A.

The current study presents findings to research question 2A in four parts: the stepwise regression, the reduced form tables, and the full regression equations for males, then females, and finally, the *t*-tests. As seen in Table 5, the first regression focused only on males' final psychopathy scores. This regression conducted four iterations before producing final results and shows an adjusted R^2 value of .19, indicating that 19.30% of the total variance of the final psychopathy scores in males is explained by the variables included in the fourth iteration.

The adjusted R^2 is traditionally reported for stepwise regression tables as it offers a more accurate account of the relationship by accounting for the number of independent variables included in the regression (Leach & Henson, 2007). Therefore, the adjusted R^2 is also reported in full regressions in research questions 2A and 2B, in addition to the R^2,

which notes how well the independent variables fit the model but does not take the number of independent variables into account (Leach & Henson, 2007).

Table 5
Stepwise Regression - Final Psychopathy Scores in Males Only

Variable	b	SE b	β	Sign.	VIF
Step 1					
Constant	55.91	3.86		.00	
Controls					
Baseline Psychopathy Score	.39**	.03	.41	.00	1.00
Adjusted R2	.17				
F	130.17			.00	
Step 2					
Constant	55.34	3.84		.00	
Controls					
White***	6.10**	2.03	.10	.00	1.00
Baseline Psychopathy	.39**	.03	.41	.00	1.00
Adjusted R2	.18				
F	70.43			.00	
Step 3					
Constant	52.12	4.07		.00	
Controls					
White***	6.04**	2.02	.10	.00	1.03
Baseline Psychopathy	.38**	.03	.41	.00	1.00
Protective Factors					
Caring Adult	1.38*	.59	.08	.02	1.00
Adjusted R2	.18				
F	49.07			.00	
Step 4					
Constant	63.29	6.52		.00	
Controls					
White***	6.98**	2.06	.12	.00	1.04
Baseline Psychopathy	.37**	.03	.39	.00	1.04
Protective Factor					
Caring Adult	1.41**	.59	.08	.01	1.00
Motivation To Succeed	-2.96*	1.35	-.08	.02	1.08
Adjusted R2	.19				
F	38.23			.00	

***Non-White is the reference category. ** $p. \leq .01$ * $p. \leq .05$

As seen in Table 5 four variables were found to be statistically significant, including race ($\beta = .12$, $p. \leq .00$), presence of caring adults ($\beta = .08$, $p. \leq .01$), motivation to succeed ($\beta = -.08$, $p. \leq .02$), and baseline psychopathy scores ($\beta = .39$, $p. \leq .00$). These standardized coefficients demonstrate baseline psychopathy scores are by far the strongest indicator of final psychopathy scores in males. The results further demonstrate (Table 5) a positive association between race (b = 6.98), baseline psychopathy scores (b = .37), presence of caring adults (b = 1.41), and final psychopathy scores. These results show White males have higher psychopathy on average when compared to Non-White (Black, Hispanic, or "Other") males. The results housed in Table 5 also indicate that for male respondents, a one point increase in baseline psychopathy is related to a .37 point increase in final psychopathy scores. Finally, Table 5 also shows there is a negative association between motivation to succeed (b = -2.96) and final psychopathy scores. The results also suggest an increase in final psychopathy scores is related to the presence of more caring adults (such as social workers, teachers, caseworkers, neighbors, parents, etc.) for males, indicating that the presence of caring adults is unable to mitigate psychopathy development in males.

Table 5a was created as a supplement to the stepwise regression and shows comparable results to those found in the final iteration of Table 5. Although the coefficients reflect slight changes, the interpretation reported in the prior section holds. The main change between the stepwise regression and the supplemental analysis is that the motivation to succeed variable is no longer significant. In response, the VIF scores

are explored, and a bivariate correlation analysis was completed. The current study sought to use these methods to further examine the relationship between these variables and investigate the possible reason the motivation to succeed variable is no longer significant in the supplemental analysis.

As seen in Table 5a the VIF ranges from 1.00 to 1.08, showing no multicollinearity. Furthermore, a bivariate correlation test was used and showed motivation to succeed was weakly but significantly correlated to baseline psychopathy scores (r = -.15, $p. \leq .00$), final psychopathy scores (r = -.08, $p. \leq .00$), race (r = .20, $p. \leq .00$) and presence of caring adults (r = .08, $p. \leq .00$). Although motivation to succeed significantly correlates with the above-mentioned variables, it is not significant in the reduced form table when controlling for baseline psychopathy scores, race, and presence of caring adults. The motivation to succeed variable sways in and out of significance in the analyses, possibly owing to conceptual issues, the presence of indirect effects, or an omitted variable bias. This variable continues to be of interest and may be and may be of importance in future research

Table 5a

Reduced Form Table – Final Psychopathy Scores in Males Only

Variable	1	2	3	4	VIF (4)
Control					
Baseline Psychopathy Scores	.40**	.40**	.40**	.38**	1.04
White***		5.44**	5.43**	6.08**	1.05
Protective Factors					
Caring Adult			.92	1.07*	1.00
Motivation To Succeed				-1.84	1.08

***Non-White is the reference category. ** $p. \leq .01$ * $p. \leq .05$

Table 6 presents a full multiple regression explaining final psychopathy scores in males. This table shows an R^2 of .20 and an adjusted R^2 value of .18. The adjusted R^2 indicates that 18% of the total variance of the dependent variable is explained by the included independent variables. Four variables were found to be statistically significant in males including: race (β = .10, *p.* ≤ .00), presence of caring adults (β = .08, *p.* ≤ .02), motivation to succeed (β = -.08, *p.* ≤ .02) and baseline psychopathy scores (β = .37, *p.* ≤ .00). The standardized beta coefficients indicate baseline psychopathy scores are the greatest predictor of final psychopathy scores in males.

Table 6

Full Regression - Final Psychopathy Score in Males Only

Variable	b	SE b	β	Sign.
(Constant)	63.62	15.56		.00
Age	.11	.69	.00	.86
White***	5.96**	2.24	.10	.00
Caring Adult	1.40*	.60	.08	.02
Maternal Warmth	-1.22	1.22	-.03	.31
Prosocial Peer relationships	.47	.67	.02	.48
Friendship Quality	-.06	1.69	-.00	.96
Exposure to Violence	.32	.65	.02	.61
Victimization	1.02	1.31	.03	.43
Religion	-.39	.65	-.02	.54
Motivation to Succeed	-3.02*	1.37	-.08	.02
IQ	.04	.06	.02	.53
Psychopathy Score Baseline	.35**	.03	.37	.00
R Square	.20			
Adjusted R Square	.18			

***Non-White is the reference category. ** *p.* ≤ .01 * *p.* ≤ .05

As seen in Table 6, the unstandardized beta coefficients show a positive association between race (b = 5.96), presence of caring adults (b = 1.40), baseline psychopathy

scores (b = .35), and final psychopathy scores. The results indicate that White male respondents report on average higher final psychopathy scores than Black, Hispanic, and "Other" male respondents. Additionally, an increase in the presence of caring adults (i.e., teachers, social workers, family, etc.), is associated with an increase in the presence of caring adults, suggesting the presence of caring adults is unable to inhibit psychopathy development in males. Similarly, there is a positive association between baseline psychopathy scores (b = .35) and final psychopathy scores in male respondents. The only negative association found in this analysis was that between motivation to succeed (b = -3.02) and final psychopathy scores. These findings are in line with the male-only stepwise regression in Table 5. The next section details the analysis of the female sample and concludes with a comparative analysis.

Table 7
Stepwise Regression - Final psychopathy scores in Females Only

Variable	b	SE b	β	Sign.	VIF
Step 1					
Constant	44.25	7.54		.00	
Controls					
Baseline Psychopathy Score	.47**	.07	.51	.00	1.00
Adjusted R2	.26				
F	44.63			.00	

** $p. \leq .01$ * $p. \leq .05$

As seen in Table 7, a stepwise multiple regression analysis was utilized to focus on the final psychopathy scores in the female-only sample, pertaining to research question 2A. This multiple regression analysis conducted one iteration and showed an adjusted R^2 of .26, indicating that the included independent variable can explain 26% of the variance in psychopathy scores in females. The multiple regression analysis revealed baseline

psychopathy scores were the only statistically significant variable (β = .51, *p.* ≤ .00). Table 7 also shows baseline psychopathy scores (b = .47) had a positive association with final psychopathy scores. These results show that as female respondents report a one point increase in baseline psychopathy scores there is a .47 point increase in final psychopathy scores.

Table 8

Full Regression - Final Psychopath Scores in Females Only

Variable	b	SE b	β	Sign.
(Constant)	62.65	39.81		.11
Age	-.61	1.61	-.03	.70
White***	-.32	4.49	-.00	.94
Caring Adult	.77	1.42	.04	.58
Maternal Warmth	1.49	2.48	.05	.54
Prosocial Peer Relationships	.60	1.89	.02	.75
Friendship Quality	-5.43	4.52	-.10	.23
Exposure to Violence	-.12	1.36	-.00	.92
Victimization	-2.25	3.77	-.05	.55
Religion	.14	1.49	.00	.92
Motivation to Succeed	-1.03	3.07	-.02	.73
IQ	.05	.14	.03	.68
Psychopathy Score Baseline	.47**	.07	.52	.00
R Square	.28			
Adjusted R Square	.20			

***Non-White is the reference category. ** *p.* ≤ .01 * *p.* ≤ .05

Table 8 presents a full multiple regression explaining final psychopathy scores in females. This table indicates an R^2 of .28 and an adjusted R^2 value of .20. The adjusted R^2 signifies that 20% of the total variance in final psychopathy scores can be explained by the independent variables. As with the stepwise regression, the only significant variable found in this analysis was baseline psychopathy scores (β = .52, *p.* ≤ .00), which continue to be positively associated with final psychopathy scores. These findings mirror

those of the stepwise regression (see Table 7), which signals the robustness of the findings.

Analyses were finalized through the use of the independent sample and paired sample *t*-tests. The independent sample *t*-test was used to compare the final psychopathy results between males and females to find if there was a statistically significant difference between the sexes. As seen in Table 9, the independent sample *t*-test shows there were 914 males in the sample, and they reported a mean of 100.06, *SD* = 21.90 in final psychopathy scores. The independent sample t-test included 161 females, who reported a mean of 90.83, *SD* = 21.35 in final psychopathy scores. Equal variances were assumed, and the two-tailed significance value ($p. \leq .00$) shows a significant difference between males' and females' final psychopathy scores.

Table 9
T-tests - Final Psychopathy in Males and Females

	Male			*Female*			
	N	Mean	SD	N	Mean	SD	Sign.
Independent Sample t-test	914	100.06**	21.90	161	90.83**	21.35	.00
Paired Sample t-test	776	9.84**	23.95	143	11.96**	23.22	.00

** $p. \leq .01$ * $p. \leq .05$

The second *t*-test consisted of a paired sample *t*-test and was used to analyze psychopathic stability over the nine year period that separates the baseline and final waves of data collection used in the current study. The paired sample *t*-test had a male sample of 776 and showed a mean of 9.84, SD = 23.95 for final psychopathy scores in males, meaning males on average reported a 9.84 point decrease in final psychopathy scores over a nine-year period. Similarly, the female sample included 143 respondents

and showed a mean of 11.96, SD = 23.22, indicating females on average reported an 11.96 point decrease in final psychopathy scores over the nine years (see Table 9). The results for the paired sample *t*-test were significant for males and females. These results indicate a change in psychopathic stability during youth, particularly for females, as they were shown to have a greater reduction in final psychopathy scores than males.

Question 2B

The second portion of the question asked: does gender have a modifying effect on the relationship between the included risk factors, protective factors, and psychopathy development? This question is unique as it builds on past research by focusing much-needed attention on the interaction between gender and developmental antecedents. Research question 2B used attachment theory, gender schema, socialization, and gender roles to help guide the theoretical framework and build a hypothesis.

As expressed in research question 2A, the above-mentioned theories are believed to result in observable differences between males and females, specifically concerning internalized beliefs, societal treatment (Bem, 1981), and individual underlying mechanisms (Gauthier-Duchesne et al., 2017; Sloan-Power et al., 2013). Gender-based differences can be observed as it relates to parenting, punishment styles, levels of affection (Lytton & Romney, 1991), childhood maltreatment (Durand & de Calheiros Velozo, 2018), and personal responses (Fergusson et al., 2013). These developmental antecedents are believed to directly affect the development of psychopathic traits through attachment and bonding (Bowlby, 1982).

Gender is hypothesized to have a modifying effect on the relationship between risk factors, protective factors, and psychopathy. The interaction between gender and

maternal warmth, gender and prosocial peers, gender and friendship quality are hypothesized to be the most significant, as these variables have some of the largest discrepancies between males and females. This hypothesis is tested through the use of three regression procedures, including a stepwise regression, a reduced form table a final multivariate regression model. The use of a stepwise regression was appropriate as the current study began with a large number of *potential* predictor variables, and this method can use statistical significance to select which variables are best able to predict the dependent variable (Johnsson, 1992). The supplemental reduced form table was created using regression equations and served to vet the relationship between the independent variables. Lastly, the final multivariate regression model was provided for clarity of the original model. Research question 2B used the final psychopathy score as the dependent variable with several independent variables: age, gender, ethnicity, the presence of caring adults, maternal warmth, prosocial peer relationships, friendship quality, exposure to violence, victimization, spirituality, motivation to succeed, IQ, and baseline psychopathy scores. It also included interaction effects, which were created by multiplying the gender variable with each independent variable.

The findings for research question 2B are presented in three parts: the stepwise regression, the supplemental reduced form table, and the full regression model. As seen in Table 10 and the continued Table 10a, the stepwise regression analysis completed five iterations before producing final results and showed an adjusted R^2 of .20, indicating that 20% of the variance in final psychopathy scores can be attributed to the independent variables.

Table 10

Stepwise Regression – Final Psychopathy Scores and Interaction Effect for Males and Females

Variable	b	SE b	β	Sign.	VIF
Step 1					
Constant	53.35	3.44		.00	
Controls					
Baseline Psychopathy Score	.41**	.03	.437	.00	1.00
Adjusted R2	.19				
F	176.33			.00	
Step 2					
Constant	52.76	3.43		.00	
Controls					
White***	4.71**	1.79	.086	.00	1.00
Baseline Psychopathy Score	.41**	.03	.434	.00	1.00
Adjusted R2	.19				
F	92.32			.00	
Step 3					
Constant	55.60	3.49		.00	
Controls					
White***	4.62**	1.79	.084	.01	1.00
Baseline Psychopathy Score	.41**	.03	.435	.00	1.00
Protective Factors					
Caring Adult	1.21*	.54	.073	.02	1.00
Adjusted R2	.20				
F	63.53			.00	
Step 4					
Constant	51.04	3.71		.00	
Controls					
White***	4.88**	1.79	.089	.00	1.00
Baseline Psychopathy Score	.40**	.03	.428	.00	1.00
Protective Factor					
Caring Adult	1.24*	.54	.075	.02	1.00
Interaction Effect					
Gender*FriendshipQuality	-1.22*	.54	-.074	.02	1.01
Adjusted R2	.20				
F	49.19			.00	

Table 10a (Continued)

Step 5					
Constant	60.31	5.93		.00	
Control					
White***	5.48**	1.81	.10	.00	1.03
Baseline Psychopathy Score	.39**	.03	.41	.00	1.05
Protective Factors					
Caring Adult	1.25*	.54	.07	.02	1.00
Motivation to Succeed	-2.43*	1.21	-.06	.04	1.01
Interaction Effects					
Gender*FriendshipQuality	-1.19*	.54	-.07	.02	1.06
Adjusted R2	.20				
F	40.31			.00	

***Non-White is the reference category. ** $p. \leq .01$ * $p. \leq .05$

Five variables were found to be statistically significant, including race ($\beta = .10$, $p. \leq .00$), baseline psychopathy scores ($\beta = .41$, $p. \leq .00$), presence of caring adults ($\beta = .07$, $p. \leq .02$), motivation to succeed ($\beta = -.06$, $p. \leq .04$), and the interaction term depicting the relationship between gender and friendship quality ($\beta = -.07$, $p. \leq .02$). The standardized coefficients demonstrate baseline psychopathy scores have the greatest impact on final psychopathy scores.

Table 10a shows White (b = 5.48) respondents on average reported higher psychopathy scores than Non-White (Black, Hispanic, and "Other") respondents. Baseline psychopathy scores were also shown to have a positive association with final psychopathy scores, indicating a one point increase in baseline psychopathy scores resulted in a .39 point increase in final psychopathy scores in males and females. Additionally, the presence of caring adults (b = 1.25), such as parents, teachers, or social workers, has a positive association with final psychopathy scores. This finding suggests that the presence of caring adults is unable to restrict psychopathy development.

Table 10a includes the final iteration of the stepwise regression and shows a negative association between motivation to succeed (b = -2.43), the interaction between gender and friendship quality (b = -1.19), and final psychopathy scores. Findings suggest an increase in motivation to succeed results in a decrease in final psychopathy scores in males and females. Interestingly, the interaction between gender and friendship quality was the only significant interaction in the equation. This result indicates that females who report higher levels of friendship quality report a decrease in final psychopathy scores.

Table 10b was a supplement to the stepwise regression and shows comparable results to those found in the final iteration of Table 10a. Some changes are seen in the coefficients shown in Table 10a and Table 10b. The most notable changes include a .56 point decrease in race and ethnicity between the final iterations in Table 10a and Table 10b and the motivation to succeed variable falling out of significance in Table 10b. In response, the VIF scores are explored, and a bivariate correlation analysis was completed to examine the relationship between these variables and ascertain the reasons why the motivation to succeed variable is no longer significant in the supplemental analysis.

As seen in Table 10b, the VIF scores ranged from 1.00 to 1.08, showing no issues with multicollinearity. Furthermore, a bivariate correlation analysis showed a weak but significant correlation between the motivation to succeed variable and baseline psychopathy scores (r = -.17 = ≤ .08), final psychopathy scores (r = -.10, *p*. ≤ .00), race (r = .17, *p*. ≤ .00), caring adult (r = .07, *p*. ≤ .00) and the interaction term for gender and friendship quality (r = .06, *p*. ≤ .02). Although motivation to succeed significantly correlates with a majority of the above-mentioned variables, it is not significant in the reduced form table when controlling them. This variable vacillates in and out of

significance in the analyses, likely due to conceptual issues and the presence of indirect effects or a possible omitted variable bias. This variable continues to be of interest and may be of importance in future research (see Table 10b).

Table 10b

Reduced Form Table – Final Psychopathy Scores and Interaction Effect for Males and Females

Variable	1	2	3	4	5	VIF (5)
Control						
Baseline Psychopathy Scores	.41**	.41**	.41**	.40**	.38**	1.05
White***		4.45**	4.42**	4.93**	4.92**	1.03
Protective Factors						
Caring Adult			.84	.94*	1.01*	1.00
Motivation to succeed				-1.51	-1.53	1.08
Interaction Terms						
Gender*FriendshipQuality					-1.59**	1.01

***Non-White is the reference category. ** $p. \leq .01$ * $p. \leq .05$

Next, a full multiple regression analysis was conducted and includes the created interaction effects. Table 11 shows an R^2 of .22 and an adjusted R^2 value of .19. The adjusted R^2 indicates that 19% of the total variance of final psychopathy scores is explained by the included independent variables. Four variables were found to be statistically significant, including race ($\beta = .10$, $p. \leq .00$), presence of caring adults ($\beta = .08$, $p. \leq .02$), motivation to succeed ($\beta = -.08$, $p. \leq .02$), and baseline psychopathy scores ($\beta = .37$, $p. \leq .00$). These standardized coefficients continue to show baseline psychopathy scores are the greatest predictor of final psychopathy scores in males and females.

Table 11

Full Regression –Final Psychopathy Scores and Interaction Effect for Males and Females

Variable	b	SE b	β	Sign.
(Constant)	63.62	15.51		.00
Gender	-.96	43.34	-.01	.98
Age	.11	.69	.00	.86
White***	5.96**	2.23	.10	.00
Caring Adult	1.40*	.60	.08	.02
Maternal Warmth	-1.22	1.22	-.04	.31
Prosocial Peer Relationships	.47	.67	.02	.48
Friendship Quality	-.06	1.68	-.00	.96
Exposure to Violence	.32	.65	.02	.61
Victimization	1.02	1.31	.03	.43
Religion	-.39	.65	-.02	.54
Motivation to Succeed	-3.02*	1.37	-.08	.02
IQ	.04	.06	.02	.53
Psychopathy Score Baseline	.35**	.03	.37	.00
Gender*Age	-.72	1.77	-.20	.68
Gender*White***	-6.28	5.09	-.05	.21
Gender*CaringAdult	-.62	1.57	-.03	.68
Gender*MaternalWarmth	2.72	2.80	.14	.33
Gender*ProsocialPeers	.12	2.04	.00	.95
Gender*FriendshipQuality	-5.36	4.90	-.32	.27
Gender*ExpToViolence	-.45	1.53	-.01	.76
Gender*Victimization	-3.27	4.05	-.03	.41
Gender*Religion	.53	1.65	.03	.74
Gender*MotivToSuceed	1.99	3.41	.11	.56
Gender*IQ	.01	.16	.02	.91
Gender*YPI	.12	.08	.22	.17
R Square	.22			
Adjusted R Squared	.19			

*** Non-White is the reference category . ** $p. \leq .01$ * $p. \leq .05$

The unstandardized beta coefficients demonstrate that White (b = 5.96) respondents on average report higher psychopathy scores than Non-White (Black, Hispanic, and

"Other") participants. They also show that final psychopathy scores have a positive association with an increase in the presence of caring adults (b = 1.40), including teachers, caseworkers, parents, etc. This finding indicates that an increase in the presence of caring adults does not inhibit the development of psychopathy in males and females (see Table 11).

Table 11 also shows a one point increase in baseline psychopathy scores results in a .354 point increase in final psychopathy scores in males and females. Motivation to succeed (b = -3.02) was negatively associated with final psychopathy scores, suggesting an increase in motivation to succeed was associated with a decrease in final psychopathy scores. Although slight changes in coefficients are seen between Table 10a, Table 10b, and Table 11, the interpretation continues to hold, with the expectation of the interaction between gender and friendship quality. Although the stepwise regression depicted in Table 10a and Table 10b shows the interaction between gender and friendship quality is significant, the full multiple regression (see Table 11) did not reflect such findings.

Research Question 3

The third research question aims to study how the risk and protective factors affect the three psychopathic dimensions in males and females. Each subsection will be discussed below in greater detail.

Question 3A

Callous-Unemotional (CU) Traits

Research question 3A asked: How do the risk and protective factors affect the development of the CU dimension in males and females? Furthermore, is the CU

dimensions similarly stable throughout adolescence in males and females? Although CU traits have garnered the most attention of all psychopathic traits, the current study is unique in that it includes an exploratory focus on gender differences in CU trait development and stability. The current study used attachment theory, socialization, gender schema, and gender roles to help guide the theoretical framework and build a hypothesis.

Attachment theory and dissociation have been used to nest discussions of CU dimension development in males and females. This is particularly true as it relates to trauma experienced in childhood. It has been reported that childhood trauma affects inhibition that may result in dissociation from affective experiences (Porter, 1996). Individuals who are exposed to early trauma may respond through the use of a dissociative mechanism, which enables them to emotionally disconnect from cognition and behavior (Porter, 1996). If sustained, the mechanism can result in rescinded affect (Porter, 1996) and the development of CU traits. The orientation of the current study is that gender differences in psychopathy development, including CU trait development, may be attributed to socialization, gender schema, and gender roles. These theories, detailed in earlier chapters, are believed to explain gender differences, which lead to the development of differences in psychopathic development and expression.

Risk factors such as exposure to violence, victimization, and low levels of religiosity were hypothesized to have positive association with the CU dimension in males and females. This hypothesis is supported by research asserting that exposure to trauma during childhood affects inhibition that could result in dissociation from affective experiences (Porter, 1996) and may develop traits in the CU dimension. Protective factors

such as maternal warmth, the presence of caring adults, high levels of religiosity, prosocial peer relationships, and high-quality friendships are hypothesized to shield against the development of the CU dimension in males and females. This hypothesis is supported by research stating parenting is related to CU traits, and youth who experience higher levels of parental warmth are more likely to have lower CU traits (Waller et al., 2018). Similar effects are expected for prosocial peer relationships and high friendship quality. This research question takes an exploratory approach to gender differences and is unable to form a hypothesis concerning the way gender affects the CU dimension, as there is a lack of consistent literature on the topic.

The current study also looked at CU dimension stability in males and females, hypothesizing changes in this dimension are likely throughout adolescence. The present research is important because it studies the effect of risk and protective factors on each psychopathic dimension. This allows for the identification of which psychopathic traits are affected by the developmental antecedents and sheds light on the psychopathic traits which are more likely to lessen through maturation, possibly explaining variation across studies. The importance of developmental study is highlighted by current research magnifying the importance of psychopathy stability as it varies from early life stages through adulthood (Frick et al., 2014). The expected changes in CU dimension stability might be explained through the use of attachment theory, as psychopathic development is argued to partially stem from improper bonding.

The current hypotheses were analyzed using two stepwise multiple regressions, two supplemental reduced form tables, and two full regression models. These analyses were

used for males and then females. The stepwise regression was used to cull the most valuable predictors among the many variables identified in the research. This research method is believed to be appropriate because it uses statistical significance to identify the independent variables that have an impact on the dependent variable (Johnsson, 1992). The supplemental reduced form table was created by including an additional independent variable into the regression model and was provided to further investigate the nature of the independent variables' relationships and to determine how any associations among them may impact the results. Finally, a full regression equation including all of the variables was used in the analyses. This is provided to the reader for clarity of the original model tested and out of caution as the stepwise method can have problems, particularly when not all of the available predictors have been identified, resulting in an underspecified model. Consistency of findings among these methods allows for confidence in the results and signals robustness of the findings. Research question 3A used final CU dimension scores as the dependent variable while using age, gender, ethnicity, the presence of caring adults, maternal warmth, prosocial peer relationships, friendship quality, exposure to violence, victimization, spirituality, motivation to succeed, IQ, and baseline CU dimension score as the independent variables. Two *t*-tests were then used, the first was an independent sample *t*-test, used to compare the groups. The second was a paired sample *t*-test, used to analyze psychopathy stability over a nine-year period and to conclude analysis on the first portion of the question.

Analyses for Research Question 3A will be presented in four parts: the stepwise regression, the supplemental reduced form tables, the full regression tables for males and then females, and finally the *t*-tests. As seen in Table 12, the stepwise regression

conducted four iterations before producing the final results and shows an adjusted R^2 score of .11, indicating that the independent variables can explain 11% of the final CU dimension scores variance. As stated earlier, though R^2 shows how well the independent variables fit the model, the adjusted R^2 provides a more accurate account of the relationship by considering the number of independent variables (Leach & Henson, 2007). Consequently, the adjusted R^2 is reported for all full multiple regression models, in addition to the traditionally reported R^2 for research questions 3A, 3B, and 3C.

As seen in Table 12, four variables were found to be statistically significant, including victimization ($\beta = .07$, $p. \leq .04$), presence of caring adults ($\beta = .09$, $p. \leq .01$), maternal warmth ($\beta = -.08$, $p. \leq .03$), and baseline CU dimension scores ($\beta = .30$, $p. \leq .00$). The standardized coefficients demonstrate baseline CU dimension scores are the greatest indicator of final CU dimension scores in males. The stepwise regression showed a positive relationship between baseline CU dimension scores (b = .28), victimization (b = .67) presence of caring adults (b = .42) and final CU dimension scores. Results show a one point increase in baseline CU dimension scores results in a .28 point increase in final CU dimension scores in males. An increase in reported victimization was also found to increase final psychopathy scores. Additionally, results indicate there is a positive association between an increase in final CU dimension scores and the presence of caring adults (i.e., family, teachers, social workers, etc.).

Table 12

Stepwise Regression - Final CU Dimension Scores in Males Only

Variable	b	SE b	β	Sign.	VIF
Step 1					
Constant	21.30	1.21		.00	
Control					
Baseline CU Dimension	.29**	.03	.31	.00	1.00
Adjusted R2	.10				
F	70.38			.00	
Step 2					
Constant	20.20	1.29		.00	
Control					
Baseline CU Dimension	.30**	.03	.32	.00	1.00
Protective Factors					
Caring Adult	.43**	.17	.09	.01	1.00
Adjusted R2	.10				
F	34.41			.00	
Step 3					
Constant	23.11	1.84		.00	
Controls					
Baseline CU Dimension	.28**	.03	.30	.00	1.03
Protective Factor					
Caring Adult	.43**	.17	.09	.01	1.00
Maternal Warmth	-.76*	.34	-.08	.02	1.03
Adjusted R2	.11				
F	27.39			.00	
Step 4					
Constant	23.06	1.84		.00	
Controls					
Baseline CU Dimension	.28**	.03	.30	.00	1.03
Risk Factor					
Victimization	.67*	.33	.07	.04	1.01
Protective Factor					
Caring Adult	.42**	.17	.09	.01	1.00
Maternal Warmth	-.72*	.34	-.08	.03	1.03
Adjusted R2	.11				
F	21.64			.00	

** $p. \leq .01$ * $p. \leq .05$

The relationship shows that the presence of caring adults is unable to curtail the development of CU dimension scores in males. Finally, Table 12 denotes a negative association was found between maternal warmth (b = -.72) and final CU dimension scores in males, demonstrating that final CU dimension scores decrease in males as they experience higher levels of maternal warmth (see Table 12)

Table 12a was created as a supplement to the stepwise regression focusing on CU dimension development in males. Table 12a shows comparable results to those found in the final iteration of Table 12. There were no problems identified in this analysis, e.g., indications of suppression or spuriousness among the variables.

Table 12a

Reduced Form Table – Final CU Dimension Scores in Males Only

Variable	1	2	3	4	VIF (4)
Control					
Baseline CU Dimension Scores	.34**	.33**	.33**	.30**	1.04
Risk Factors					
Victimization		.61*	.60*	.67*	1.01
Protective Factors					
Caring Adult			.21	.34*	1.00
Maternal Warmth				-.77*	1.04

** $p. \leq .01$ * $p. \leq .05$

Table 13 houses the results of a full multiple regression analysis focusing on the CU dimension in males. This equation produced an R^2 of .133 and an adjusted R^2 value of .11. The adjusted R^2 indicates that 11.% of the total variance of final CU dimension scores can be explained by the included independent variables. Two variables were found to be significant including the presence of caring adults ($\beta = .09$, $p. \leq .01$), and baseline CU dimension scores ($\beta = .27$, $p. \leq .00$). The standardized beta coefficients indicate

baseline CU dimension scores have the strongest effect on the final CU dimension in males.

Table 13
Full Regression - CU Dimension in Males Only

Variable	b	SE b	β	Sign.
(Constant)	22.28	4.68		.00
Age	.13	.20	.02	.52
White***	.18	.66	.01	.78
Caring Adult	.42**	.18	.09	.01
Maternal Warmth	-.58	.36	-.06	.10
Prosocial Peer Relationships	.17	.20	.03	.37
Friendship Quality	.07	.50	.00	.88
Exposure to Violence	.20	.19	.04	.30
Victimization	.45	.39	.05	.25
Religion	-.23	.19	-.05	.22
Motivation to Succeed	-.75	.40	-.07	.06
IQ	.01	.02	.02	.49
Baseline CU Dimension scores	.25**	.03	.27	.00
R Square	.13			
Adjusted R Square	.11			

*** White is the reference category. ** $p. \leq .01$ * $p. \leq .05$

The results in Table 13 show the presence of caring adults (b = .42) continues as a consistent predictor and was found to be positively associated with an increase in final CU dimension scores; the presence of more caring adults is unable to mitigate the final CU dimension development in males. Similar findings are reported for baseline CU dimensions (b = .25), which have a positive association with final CU dimension scores in males. Although the motivation to succeed (b = -.75) was not found to be significant in the current analysis, it was near the cutoff point and may be of interest in the future. These results differ slightly from those depicted in Table 12 and Table 12b. The direction

of the coefficient in question continues to hold, thought effect sizes and significance levels change slightly. This is particularly true for maternal warmth and victimization (see Table 13).

The next section details the analysis of the female sample and concludes with a comparative analysis. As seen in Table 14, the stepwise regression analysis conducted one iteration and produced an adjusted R^2 of .16, indicating that the included variable accounts for 16% of the final CU dimension score variance in females. The results demonstrated that baseline CU dimension scores were the only statistically significant variable ($\beta = .41$, $p. \leq .00$). Table 14 also shows a positive association was found between the baseline CU dimension score (b = .35), and the final CU dimension score. These results indicate that as female respondents experience a one point increase in baseline CU dimension scores, on average they have a .35 point increase in final CU dimension scores.

Table 14
Stepwise Regression - Final CU Dimension Scores in Females Only

Variable	b	SE b	β	Sign.	VIF
Step 1					
Constant	15.98	2.21		.00	
Controls					
Baseline CU Dimension	.35**	.07	.41	.00	1.00
Adjusted R2	.16				
F	24.83			.00	

** $p. \leq .01$ * $p. \leq .05$

Table 15 presents a full multiple regression analysis focusing on the CU dimension in females. This is provided to the reader for clarity of the original model tested and to further understand the relationship between the variables. As seen in Table 15, the

findings show an R^2 of .22 and an adjusted R^2 value of .14. The adjusted R^2 indicates that 14% of the total variance in the final CU dimension can be explained by the independent variables. Two variables were found to be statistically significant, including victimization ($\beta = -.173$, $p. \leq .052$) and baseline psychopathy scores ($\beta = .38$, $p. \leq .00$).

Table 15

Full Regression – Final CU Dimension Scores in Females Only

Variable	b	SE b	β	Sign.
(Constant)	29.98	11.27		.00
Age	-.28	.44	-.05	.53
White***	.10	1.25	.00	.93
Caring Adult	.24	.40	.05	.53
Maternal Warmth	.48	.69	.06	.48
Prosocial Peer Relationships	.11	.52	.01	.82
Friendship Quality	-1.14	1.26	-.08	.36
Exposure to Violence	-.03	.37	-.00	.92
Victimization	-2.05*	1.04	-.17	.05
Religion	-.60	.41	-.14	.14
Motivation to Succeed	-.20	.85	-.02	.81
IQ	-.05	.04	-.12	.21
Baseline CU Dimension scores	.33**	.07	.38	.00
R Squared	.22			
Adjusted R Square	.14			

*** White is the reference category . ** $p. \leq .01$ * $p. \leq .05$

Furthermore, Table 15 shows a negative association between victimization (b = -2.05) and final CU dimension scores in females. This finding indicates that female participants who report an increase in victimization also report a decrease in CU dimension scores and is a new result when compared to the stepwise regression found in Table 14. Alternatively, baseline CU dimension scores (b = .33) continue to be positively

associated with final CU dimension scores, indicating a one point increase in baseline CU dimension scores results in a .33 point increase in final CU dimension scores in females.

Finally, the *t*-tests were conducted. The first *t*-test was an independent sample *t*-test, used to compare the results between males and females. The results for the independent sample *t*-test show there were 914 males included in the sample, who reported a mean of 31.57, *SD* = 6.29 for the final CU dimension scores. There were 161 females included in the sample, with a mean of 26.31, *SD* = 5.61 for the final CU dimension scores. Equal variance was assumed, and the *t*-test was found to have a significant ($p. \leq .00$) value, indicating a difference in final CU dimension scores between males and females (see Table 16).

The second *t*-test was a paired sample *t*-test, which looked at CU dimension stability over the nine-year period that separates the baseline and final wave of data used in the current study. This analysis had a male sample of 776 and showed a mean of 2.12, SD = 7.35 for CU dimension scores in males, showing on average males reported a 2.12 point decrease in CU dimension scores over a nine-year period. Similarly, the female sample included 143 respondents and showed a mean of 4.01, SD = 6.07, indicating females on average reported a 4.01 decrease in CU dimension scores over that course of time. The results for the paired sample *t*-test were significant for males and females. This indicates changes in CU dimension development during youth, particularly for females, who were shown to have a greater reduction in final CU dimension scores than males over the nine years.

Table 16
T-tests - Final CU Dimension Scores in Males and Females

	Male			*Female*			
	N	Mean	SD	N	Mean	SD	Sign.
Independent Sample *t*-test	914	31.57**	6.29	161	26.31**	5.61	.00
Paired Sample *t*-test	776	2.12**	7.35	143	4.01**	6.07	.00

** $p. \leq 01$ * $p. \leq .05$

Question 3B

Grandiose-Manipulative (GM) Traits

Research question 3B asked: how do the risk and protective factors uniquely affect the development of GM dimension scores in males and females? Furthermore, is the GM dimension stable throughout adolescence, and if so, similarly between males and females? GM traits have garnered much less attention than CU traits in the study of psychopathy. However, they are an important part of the construct and need further research, particularly as it relates to developmental antecedents, gender differences, and stability, all central aspects in the current study. The current study used attachment theory, socialization, gender schema, and gender role theories to help guide the theoretical framework and build a hypothesis.

As stated in research question 3A, attachment theory is argued to explain psychopathic development in males and females, but socialization, gender schema, and gender roles are believed to explain gender differences in psychopathy. These theories are hypothesized to impact overall psychopathic development as well as the GM dimension specifically. According to Andershed (2002), the GM dimension contains four

subscales including dishonest charm, grandiosity, lying, and manipulation. These factors are believed to be impacted by exposure to violence and early trauma and may result in improper bonding, and the use of detachment mechanisms, among other things, resulting in psychopathy development.

It is hypothesized that variables relating to trauma, such as exposure to violence and victimization, will increase final GM dimension scores. This is supported by research stating that early trauma has an impact on cognition development (Erwin et al., 2000) and interpersonal traits (Bisby et al., 2017; Fanti et al., 2013). If trauma is sustained, it can result in blunted affect, little connection to others, and a plethora of psychiatric problems (Bisby et al., 2017; Fanti et al., 2013). The current study takes an exploratory approach to GM dimension stability and hypothesizes there will be changes throughout youth. Past research notes psychopathy stability varies across development (Frick et al., 2014), marking the importance of developmental research in psychopathy and the GM dimension. The hypothesized changes in GM dimension stability are believed to be affected by attachment theory, particularly improper bonding.

The hypothesis was analyzed using of two stepwise multiple regressions analyses, two supplemental reduced form tables, and two full regressions. These analyses were completed for males and then females. The stepwise regression was used to find unique variables affecting GM dimension development for both sexes. The reduced form table was used to further explore the relationship between the independent variables. Additionally, the full regression was utilized to provide clarity of the full model. Research question 3B used final GM dimension scores as the dependent variable and demographic information, presence of caring adults, maternal warmth, prosocial peer

relationships, friendship quality, exposure to violence, victimization, spirituality, motivation to succeed, full IQ, and baseline GM dimension scores as the independent variables. Finally, two *t*-tests were then utilized: the first was an independent sample *t*-test, used to compare males' and females' final GM dimension scores and ascertain whether there is a statistically significant difference between the groups. The second was a paired sample *t*-test, used to access GM dimension stability over a nine-year period in males and females.

The findings for research question 3B are presented in four parts: the stepwise regression, the supplemental reduced form tables, the full regression analysis for males then females, and finally the *t*-tests. As shown in Table 17, the first stepwise regression focused on males and generated three iterations before producing final results and shows an adjusted R^2 of .166, indicating 16.6% of the variance in the dependent variable is attributed to the independent variables. Three variables were found to be statistically significant, including race ($\beta = .09$, $p. \leq .00$), baseline psychopathy scores ($\beta = .38$, $p. \leq .00$), and presence of a caring adult ($\beta = .08$, $p. \leq .01$). The standardized coefficients demonstrate the baseline GM dimension is the strongest predictor of final GM dimension scores in males.

Table 17 also indicates a positive association exists between race (b = 2.60), baseline psychopathy scores (b = .33), presence of caring adults (b = .68) and final psychopathy scores. White males report higher (b = 2.60) final psychopathy scores when compared to Non-White (Black, Hispanic, and "Other") male participants. Results also indicate a one point increase in baseline psychopathy scores results in a .33 point increase in final psychopathy scores in males. Additionally, the presence of the caring adults' variable

shows that as male respondents report an increase in the presence of caring adults (i.e., teachers, parents, social workers, etc.) they experience higher final GM dimension scores. This finding shows that surrounding youth with more caring adults is unable to mitigate GM dimension development in males.

Table 17
Stepwise Regression - Final GM Dimension Scores in Males Only

Variable	b	SE b	β	Sign.	VIF
Step 1					
Constant	21.96	1.35		.00	
Controls					
Baseline GM Dimension	.34**	.03	.38	.00	1.00
Adjusted R2	.15				
F	111.05			.00	
Step 2					
Constant	21.67	1.34		.00	
Controls					
White***	2.63**	.96	.10	.00	1.00
Baseline GM Dimension	.33**	.03	.38	.00	1.00
Adjusted R2	.15				
F	59.81			.00	
Step 3					
Constant	20.08	1.49		.00	
Controls					
White***	2.60**	.96	.09	.00	1.00
Baseline GM Dimension	.33**	.03	.38	.00	1.00
Protective Factor					
Caring Adult	.68**	.28	.08	.01	1.00
Adjusted R2	.16				
F	42.12			.00	

*** White is the reference category
** $p. \leq .01$ * $p. \leq .05$

Table 17a was created as a supplement to the stepwise regression focusing on GM dimension development in males. The supplemental reduced form table was provided as

a check of the character and nature of the independent variables' relationships with each other and to determine how any associations among them may impact the results Table 17a shows comparable results to those found in the final iteration of Table 17.

Table 17a

Reduced Form Table – Final GM Dimension Scores in Males Only

Variable	1	2	3	VIF (3)
Control				
Baseline GM Dimension Scores	.36**	.35**	.35**	1.00
White***		2.60**	2.60**	1.00
Protective Factors				
Caring Adult			.48*	1.00

*** White is the reference category

** $p. \leq .01$ * $p. \leq .05$

Table 18 presents a full multiple regression analysis focusing on the GM dimension in males, which shows an R^2 of .17 and an adjusted R^2 of .16. The adjusted R^2 indicates that 16% of the variance in the dependent variable is attributed to the independent variables. Three variables were found to be statistically significant including race (β = .11, $p. \leq .00$), presence of caring adults (β = .09, $p. \leq .01$), and baseline GM dimension scores (β = .36, $p. \leq .00$). The standardized beta coefficient indicates that baseline GM dimension scores are the strongest predictor of final GM dimension scores in males.

Table 18

Full Regression – Final GM Dimension Scores in Males Only

Variable	b	SE b	β	Sign.
(Constant)	21.20	7.22		.00
Age	.23	.33	.02	.47
White***	2.88**	1.06	.11	.00
Caring Adult	.69**	.28	.09	.01
Maternal Warmth	-.19	.58	-.01	.73
Prosocial Peer Relationships	.17	.32	.02	.59
Friendship Quality	-.44	.80	-.02	.58
Exposure to Violence	.19	.31	.02	.53
Victimization	-.15	.62	-.01	.80
Religion	7.13	.31	.00	1.00
Motivation to Succeed	-1.22	.65	-.07	.06
IQ	.01	.03	.01	.72
Baseline GM Dimension Scores	.31**	.03	.36	.00
R Square	.17			
Adjusted R Square	.16			

***Non-White is the reference category ** $p. \leq .01$ * $p. \leq .05$

There is a positive association between final GM dimension scores in males and race (b = 2.88), presence of caring adults (b = .69), and baseline GM dimension scores (b = .31). These results indicate White males reported higher final GM dimension scores than Non-White (Black, Hispanic, and "Other") males. Additionally, an increase in the number of caring adults (for example, social workers, teachers, parents, etc.) was found to be positively associated with higher final GM dimension scores. This finding signifies that the presence of caring adults does not mitigate GM dimension development in males. Similarly, a positive association is reported between baseline GM dimension scores and final GM dimension scores in males. Although not significant, motivation to succeed (b = -1.22) is near the cutoff point and was shown to have a negative association with final

GM dimension scores in males. This finding suggests that an increase in motivation to succeed results in lower GM dimension scores in males. The findings shown in Table 18 are in line with those in Table 17 and Table 17a. Consistency of findings among these methods allows for confidence in the results and signals robustness.

The next section details the analysis of the female sample and concludes with a comparative analysis. As seen in Table 19, the stepwise multiple regression was used to evaluate GM dimension development in females and used one iteration before producing final results. Table 19 shows an adjusted R^2 of .24, indicating that 24% of the variance in the dependent variable is attributed to the independent variables. Results show one variable was significant, baseline GM dimension scores ($\beta = .50$, $p. \leq .00$) (Table 19). A positive correlation was found between baseline GM dimension scores (b = .46) and the final GM dimension score. These results show that a one point increase in the final GM dimension score results in a .46 point increase in final GM dimension scores in females (Table 19).

Table 19
Stepwise Regression - Final GM Dimension Scores in Females Only

Variable	b	SE b	β	Sign.	VIF
Step 1					
Constant	16.85	2.93		.00	
Baseline GM Dimension	.46**	.07	.50	.00	1.00
Adjusted R2	.24				
F	41.10			.00	

** $p. \leq .01$ * $p. \leq .05$

Finally, Table 20 presents a full multiple regression analysis focusing on the GM dimension in females which shows an R^2 of .27 and an adjusted R^2 of .18. The adjusted

R^2 indicates that 18% of the variance in the dependent variable is attributed to the independent variables. One variable was found to be statistically significant: baseline GM dimension scores (β = .52, *p.* ≤ .00). The baseline GM dimension scores (b = .48) had a positive association with final GM dimension scores in females. These findings are congruent with those of the stepwise regression (see Table 19) and signal the robustness of the findings.

Table 20

Full Regression Final GM Dimension Scores in Females Only

Variable	b	SE	β	Sign.
(Constant)	17.49	19.66		.37
Age	-.37	.82	-.03	.64
White***	-1.25	2.30	-.05	.58
Caring Adult	.47	.72	.05	.51
Maternal Warmth	.30	1.27	.02	.81
Prosocial Peer Relationships	.56	.97	.04	.56
Friendship Quality	-1.99	2.31	-.07	.39
Exposure to Violence	-.03	.70	-.00	.95
Victimization	-.70	1.93	-.03	.71
Religion	.57	.76	.07	.45
Motivation to Succeed	-.16	1.56	-.00	.91
IQ	.07	.07	.10	.29
Baseline GM Dimension Scores	.48**	.07	.52	.00
R Squared	.27			
Adjusted R Squared	.18			

***Non-White is the reference category

** *p.* ≤ .01 * *p.* ≤ .05

Finally, the *t*-tests were conducted. The first *t*-test consisted of the independent sample *t*-test, which was used to compare final GM dimension scores between sexes. As seen in Table 21, the independent sample *t*-test included 914 males, with a mean of 36.02

and *SD* = 10.49 in final GM dimension scores. There were also 161 females with a mean of 33.56 and *SD* = 10.68 in final GM dimension scores. Equal variances were assumed, and the *t*-test proved to be significant ($p. \leq .00$), indicating there is a statistical difference between GM dimension scores in males and females.

The second was a paired sample *t*-test. This analysis had a male sample of 776 and a mean of 4.31, SD = 12.07 for GM dimension scores in males, signifying those male participants on average reported a 4.31 point decrease in GM dimension scores over a nine-year period. Similarly, the female sample included 143 respondents with a mean of 4.36, SD = 11.97, indicating females on average reported a 4.36 decrease in GM dimension scores over this timeframe. The results for the paired sample *t*-test were significant for males and females. This indicates a change in GM dimension development during youth, particularly for females who reported a greater decrease in GM dimension scores.

Table 21
T-tests - Final GM Dimension Scores in Males and Females

	Male			*Female*			
	N	Mean	SD	N	Mean	SD	Sign.
Independent Sample t-test	914	36.02**	10.49	161	33.56**	10.68	.00
Paired Sample t-test	776	4.31**	12.07	143	4.364**	11.97	.00

** $p. \leq .01$ * $p. \leq .05$

Question 3C

Impulsive-Irresponsible (IR) Traits

Question 3C asked: how do the risk and protective factors affect the development of the IR dimension in males and females? Furthermore, is the IR dimension stable

throughout adolescence and similar between males and females? IR traits have had the least amount of attention in the past. Salekin has cautioned against this, stating researchers should focus on a multidimensional psychopathic personality, with the inclusion of GM and DI traits (Salekin, 2017). Research question 3C aids a better understanding of how the included risk and protective factors uniquely affect the sexes in IR dimension development. Additionally, research question 3C builds on past research by specifically focusing on IR dimension stability in males and females. The current study used attachment theory, gender schema, socialization, and gender role theories to help guide the theoretical framework and build a hypothesis.

As stated in research questions 3A and 3B, the current study maintains that attachment theory can explain psychopathic development in males and females, but socialization, gender schema, and gender roles are hypothesized to explain gender differences in psychopathy. These theories are hypothesized to impact overall psychopathic development as well as the IR dimension specifically. However, the available literature is conflicting concerning gender differences in psychopathy development and lacking regarding psychopathy dimensions, especially the IR dimension.

It is hypothesized that motivation to succeed and IQ are related to the IR dimension. Past research contends intellectual deficits may be related to impulsivity (Vitacco et al., 2008) and reports a negative association between IQ, impulsivity, and stimulation-seeking behaviors (Vitacco et al., 2005). Although gender differences are not expected between IQ and motivation to succeed, differences in the IR dimension are expected. This is due to expected gender differences in the CU and GM dimensions, and

the belief that the three psychopathic dimensions are interconnected (Bergstrøm & Farrington, 2018; Cooke & Michie, 2001). Lastly, the current study takes an exploratory approach to IR dimension stability in males and females, hypothesizing there will be changes in stability throughout adolescence. As mentioned, past research supports the notion of variability in psychopathic stability throughout development (Frick et al., 2014), and the current study is advancing the field in terms of studying differences in IR dimension stability in males and females.

These hypotheses are tested using of two stepwise multiple regression equations, two reduced form tables, and two full regression equations. These analyses were completed for males and then females. The stepwise regression was used to find unique variables affecting GM dimension development for both sexes. The reduced form table was used to further explore the relationship between the independent variables. Additionally, the full regression was utilized to provide clarity of the full model. This analysis used final IR dimension scores as the dependent variable and used demographic information, the presence of caring adults, maternal warmth, prosocial peer relationships, friendship quality, exposure to violence, victimization, spirituality, motivation to succeed, IQ, and baseline IR dimension scores as the independent variables. The *t*-tests were then conducted. First, the independent sample *t*-test was used to compare males' and females' final IR dimension scores, to analyze if there is a difference between the groups. Lastly, a paired sample *t*-test was used to test IR dimension stability in males and females and finalize the analysis on research question 3C.

Table 22

Stepwise Regression - Final IR Dimension scores in Males Only

Variable	b	SE b	β	Sign.	VIF
Step 1					
Constant	15.90	1.34		.00	
Controls					
Baseline IR Dimension	.45**	.03	.44	.00	1.00
Adjusted R2	.19				
F	151.68			.00	
Step 2					
Constant	15.80	1.33		.00	
Controls					
White***	2.93**	.77	.13	.00	1.00
Baseline IR Dimension	.44**	.03	.43	.00	1.00
Adjusted R2	.21				
F	84.63			.00	
Step 3					
Constant	19.97	2.41		.00	
Controls					
White***	3.29**	.79	.15	.00	1.06
Baseline IR Dimension	.42**	.03	.41	.00	1.06
Protective Factors					
Motivation to succeed	-1.08*	.52	-.07	.03	1.01
Adjusted R2	.21				
F	58.15			.00	

***Non-White is the reference category

** $p. \leq .01$ * $p. \leq .05$

Research findings for question 3C are presented in four parts: the stepwise regression, the supplemental reduced form tables, the full regression tables for males then females, and finally the *t*-tests. As seen in Table 22, the first stepwise regression targeted males and conducted three iterations before producing an adjusted R^2 of .21, meaning 21% of the variance in the dependent variable is attributable to the independent variables.

Results show three variables were statistically significant, including race (β = .15, *p.* ≤ .00), baseline IR dimension scores (β = .41, *p.* ≤ .00) and motivation to succeed (β = -.07, *p.* ≤ .03) (Table 22). The standardized coefficients establish that baseline IR dimension scores are the largest predictor of final IR dimension scores.

The equation housed in Table 22 further demonstrates a positive association was found between the race (b = 3.29), baseline IR dimension scores (b = .42), and final IR dimension scores in males. These findings suggest White males report higher final IR dimension scores than Non-White (Black, Hispanic, and "Other") male respondents. Additionally, a one point increase in baseline IR dimension scores was associated with a .42 point increase in final IR dimension scores. Finally, motivation to succeed (b = -1.08) was found to have a negative relationship with final IR dimension scores.

Table 22a was created as a supplement to the stepwise regression focusing on IR dimension development in males. Table 22a shows comparable results to those found in the final iteration of Table 22, however motivation to succeed is no longer significant in the current analysis. Further analyses were completed to investigate the differences in results between the stepwise regression and the reduced form table. As seen in Table 22a, the VIF scores ranged from 1.06 to 1.09, showing no issues with multicollinearity. Furthermore, a bivariate correlation analysis was completed and showed motivation to succeed was significantly correlated with baseline psychopathy scores (r = -.08, *p.* ≤ .00), final psychopathy scores (r = -.15, *p.* ≤ .00), and race (r = .20, *p.* ≤ .00).

Although motivation to succeed significantly correlates with the above-mentioned variables, it is not significant in the reduced form table when controlling for them. The motivation to succeed variable continues to vacillate in and out of significance in the

analyses. This may be due to conceptual issues, the presence of indirect effects, or an omitted variable bias. The motivation to succeed variable continues to be of interest and may be and may be of interest in future research.

Table 22a

Reduced Form Table – Final IR Dimension in Males Only

Variable	1	2	3	VIF (3)
Control				
Baseline IR Dimension Scores	.43**	.42**	.41**	1.06
White***		2.29**	2.59**	1.06
Protective Factors				
Motivation to succeed			-.79	1.09

***Non-White is the reference category

** $p. \leq .01$ * $p. \leq .05$

Table 23 presents a full multiple regression analysis focusing on the IR dimension in males. This analysis shows an R^2 of .231 and an adjusted R^2 of .21. The adjusted R^2 indicates that 21% of the variance in the final IR dimension scores is attributable to the independent variables. Three variables were found to be statistically significant including race ($\beta = .12$, $p. \leq .00$), motivation to succeed ($\beta = -.08$, $p. \leq .03$), and baseline IR scores ($\beta = .39$, $p. \leq .00$). These standardized coefficients show baseline IR scores have the biggest impact on final IR dimension scores in males.

Table 23 shows race (b = 2.74) and baseline IR dimension scores (b = .40) have a positive association with final psychopathy scores. White male respondents report higher IR dimension scores than Non-White (Black, Hispanic, and "Other") male participants. Additionally, a one point increase in baseline IR dimension scores was shown to result in a .40 point increase in final IR dimension scores in males. Finally, motivation to succeed

(b = -1.12) was shown to have a negative relationship with final IR dimension scores in males.

Table 23

Full Regression - Final IR Dimension in Males Only

Variable	b	SE b	β	Sign.
(Constant)	23.26	5.91		.00
Age	-.19	.26	-.02	.45
White***	2.74**	.85	.12	.00
Caring Adult	.26	.23	.04	.25
Maternal Warmth	-.55	.46	-.04	.23
Prosocial Peer Relationships	.15	.25	.02	.54
Friendship Quality	.15	.64	.00	.81
Exposure to Violence	.01	.24	.00	.96
Victimization	.69	.50	.05	.16
Religion	-.20	.24	-.03	.40
Motivation to Succeed	-1.12*	.52	-.08	.03
IQ	.01	.02	.02	.48
Baseline IR Dimension score	.40**	.03	.39	.00
R Squared	.24			
Adjusted R Squared	.22			

***Non-White is the reference category. ** $p. \leq .01$ * $p. \leq .05$

. The next section details the analysis of the female sample and concludes with a comparative analysis. As seen in Table 24, a stepwise multiple regression was used to assess female IR dimension development. One iteration was produced and found an adjusted R^2 of .22. Therefore, 22% of the variance in the dependent variable is attributed to the independent variable. Results show one variable was statistically significant, baseline IR dimension scores ($\beta = .47$, $p. \leq .00$) (Table 24). A positive association was found between the final IR dimension score and baseline IR dimension scores (b = .46). Table 23 supports the findings shown in Table 22.

Table 24
Stepwise Regression - Final IR Dimension Scores in Females Only

Variable	b	SE b	β	Sign.	VIF
Step 1					
Constant	15.37	2.79		.00	
Controls					
Baseline IR Dimension	.46**	.07	.47	.00	1.00
Adjusted R2	.22				
F	36.44			.00	

** $p. \leq .01$ * $p. \leq .05$

Table 25 presents a full multiple regression analysis. This analysis focuses on the IR dimension in females and is the final regression presented for the current study. Table 25 shows an R^2 of .25 and an adjusted R^2 of .17. The adjusted R^2 indicates that 17% of the variance in the final IR dimension scores is attributable to the independent variables.

Table 25
Full Regression – Final IR Dimension Scores in Females Only

Variable	b	SE b	β	Sign.
(Constant)	25.06	15.18		.10
Age	.04	.61	.00	.93
White***	.77	1.72	.04	.65
Caring Adult	-.08	.54	-.01	.87
Maternal Warmth	.55	.95	.05	.55
Prosocial Peer Relationships	-.11	.72	-.01	.87
Friendship Quality	-2.56	1.73	-.12	.14
Exposure to Violence	.05	.52	.00	.91
Victimization	.53	1.44	.03	.71
Religion	.05	.57	.01	.91
Motivation to Succeed	-1.02	1.18	-.07	.38
IQ	.02	.05	.03	.72
Baseline IR Dimension score	.43**	.08	.44	.00
R Squared	.25			
Adjusted R Squared	.17			

***Non-White is the reference category. ** $p. \leq .01$ * $p. \leq .05$

As with past regressions targeting only the females included in the current study, the only significant variable was the baseline IR dimension score ($\beta = .44$, $p. \leq .00$). The baseline IR dimension is shown to have a positive association ($b = .43$) with final IR dimension scores in females. These findings support those of the stepwise regression in Table 24.

Finally, two *t*-tests compared the sexes. The first was an independent sample *t*-test, compared final IR dimension scores between the sexes. Table 26 shows males had a mean score of 32.47, SD = 8.51 in final IR dimension scores, while females had a mean of 30.96, SD = 8.30. Equal variances were assumed, and the *t*-test was statistically significant ($p. \leq .038$), indicating that there is a difference in IR dimension scores between males and females.

The second *t*-test, a paired sample *t*-test, analyzed IR dimension stability over a period of nine years. This analysis had a male sample of 776 and showed a mean of 3.40, SD = 8.95 for IR dimension scores in males, signifying that male participant on average experience a 2.12 point decrease in IR dimension scores over a nine-year period. Similarly, the female sample included 143 respondents with a mean of 3.58, SD = 8.78. Thus, females on average had a 3.58 decrease in IR dimension scores over the nine years that separate the baseline and final wave of data collection used in the current study. The results for the paired sample *t*-test were significant for males and females, indicating a change in the IR dimension development during youth, particularly for females who are shown to have a greater decrease in IR dimension scores.

Table 26

T-tests - Final IR Dimension scores in Males and Females

	Male			*Female*			
	N	Mean	SD	N	Mean	SD	Sign.
Independent Sample *t*-test	914	32.47**	8.51	161	30.96**	8.30	.03
Paired Sample *t*-test	776	3.40**	8.95	143	3.58**	8.78	.00

** $p. \leq .01$ * $p. \leq .05$

CHAPTER V: DISCUSSION

The closing chapter reviews the objectives, research questions, hypotheses, and conclusions. This chapter will interpret the implications of the study results through the lens of existing literature. Next, the chapter will discuss study limitations, areas of future research, and concludes with important policy implications.

Present Study

The current study sought to provide an in-depth view into psychopathic development, stability, and the role of gender in this process. This was accomplished through the use of three research questions detailed below.

Research Question 1

The first research question focused on developmental antecedents and asked: How do risk and protective factors affect the psychopathic development of the full sample? This research question aids in the field's advancement by using developmental antecedents to psychopathy involved in past research but is unique as it sought to refine and investigate nuances associated with known and suspected risk and protective factors within a unified, simultaneously estimated model. This strategy enabled comparisons between psychopathy predictors used in the same equation. Such a vetting process is useful as it allows scholars, clinicians, and policymakers to ascertain which risks pose the most severe threat to the development of psychopathy. In turn, the findings also emphasized those protective factors having the greatest impact. Furthermore, the current study used the Youth Psychopathic Traits Inventory (YPI) to measure psychopathy. This

tool is argued to provide a more accurate representation of psychopathy, as it focuses on affective features and not behavioral manifestations associated with the disorder.

Hypothesis: Research Question 1

The current study hypothesized that risk factors such as the lack of caring adults, a lack of prosocial peer relationships, low friendship quality, exposure to violence, victimization, and low IQ would be positively associated with higher psychopathy scores in the total sample. The specific hypothesis was that protective factors such as the presence of caring adults, experiences of maternal warmth, prosocial peer relationships, high-quality friendships, motivation to succeed, and high IQ would shield against the development of psychopathic traits in the entire sample. Maternal warmth and positive peer relationships were hypothesized to be two of the greatest protective factors for males and females, with the remaining variables having similar effects for both sexes. These hypotheses were based on attachment theory (Bowlby, 1969). This theory focuses on interpersonal and emotional responses, two factors central to psychopathy, and states individuals who are unable to properly bond with caregivers develop a range of callous traits (Bowlby, 1994; Van Ijzendoorn & Zwart-Woudstra, 1995).

Attachment theory has not received proper attention in psychopathy research but sheds light on emotional detachment mechanisms (Porter, 1996). The emotional detachment mechanism is a response to repeated trauma or disillusionment and can result in emotional dissociation or disconnect from cognition and behavior (Porter, 1996). If sustained, this mechanism can result in rescinded affect behavior (Porter, 1996), and manifests as “hardened” individuals (Everstine & Everstine, 2019). The current study

nests psychopathy research in attachment theory, and hypothesizes the included variables are indicative of bonding between the respondents, parents, peers, and society.

Findings: Research Question 1

The current study presented findings for Research Question 1 in three parts, a stepwise regression table, a reduced form table, and a full regression table. The stepwise regression used several iterative steps to select statistically significant variables and construct a final regression model. This model presented the independent variables affecting final psychopathy scores. The supplemental reduced form table was provided to fully vet the character and nature of the independent variables' relationships with each other and to explore how any associations among them may have impacted the results. Finally, a full regression equation included all of the variables. This was done for clarity of the original model and out of caution, as the stepwise method can lead to an underspecified model when all predictor variables have not been identified. The author hoped consistency of findings among the three methods allowed for confidence in the results and signaled robustness of the findings.

The first research question used two data waves (the second and the eleventh). The current study used final psychopathy scores, from the eleventh wave of the PTD, as the dependent variable. Baseline information was gathered from the second wave of the PTD study and used age, gender, race, the presence of caring adults, maternal warmth, prosocial peer relationships, friendship quality, exposure to violence, victimization, spirituality, motivation to succeed, IQ, and baseline psychopathy scores as the independent variables. The results of the stepwise regression, reduced form table, and full

regression indicated gender, race, presence of caring adults, motivation to succeed and baseline psychopathy scores were all significant predictors of final psychopathy scores.

The findings revealed White respondents report higher psychopathy scores than Non-White respondents. Available literature regarding the relationship between race, ethnicity, and psychopathy appears to have several inconsistencies. First, the field appears to be experiencing differences in the conceptualization of race and ethnicity. Although the terms are related, they are not equal and should not be used interchangeably. Some argue the categories of racial groups imply biological differences, whereas ethnic groups focus on cultural heritage (Helms & Talleyrand, 1997; Marsella, 1987). The field appears to use the terms interchangeably, inadvertently perpetuating conceptual confusion (Okazaki & Sue, 2016) and confounding the examination of cultural and ethnic differences in psychopathy.

Second, the issues relating to measurement tools continue to impact the field regarding the relationship between race, ethnicity, and psychopathy. For example, scholars have proclaimed the "gold standard" tool, the PCL-R, was developed almost exclusively on incarcerated European Americans (Hare, 1991), despite the overrepresentation of African Americans in prison (Patrick, 2018). Originally, the tools creator has acknowledged the possibility that psychopathy manifests differently across ethnic and cultural groups. The updated PCL-R manual reports reliability and validity across ethnic and cultural groups, with equal discriminating power. Still, caution was advised when interpreting scores in groups for which the PCL-R has not been validated (Hare, 2003). Few researchers have studied the cross-ethnic validity of psychopathy as

measured by the PCL-R and have found inconsistencies, specifically across behavioral items for African Americans (Bolt et al., 2004; Hare, 2003). Sociocultural factors are believed to be playing a part in psychopathy variability across ethnicities (Lynn, 2002). This could be due to the impact of culture and ethnicity on early childhood socialization in the etiology of psychopathy (Lykken, 1995) and the effect of cultural perspectives on the relationship between individuals and society at large (Cooke, 1998).

When it comes to gender, the current study revealed females on average report lower final psychopathy scores than males. This finding was in line with the hypothesis and some of the available research. Although many researchers state females report lower psychopathy scores than males (Cale & Lilienfeld, 2002; Grann, 2000; Hare et al., 2000; Klein Haneveld et al., 2022), others report gender differences in certain aspects or note no discernible differences (Verona et al., 2010). As stated in chapter two, female psychopathy is severely understudied. This is partially due to existing issues in diagnostic criteria (Forouzan & Cooke, 2005), females' likelihood to express psychopathy in more subtle ways (Cooper, 2008; Efferson & Glenn, 2018; Forouzan & Cooke, 2005; Fulton et al., 2010), and their fall into the *dark figure of psychopathy* (Flexon, 2018). Due to this problem, the field may not be fully aware of the full extent of female psychopathy. The current study maintains concerns regarding a possible gender bias in psychopathy measurement tools and the under-representation of females with psychopathy (Blackburn & Coid, 1998; Forouzan & Cooke, 2005). These issues may provide an inaccurate understanding of female psychopathy.

Unexpectedly, the current study found an increase in the number of caring adults, (i.e., teachers, parents, case workers, etc.) did not mitigate psychopathy development in males and females, though the finding was only significant for males. This is not in line with the hypothesis for Research Question 1 and offers a new perspective on the relationship between the presence of caring adults and psychopathy development. The author notes the youth included in the current study were adjudicated and therefore had criminal justice interventions, such as case workers. Early identifiable psychopathic traits in these youth may have caused an increase in assigned providers as possible interventions or for increased monitoring. This finding may indicate that the variable as presented by the PTD does not tap into attachment and does not provide a true assessment of the relevancy of attachment theory to psychopathy development. The available literature on the topic of caring adults and psychopathy centers around parental warmth and hostility (Moore, 2021), parenting styles (Flexon & Encalada, 2020; Krupić et al., 2020), and attachment patterns (Christian et al., 2017; Frodi et al., 2001).

Research supports that parental warmth and secure attachment styles appear to shield against psychopathic development (Backman, 2021; Waller et al., 2018). This could indicate that the mere presence of caring adults is unable to act as a protective factor against psychopathy development and the real protective factor is in the youth's perceived bond with the adult in question. Although not directly related, similar findings have been reported in therapeutic relationships. That is to say that mere therapeutic involvement is unable to predict clinical success, but the client's perceived quality of the relationship is positively and consistently related to the outcome (Rubel et al., 2018; Saunders et al., 1989). Available literature does not necessarily venture into a wider study

on caring adults in the form of extended family, teachers, social workers, or other non-familial relationships and may be of interest for future research.

The current study also found an increase in motivation to succeed resulted in a decrease in final psychopathy scores in the full sample. Although this variable was significant in the stepwise regression and the full regression, it fell out of significance in the supplemental reduced form table. This possibly indicated a conceptual issue, the presence of indirect effects, or a possible omitted variable bias. This finding is in line with the hypothesis, as high motivation to succeed was considered a protective factor against psychopathic development in males and females. Available literature does not often include motivation to succeed as a developmental antecedent, and focus on other biological, psychological, and social influences. One study focusing on this specific variable was identified. The 2018 study focused on the effect of motivation to succeed, bonding with teachers, and perception of chances for success on future psychopathy development (Delgadillo, 2018). This study centered solely on males and found perception of changes for success was the only significant moderating antecedent (Delgadillo, 2018).

Finally, findings indicated an increase in baseline psychopathy scores and increased final psychopathy scores on average for males and females. The baseline psychopathy scores addressed the longitudinal nature of the current research and to control for changes in scores over time. Available literature focusing on the longitudinal nature of psychopathy in adolescents is still in its early stages but appears to support moderate stability from adolescence into adulthood (Lynam, Caspi, et al., 2007), as well

as variability in psychopathic stability (Pardini et al., 2003; Pardini & Loeber, 2007). The current study addresses psychopathy stability and will discuss it in greater detail when reviewing Research Questions 2A, 3A, 3B, and 3C.

The findings for Research Question 1 showed several insignificant relationships. The author contends this may be due to the use of data focusing on adjudicated adolescents, and the intervention that occurred once the youth entered the delinquency system. These interventions may be reflected in variables such as the presence of caring adults (i.e., caseworkers, clinicians, etc.). Due to a lack of significant findings, the author is unable to provide a full assessment of the relevancy of attachment theory in connection with psychopathy development. Although these findings do not provide full support for this theory, the author continues to postulate that attachment is central to psychopathy development. In order to accurately assess attachment theory future research should focus study of psychopathy developmental antecedents on non-institutionalized youth. Although the current study contains limitations, Research Question 1 proves to be an important step in developmental research as it provides a different perspective on the relationships between the included risk, protective factors, and psychopathy development.

Summary: Research Question 1

The findings for Research Question 1 indicated four variables were shown to impact final psychopathy scores in males and females: race, gender, number of caring adults, and baseline psychopathy scores. White respondents had higher psychopathy scores than Non-White respondents on average. Females had lower psychopathy scores than males and an increase in caring adults was unable to mitigate psychopathic

development in the full sample. The only developmental antecedent that was significant was the presence of caring adults, and this variable did not behave as expected

As stated, the current study expected to find a decrease in the presence of caring adults, lack of prosocial peers, low friendship quality, exposure to violence, victimization, and low IQ would be positively associated with higher psychopathy scores. This hypothesis was not supported. The current study expected to find an increase in the presence of caring adults, experiences of maternal warmth, prosocial peer relationships, high-quality friendships, motivation to succeed, and high IQ would act as protective factors against psychopathy development. This hypothesis was not supported. Furthermore, maternal warmth and positive peer relationships were postulated to be the greatest protective factors for males and females. This hypothesis was not supported.

The findings for Research Question 1 are partially supported by the available literature. Findings for Research Question 1 do not appear to support attachment theory. However, the author is unable to provide a full assessment of the relevancy of attachment theory in connection with psychopathy development due to the lack of significant findings. The next research question goes on to focus on the role of gender in psychopathy development.

Research Question 2

Research Question 2 focused on the role of gender in psychopathic development. This question was broken down into two general parts dealing with different predictive antecedents for psychopathy and stability between males and females, as well as whether gender moderates any of the relationships tested. Specifically, the questions examine A)

Is there a difference in the risk and protective factors affecting final psychopath scores in males and females? In other words, are different relationships produced based on sex? Furthermore, are psychopathy scores equally stable throughout adolescence in males and females?, and B) Does gender modify the relationship between the proposed risk, protective factors, and psychopathy?

These questions build upon past research by using known and suspected variables that are believed to affect psychopathy development but focused much-needed attention on the role of gender in psychopathy development. This research question also addressed one of the largest literature gaps in the field. Lastly, the research here is unique in that it focuses on psychopathy stability in males and females allowing for a better understanding of psychopathy development, desistance, and how these factors differ among the sexes. Finally, Research Question 2 delved deeper into possible modifying relationships between gender and the developmental antecedents, something which has not yet been explored.

Hypothesis: Research Question 2

The current study presented its hypotheses for Research Question 2 in two parts: The current study acknowledged the lack of research on this topic and emphasized the conflicting findings. The included risk and protective factors were thought to influence psychopathy levels, but their impact on males and females was unclear. Protective factors, such as IQ and prosocial peers (Kandel et al., 1988), were hypothesized to have a stronger impact on males, as past research has shown them to be protective factors in antisocial behaviors for males. On the other hand, females were believed to be more

strongly protected by maternal warmth, spirituality, and friendship quality because females are more likely to encounter encouragement of prosocial activities that foster bonding (Lytton & Romney, 1991), experience higher levels of parental warmth (Lytton & Romney, 1991), and spirituality that fosters empathy, compassion, and self-insight (Martens, 2001). These factors are believed to be indicative of gender differences in socialization and gender norms, which were hypothesized to directly affect gender differences in psychopathy development (Research Question 2A).

When it comes to psychopathy stability, it was hypothesized that males and females experienced changes in psychopathy stability over the nine years that separated the data points. This is supported by current research stating psychopathy stability varies across development (Frick et al., 2014), marking the importance of this research. As postulated, changes in psychopathic stability may be explained through the use of attachment theory, as psychopathic development is argued to partially stem from improper bonding.

Gender was hypothesized to have a modifying relationship between risk factors, protective factors, and psychopathy development (Research Question 2B). The interaction between gender and maternal warmth, gender, and prosocial peers, and gender and friendship quality were believed to be the most significant, as these areas are considered to have the largest incongruities between males and females. This hypothesis was based on gender schema, socialization, and gender roles. These factors are believed to affect several factors of gender-specific development such as internalized beliefs,

societal treatment (Bem, 1981), and individual underlying mechanisms (Gauthier-Duchesne et al., 2017; Sloan-Power et al., 2013).

The hypotheses for Research Question 2A and 2B postulates that gender-based differences in psychopathy development could be traced back to gender schema, socialization, and gender roles. As stated in Chapter two, gender schema postulates that gender differences are enforced from birth, and this process leads to the development of a cognitive organizational process referred to as a gender schema. This schema impacts information processing to include characteristics, expectations, and behaviors relating to biological sex as assigned by culture (Bem, 1981) and often leads to individuals regulating their behaviors to conform to cultural expectations of gender (Bem, 1981), or gender roles. These expectations are internally and externally enforced, as children are socialized differently according to sex. These processes are believed to result in several underlying mechanisms that impact individual development and may be responsible for differences in psychopathic development.

Findings: Research Question 2A

For research Question 2A, findings were presented in three parts a stepwise multiple regression, a reduced form table, and a full regression. This was done in an attempt to fully vet the relationships between the variables. The author hoped consistency of findings among the three methods allowed for confidence in the results and signaled robustness of the findings. These analyses were completed for males and then females and used final psychopathy scores as the dependent variable. The independent variables included age, gender, ethnicity, the presence of caring adults (i.e., parents, teachers, and

social workers), maternal warmth, prosocial peer relationships, friendship quality, exposure to violence, victimization, spirituality, motivation to succeed, IQ, and baseline psychopathy scores measured at an earlier age as the independent variables. Lastly, Research Question 2A used an independent sample *t*-test and a paired sample *t*-test. The first *t*-test was used to compare the baseline psychopathy results between males and females, and the second looked at psychopathic stability over the nine-year period that separated the data points.

The results for Research Question 2A showed males' final psychopathy scores were significantly impacted by four variables: race, presence of caring adults, motivation to succeed, and baseline psychopathy scores. The findings revealed White male participants reported higher final psychopathy scores than Non-White males on average. Research on race, ethnicity, and psychopathy indicates a disconnect with conceptualization (Helms & Talleyrand, 1997; Marsella, 1987; Okazaki & Sue, 2016) and measurement tool (Skeem & Cooke, 2010). Some of the available literature appears to use the terms race and ethnicity interchangeably. Although the two are related, they are not equal and the substitution of these terms can obscure cultural and ethnic differences (Okazaki & Sue, 2016) in psychopathy, as discussed earlier.

The wide use of the PCL-R also appears to be problematic, as the tool was exclusively developed on incarcerated European American males (Hare, 1991). Few studies have focused on the cross-ethnic validity of the PCL-R and have found equal discriminating power, and differences in the threshold for behavioral items (Hare, 2003). The variations in behavioral items may be indicative of disparities in relationship or

lifestyle dimensions of psychopathy in African Americans (Bolt et al., 2004; Hare, 2003). These factors may be affected by the impact of culture or ethnicity in early childhood socialization (Lykken, 1995) or the cultural perspectives on the relationship between individuals and society (Cooke, 1998).

Next, the findings showed males who reported an increase in the presence of caring adults did not report a decrease in final psychopathy scores, as hypothesized in the current research. This finding indicates the presence of caring adults is unable to curtail psychopathic development in males. The current study speculates the protective factor might lie in the bond between youth and caring adult, as opposed to the simple presence of a caring adult. Literature pertaining to this topic centers on parental warmth, and hostility (Moore, 2021), parenting styles (Flexon & Encalada, 2020; Krupić et al., 2020), and attachment patterns (Christian et al., 2017; Frodi et al., 2001) but is confounding in terms of gender-specific findings. Available literature supports that parental warmth and does not explore the role of extended family or non-familial support systems.

The current study found males who reported an increase in motivation to succeed also reported a decrease in final psychopathy scores on average. This finding was consistent in the stepwise regression and the full regression, but not the reduced form tables; and may indicate a possible conceptual issue, the presence of indirect effects, or a possible omitted variable bias. The current study hypothesized that IQ and prosocial peers would be the greatest protective factors against psychopathy development in males. This proved not to be the case, as the motivation to succeed variable was found to be significant, and not IQ or prosocial peers. Although available literature on this topic is

scarce, the author is aware of only one paper that appears to look directly at the effect of motivation to succeed. This research focused on bonding with teachers, motivation to succeed, and perception of chances for success and future psychopathy development. The 2018 study focused solely on males and found only perception of chances for success significantly moderated the relationship between the developmental antecedent and psychopathy development (Delgadillo, 2018).

Next, the finding showed males who report higher baseline psychopathy scores also showed an increase in final psychopathy scores on average. This variable was included to address the developmental nature of psychopathy and to control for changes in psychopathy scores. Longitudinal studies in psychopathy development are few and far between. Similarly, findings showed female final psychopathy scores were only significantly impacted by one variable, baseline psychopathy scores. Females who reported higher baseline psychopathy scores were shown to have higher final psychopathy scores. Longitudinal research on psychopathy development is still in its early stages. Though the current study helped build that gap, additional research is needed in this area to ascertain which variables impact female psychopathy development, given that the variables shown to affect males did not have the same impact on females.

Gender differences in psychopathy scores and stability were examined. A significant difference was found between males' and females' final psychopathy scores. The results showed males on average report a higher psychopathy score than females by an average of 9.23 points. This is in line with the hypothesis offered for Research Question 2A and the available literature. While some research indicates males have

higher psychopathy scores than females (Hawes et al., 2014; Verona & Vitale, 2018), others report differences in certain aspects or note no discernible differences (Verona et al., 2010). The author continues to have concerns regarding the possible gender bias in psychopathy measurement tools and the underrepresentation of females with psychopathy (Blackburn & Coid, 1998; Forouzan & Cooke, 2005). These issues may provide the field with an inaccurate understanding of the gender differences in the disorder.

Lastly, psychopathy stability in males and females was examined. Males and females both experienced a decrease in final psychopathy scores, but females had a steeper decrease. Males reported on average decreasing psychopathy scores by 9.843 points, while females reported an 11.965 point decrease. These results also proved to be significant. Although the current study hypothesized that there would be a difference between males' and females' psychopathy development, this research took an exploratory approach to gender differences in stability. These findings confirm changes in psychopathy stability throughout adolescence, indicating there is a period where intervention may be more successful. Additionally, the results indicate females appear to discontinue psychopathic traits at a higher rate than males. Available research indicates moderate stability in the presence of psychopathic traits from adolescence into adulthood (Lynam, Caspi, et al., 2007), but there is variability (Frick et al., 2014). This research does not often focus on gender differences or female psychopathy and is an area of focus in the current study.

The findings for Research Question 2A showed several insignificant relationships, especially for females. The author contends this is partially due to difficulties associated

with the use of data on adjudicated youth, as well as the lack of information on female psychopathy. The lack of significant findings for males and females does not allow for the proper evaluation of attachment theory as explanation of psychopathy development. Still, the author contends attachment is central to psychopathy development, and future research should examine this theory in younger, non-institutionalized youth. However, the findings appear to support gender schema, socialization, and gender roles as possible reasons for gender differences in psychopathy development. Males were found to have several significant developmental antecedents, which were not shared with females. These gender-specific findings are believed to be directly impacted by gender differences in socialization, internalized beliefs, and the underlying mechanisms they produce.

Summary: Research Question 2A

The findings for Research Questions 2A indicate males reported higher psychopathy scores than females on average. Additionally, there are different factors affecting psychopathy development in males and females. Different relationships were also found based on sex, but baseline psychopathy scores appeared to impact males' and females' psychopathy scores much more than any of the risk or protective factors. This finding indicated individuals with higher psychopathy scores at earlier ages showed an increase in final psychopathy scores generally, regardless of sex. Some of these findings were in line with the hypotheses for Research Question 2A.

As stated, the current study expected to find males would have higher scores than females, and that they would be impacted by different developmental antecedents. This hypothesis was confirmed. However, the current study hypothesized protective factors

such as IQ and prosocial peers would have a stronger impact on males, while maternal warmth, spirituality, and friendship quality would have a stronger impact on females' psychopathy development. This hypothesis was not supported. Males were shown to be impacted by race, presence of caring adults, motivation to succeed, and baseline psychopathy scores, but not IQ or prosocial peers. On the other hand, results for females indicated they were only impacted by baseline psychopathy scores, and not maternal warmth, spirituality, or friendship quality. This hypothesis was not supported.

In terms of psychopathic stability, the current research found an overall decrease in psychopathy scores for males and females over the nine year period. This suggested a decrease in psychopathy scores on average throughout adolescence and supported variability in psychopathy stability. This finding was in line with the hypothesis for Research Question 2A. The findings for Research Question 2A appear to support socialization and gender norms but do not appear to support attachment theory. These findings show several insignificant relationships, which may indicate issues stemming from the use of data on adjudicated youth.

The findings for Research Question 2A are partially supported by the available literature. Findings for Research Question 2A indicate males and females are affected by different developmental antecedents. These findings appear to support gender schema, socialization and gender role theories as possible reasonings for gender differences in psychopathic development.

Findings: Research Question 2B

The current study presented findings to Research Question 2B in three parts: the stepwise regression table, the reduced form table, and the full regression table. This approach was selected to fully understand the relationship between all the variables. These models used the final psychopathy score as the dependent variable and included age, gender, ethnicity, the presence of caring adults, maternal warmth, prosocial peer relationships, friendship quality, exposure to violence, victimization, spirituality, motivation to succeed, IQ, and baseline psychopathy scores as the independent variables. Research Question 2B also included interaction effects, which were created by multiplying the gender variable with each independent variable.

The results for Research Question 2B indicated five variables significantly impacted final psychopathy scores including race, presence of caring adults, motivation to succeed, and baseline psychopathy scores. These findings are similar to those discussed in the first research question. The only new finding to discuss is the interaction effect between gender and friendship quality. This interaction effect proved to be the only significant one in Research Question 2B and indicates females who report higher levels of friendship quality report a decrease in final psychopathy scores, on average. Although the interaction effect between gender and friendship quality is significant in the stepwise regression and the reduced form table, it is not in the full regression and may indicate possible conceptual issues, the presence of indirect effects, omitted variable bias, or a suppression effect in the full regression.

The findings for Research Question 2B were in concert with the postulate that the interaction between gender and maternal warmth, gender, and prosocial peers, gender, and friendship quality would be the most significant, due to these areas having the largest incongruities between males and females. Although the current study is unique in using interaction effects to study the possible modifying role of gender in psychopathy development, available literature supports the notion that males and females are affected by different developmental antecedents (Boduszek et al., 2019; Krischer & Sevecke, 2008; Sevecke et al., 2016). However, research appears to be contradicting regarding what factors affect males or females. For example, some state sexual, physical, and emotional abuse are more strongly correlated with male psychopathy (Krischer & Sevecke, 2008), while others report these types of abuse are more strongly correlated with female psychopathy (Boduszek et al., 2019). Additional research is needed to clarify the relationship between risk factors, protective factors, and psychopathy development in males and females.

The findings for Research Question 2B showed several insignificant interaction effects. In fact, only gender and friendship quality was found to be significant. As stated, this could be due to the difficulties associated with the use of data focusing on adjudicated youth. However, the interaction term between gender and friendship quality indicated females who reported higher friendship quality were on average, more likely to report lower psychopathy scores. This finding appears to support gender schema, socialization, and gender role theory, which are believed to explain differences in psychopathic development in males and females. Additional research is needed on this topic to further understand the role of gender on psychopathic development.

Summary: Research Question 2B

Findings for Research Question 2B suggested gender appeared to modify the relationship between one protective factor, friendship quality, and psychopathy development. This indicated friendship quality appeared to be more influential in protecting against psychopathy development for females than males. Additionally, this finding showed females with higher levels of friendship quality report lower psychopathy scores. The current study hypothesized the interaction between gender and maternal warmth, gender and prosocial peers, and gender and friendship quality would be the most significant. However, findings indicated only one of these interactions is significant. Therefore, partially supported the hypothesis.

The findings for Research Question 2B are partially supported by the available literature. Findings for Research Question 2B indicate gender played a moderating role in the interaction between developmental antecedents, gender, and psychopathic development. These findings appear to support gender schema, socialization, and gender role theories as possible reasons for gender differences in psychopathic development. The next research question takes this work a step further and delves deeper into developmental antecedents and gender differences in three recognized psychopathic dimensions.

Research Question 3

The third and final research question separately focused on three psychopathic trait dimensions: callous-unemotional (CU; 3A), grandiose-manipulative (GM; 3C), and impulsive-irresponsible (IR; 3C). This question asked: How do the risk and protective

factors affect the development of each psychopathic dimension in males and females? Furthermore, are the psychopathic dimensions stable throughout adolescence in males and females?

Research Question 3 expanded on available literature by focusing on each of the psychopathic dimensions, as opposed to solely concentrating on the CU dimension. Additionally, this question uniquely focused on the development of each dimension in males and females. Research Question 3 was also concerned with psychopathic stability in males and females, allowing for a better understanding of psychopathic development, desistance, and how these aspects differ among the sexes.

Hypothesis: Research Question 3

The current study hypothesized the CU dimensions would correlate to risk factors, such as exposure to violence and victimization. This argument is supported by the observation that exposure to trauma during childhood affects inhibition that could result in dissociation from affective experiences (Porter, 1996) and may develop traits in the CU dimension. The current study also hypothesized that protective factors such as the presence of caring adults, maternal warmth, religion, prosocial peer relationships, and high friendship quality could shield against CU dimension development. This is supported by research showing youth experiencing higher levels of parental warmth are more likely to have lower CU traits (Waller et al., 2018). When it came to CU dimension stability, the current study took an exploratory approach, hypothesizing there would be changes in CU dimension stability in males and females, as variability in psychopathy development is noted by researchers (Frick et al., 2014).

Factors relating to early trauma were hypothesized to affect GM dimensions, particularly exposure to violence and victimization (Research Question 3B). Researchers have shown that early trauma impacts cognitive development (Erwin et al., 2000) and interpersonal traits (Bisby et al., 2017; Fanti et al., 2013). Additionally, sustained trauma can result in blunted affect, little connection to others, and a glut of psychiatric problems (Bisby et al., 2017; Fanti et al., 2013). The current study took an exploratory approach to the research of GM dimension stability. It was hypothesized that there would be changes in GM dimension stability for males and females, as variability in psychopathy development is noted in past research (Frick et al., 2014).

It was hypothesized that motivation to succeed and IQ were related to the IR dimension of psychopathy (Research Question 3C). This hypothesis was based on reports of a negative correlation between IQ, impulsivity, and stimulation-seeking behaviors (Vitacco et al., 2005). Lastly, the current study argued there would be changes in IR dimension stability in males and females, as the three psychopathic dimensions were thought to be interrelated (Bergstrøm & Farrington, 2018). The current study took an exploratory approach to the research of IR dimension stability and was based on reported variability in psychopathy development (Frick et al., 2014).

These hypotheses were based on attachment theory, gender schema, and socialization. As stated earlier, attachment theory is believed to explain psychopathic development in males and females as a whole, specifically as it relates to emotional detachment mechanisms (Bowlby, 1969), and may play a part in psychopathic stability. On the other hand, gender differences are believed to be explained by gender schema, socialization, and gender roles. It is postulated here that psychopathy development, and

therefore psychopathic dimensions, are explained by the included theories. Gender-specific hypotheses were not presented, as the lack of research in this area made it difficult to build hypotheses. That being said, gender differences were expected in each of the psychopathic dimensions and were believed to stem from underlying mechanisms, resulting from differences in gender schema, socialization, and gender roles.

Findings: Research Question 3A

The current study presented findings to Research Questions 3A, 3B, and 3C in the same way: a stepwise regression, a supplemental reduced form table, and a full regression table for males then females. As with the prior analyses, consistency of findings was desirable among the three methods to increase confidence in the results and signal robustness of the findings. These analyses used final CU, GM, and IR dimension scores as singular dependent variables and used gender, race, the presence of caring adults, maternal warmth, prosocial peer relationships, friendship quality, exposure to violence, victimization, spirituality, motivation to succeed, IQ, and the corresponding baseline psychopathy dimension scores as the independent variables. Next, an independent sample *t*-test and a paired sample *t*-test were conducted and finalized analyses. The first *t*-test was used to compare the results between males and females, and the second looked at psychopathic stability over the nine-year period which separates the data points.

The results for Research Question 3A demonstrated four variables significantly impacted final CU dimension scores in males: the presence of caring adults, maternal warmth, victimization, and baseline psychopathy scores. These results indicated an increase in the presence of caring adults did not mitigate CU dimension development in

males. This relationship was not expected, as the current study hypothesized this would be a protective factor against CU dimension development. This finding could indicate that the mere presence of a caring adult is not sufficient to act as a protective factor against CU development, and the true protection stems from the youth's perceived bond with the adult in question. This mirrors the explanation offered previously concerning this variable. The current study used the caring adult variable from the PTD study, and this variable included parents, teachers, case-workers, and other non-familial adults as possible “caring adults”.

The available literature on caring adults appears to center around parents and caregivers but does not venture into other non-caregiver types of relationships. The current study postulates a secure attachment to a caring adult is necessary to function as a protective factor against CU development. The observed increase in caring adults in this research may be indicative of adults who are introduced to the youth's life as an intervention response, and not necessarily a true reflection of a protective relationship. In that way, the number of caring adults probably *assigned* for this population of adjudicated youth is likely measuring the degree to which the youth is thought to be at-risk. This may also indicate that intervention needs to occur at earlier ages.

The findings also revealed males who reported an increase in experiencing maternal warmth reported a decrease in final psychopathy scores. This is in line with the current study's hypothesis and past research. The relationship between parental warmth and psychopathy appears to be well documented and was first identified by McCord & McCord (1956). Their research concluded that lack of affection, emotional deprivation,

and parental rejection leads to an increase in the likelihood of core affective deficits (McCord & McCord, 1956). This finding supports the use of attachment theory in the CU dimension, as Bowlby stated individuals with a history of maternal deprivation showed early symptoms of "affectionless psychopathy" (Bowlby, 1969). These findings continue to be replicated and support the notion that parenting behaviors such as parental warmth impact psychopathic development. Backman et. al (2021) recently published a longitudinal study on parental warmth, hostility, and the development of psychopathic behaviors. This study included 1,354 offending adolescents and found higher levels of maternal warmth are associated with lower levels of CU traits (Backman et al., 2021). This study replicated results by others (Blader et al., 2013; Kimonis et al., 2019; Lochman et al., 2014), and supports the notion that parental warmth appears to be associated with later CU trait development.

The current study also found male respondents who reported an increase in victimization reported an increase in final psychopathy scores on average. This finding was significant in the stepwise regression and reduced form table, but not in the full regression. This may be due to conceptual issues, the presence of indirect effects, or an omitted variable bias. Still, this finding is in line with the current study's hypothesis and is supported by past research. Victimization and exposure to trauma have been well-documented in the literature and are believed to affect inhibition and result in dissociation from affective experiences (Porter, 1996), possibly leading to the development of the CU dimension. Maltreatment and victimization (Bernstein et al., 2003; Carlson et al., 2015; Durand & de Calheiros Velozo, 2018; Kimonis et al., 2008; Krischer & Sevecke, 2008), as well as unhealthy and inconsistent caregiver relationships (Akers & Jennings, 2019),

impact psychopathy levels (Pardini & Loeber, 2007), but the true extent of gender differences appears to be unknown. The literature seems conflicting regarding how specific types of maltreatment and victimization affect males and females (Boduszek et al., 2019; Krischer & Sevecke, 2008; Sevecke et al., 2016). This issue might be partly attributed to possible gender differences in childhood abuse reports. While some researchers indicate males are more likely to report abuse (Durand & de Calheiros Velozo, 2018), others indicate females are more apt to report it (Láng & Lénárd, 2015).

Lastly, the current study found males who reported higher baseline CU dimension scores also reported an increase in final CU dimension scores. The baseline CU dimension scores were included in the current study as a control for the longitudinal nature of the current research. Available literature focused on longitudinal research is still in its early stages and needs additional empirical attention. The current study used a longitudinal approach and included analyses to address CU dimension stability, which will be discussed shortly.

When it comes to the females included in the study, two variables were found to be significantly impacting final CU dimension scores: victimization and baseline CU dimension scores. Female respondents who reported higher levels of victimization also reported a decrease in final CU dimension scores. Although this finding was significant in the full regression model, it was not significant in the stepwise regression and may indicate conceptual issues, the presence of indirect effects, or an omitted variable bias. This finding was not expected, as victimization was considered a risk factor in psychopathy development. Although a majority of research appears to show victimization

increases the likelihood of psychopathy development (Young & Widom, 2014), there have been conflicting reports when it comes to the way different types of victimization affect the genders (Boduszek et al., 2019; Krischer & Sevecke, 2008; Sevecke et al., 2016).

As stated earlier, victimization was also found to be a significant antecedent in males, except the relationship direction differs. Males who reported a history of victimization appeared to experience an increase in CU dimension scores, while females who reported a history of victimization appeared to experience a decrease in CU dimension scores. This gender difference may be attributed to differences in reporting of abuse or maltreatment (Durand & de Calheiros Velozo, 2018; Láng & Lénárd, 2015), which theoretically could lead to an increase in early therapeutic intervention, negating psychopathy development in females. Another possible explanation is that victimization, as measured by the PTD, is too general to provide a clear understanding of its effect on psychopathy development. However, given that the variable is significant in males and not females, it appears clear that gender plays a role in this relationship. Therefore, supporting gender schema, socialization, and gender role theories.

The second variable found to significantly impact female psychopathy was baseline psychopathy scores. This finding was the most consistent in the current study. The current study found females with higher baseline CU dimension scores reported an increase in final CU dimension scores. The available literature focusing on longitudinal research is still in its early stages and needs additional attention. The baseline CU dimension scores were included in the current study to address the longitudinal nature of

the current research and to control for changes in final scores. Available literature focusing on the longitudinal nature of the CU dimension in females is lacking. Although the current study focused on stability and will discuss in greater detail below, additional research is needed in this area.

Finally, the current study looked at the gender differences in CU dimension scores and stability. The results showed a significant difference between male and female CU dimension scores. Males reported an average of 5.26 points more than females in the CU dimension. This was in line with the current study's hypothesis and the literature. Available literature indicated males reported higher scores in the CU dimension scores than females (Pechorro et al., 2013), but conflicting reports exist (Verona et al., 2010). Gender differences in psychopathic tendencies appeared to diminish in studies of adjudicated youth and may be indicative of an increase in the severity of psychopathic trait manifestation among females in detention centers (Verona et al., 2010). This is an area of research in need of additional study.

When it comes to the stability of the CU dimension, a recent study reported four developmental pathway trajectories (low, low-moderate, moderate, and high) (Lee & Kim, 2021). The 2021 study conducted on adjudicated adolescent males reported evidence of considerable stability, yet with the presence of variability (Lee & Kim, 2021). Although studies have focused mainly on stability from childhood to adolescence (Edens et al., 2001), few have found that CU traits in children may predict psychopathy in adulthood (Burke et al., 2007; Lynam, Caspi, et al., 2007). Less empirical attention has been given to female CU dimension stability or gender differences in this aspect.

The current study found females to have a steeper decrease in CU dimension scores than males. Females on average reported 1.799 points lower CU dimension scores than males. This difference in score proved to be significant and had the largest gender gap of the three psychopathic dimensions. This finding was in line with the hypothesis, as the current study expected to find variability in psychopathy development but took an exploratory approach to the gender differences in CU dimension stability. Available research sheds light on this regard, as adult females have been found to have fewer psychopathy traits than their male counterparts (Verona et al., 2010).

The findings for Research Question 3A showed several insignificant relationships that are believed to be due to the difficulties associated with the use of data on the adjudicated population. Given the lack of significant findings, the author was unable to fully assess the relevancy of attachment theory in relation to psychopathic development through the three dimensions. When it comes to gender differences, the current study reported findings for females were scarce, but there was enough evidence to support gender schema, socialization, and gender role theories as possible reasonings for gender differences in psychopathic development.

Summary: Research Question 3A

Findings for Research Question 3A indicated males who reported higher levels of maternal warmth also reported lower CU dimension scores on average. Males who reported higher levels of victimization also reported an increase in final CU scores. An increase in presence of caring adults was unable to curtail CU dimension development.

The current study also found an increase in baseline CU dimension scores resulted in a slight increase in final CU dimension scores in males, on average.

Findings for the female-only sample indicate females with higher victimization scores reported lower final CU dimension scores, on average. Females with higher baseline CU dimension scores were also shown to have higher final CU dimension scores. When it comes to gender differences and stability, the current study found males reported higher total CU dimension scores. Additionally, males and females reported a decrease in CU dimension scores over the nine year period that separates the data points, but females reported a steeper decrease in CU dimension scores.

The current study hypothesized exposure to violence, victimization and low levels of religiosity would be associated with the CU dimension in males and females. This finding was partially supported, as victimization affected CU dimension scores in males and females, but exposure to violence and religiosity were not significant in the analyses. Protective factors, such as maternal warmth, the presence of caring adults, high levels of religiosity, prosocial peer relationships, and high-quality friendships were hypothesized to shield against the development of the CU dimension. This finding was not supported. The current study took an exploratory approach to the research of CU dimension stability and hypothesized there would be changes in CU dimension stability in males and females. This hypothesis was supported, as males and females experienced a decrease in CU dimension scores.

The findings for Research Question 3A appear to be supported by the available literature. These findings also support attachment theory as an explanation of CU

dimension development in males and females. Additionally, gender-specific findings appeared to support gender schema, socialization, and gender role theories as possible reasonings for gender differences in CU dimension development.

Findings: Research Question 3B

Next, the results for Research Question 3B revealed three variables significantly impacted final GM dimension development in males: race, presence of caring adults, and baseline GM dimension scores. Results indicate White male participants reported higher final GM dimension scores than Non-White male participants, on average. Available literature centering around the GM dimension in this regard is lacking. No studies looking specifically at the relationship between race, ethnicity, and GM dimensions were identified, but a single study was found focusing on the CU dimension (Horan et al., 2015) and another on psychopathy as a unitary construct (Gatner et al., 2018). This issue highlights the importance of an increased focus on the psychopathic dimensions, beyond the CU dimension, as stated by Salekin (2017).

Results also showed that an increase in the presence of caring adults did not mitigate the increase in final GM dimension score in males. This finding was not in line with the hypothesis, as the presence of caring adults was expected to act as a protective factor. This is in line with the earlier discussion on the number of caring adults present for the study youth. As stated earlier, the current study utilized data on adjudicated youth. These youths likely have criminal justice intervention individuals such as case workers. The increase in presence of caring adults may be indicative of an increase in assigned providers, and not necessarily individuals with whom the youth share an attachment. The

results indicate the presence of these individuals does not prevent GM dimension development in males.

The author posits the mere presence of caring adults was unable to curtail GM development, and the real protective factor is in the attachment between youth and a caring adult. As stated earlier, similar findings have been reported regarding therapeutic relationships. This research shows therapeutic commitment is not enough to secure clinical success, and the quality of the therapeutic relationship is much more indicative of positive outcomes (Rubel et al., 2018; Saunders et al., 1989). The available literature surrounding caring adults centers on parental warmth and hostility (Moore, 2021), parenting styles (Flexon & Encalada, 2020; Krupić et al., 2020), and attachment patterns (Christian et al., 2017; Frodi et al., 2001). However, it does not delve deeper into other forms of familial and non-familial support.

Results revealed an increase in baseline GM dimension scores increased in final GM dimension scores in males, on average. Similar findings were also reported for females; the current study found only one variable significantly impacted final GM dimension scores and that was the baseline scores. As stated earlier, this was the most consistent finding in males and females. Baseline GM dimension scores were included to address the longitudinal nature of the current research and to control for changes in scores over time. The available literature on longitudinal studies is still in the early stages, and in the need of additional attention, specifically for the GM dimension. This is one area the current study aimed to address by focusing on GM dimension stability.

The current study looked at gender differences in final GM dimension scores and stability. The results showed a significant difference in males' and females' scores, with males scoring on average an additional 2.46 points more than females. This was expected, as the current study hypothesized there would be differences in GM dimension scores between males and females. Available literature centering on the GM dimension states it is not as well researched, as easily observed, or as stable in youth as the CU dimension (Salekin, 2016). Additionally, available research on psychopathic stability reports overall consistency in the psychopathic dimensions; that is to say, individuals who report high scores in one dimension are more likely to report high scores in the other dimensions (Lee & Kim, 2021). The same is true of those who reported low scores in overall psychopathy or the three dimensions (Lee & Kim, 2021).

The current research results showed a significant difference in GM dimension stability between males and females. On average females reported an additional .051 points decrease in GM dimension scores than males. The GM dimension showed the smallest gender gap found in one of the three psychopathic dimensions in terms of stability. The current study took an exploratory approach to this research question but did expect to find gender differences. A recent study was conducted on adjudicated male adolescents and focused on stability in the three psychopathic dimensions. This study found the GM dimension had one less trajectory (low, moderate, and high) than the CU and IR dimensions (low, low-moderate, moderate, and high) and was the only one to have a decrease and increase in scores within the subgroups (Lee & Kim, 2021). This increase in variability was reportedly unique for the GM dimension and is said to

possibly play an important role in determining if future antisocial behavior can increase or decrease (Lee & Kim, 2021).

The findings for Research Question 3B showed several insignificant relationships. This is hypothesized to be due to the difficulties associated with the use of data on the adjudicated population. As such, the author was not able to have a full assessment of the relevancy of attachment theory. However, differences in gender-specific findings appear to be in line with gender schema, socialization, and gender role theories.

Summary: Research Question 3B

Findings for Research Question 3B indicated White male respondents reported higher final GM dimension scores than Non-White males. An increase in the presence of caring adults was unable to curtail GM dimension development in males. Gender-specific findings for males also showed an increase in baseline GM dimension scores increased final GM dimension scores. Similarly, females were shown to be significantly impacted by baseline GM dimension scores. However, this was the only significant finding for females. Males were shown to have higher GM dimension scores than females. Lastly, males and females both showed a decrease in GM dimension scores over a nine year period.

As stated, the current study hypothesized variables related to early trauma, such as exposure to violence and victimization would affect GM development. This hypothesis was not supported. The current study also hypothesized there would be changes in GM dimension stability in males and females. This hypothesis was supported, as males and females were shown to decrease in final GM dimension scores. The findings for Research

Question 3B are partially supported by the available literature. Findings for Research Question 3A do not appear to support attachment theory, but the author is unable to provide a full assessment of the relevancy of attachment theory in connection with psychopathy development due to the lack of significant findings. Regarding gender differences, the findings do appear to support gender schema, socialization, and gender role theories.

Findings: Research Question 3C

The current study found motivation to succeed had an impact on males' final IR dimension scores. The results revealed males who experienced higher levels of motivation to succeed experienced lower final IR dimension scores on average. Although this variable was significant in the stepwise regression and the full table, it was not significant in the reduced form table. This could indicate conceptual issues, the presence of indirect effects, or an omitted variable bias. Still, this finding was in line with the hypothesis, as high motivation to succeed was considered to be a protective factor. The available literature is limited, as the GM and IR dimension receives the least amount of empirical attention (Salekin, 2017). Additionally, motivation to succeed is not a variable often found in psychopathy research as the field tends to focus on other biological, psychological, and social influences. However, the author is aware of one study focusing on the effect of motivation to succeed, bonding with teachers, and perception of chances for success on future psychopathy development (Delgadillo, 2018). This study focused solely on males and found perception of changes for success was the only significant

moderating antecedent (Delgadillo, 2018). However, this study used a unitary measure of psychopathy and did not look at each of the psychopathic dimensions individually.

The current study showed an increase in baseline IR dimension scores resulted in an average increase in final IR dimension scores in males. Similarly, the results for females continued to show only one variable was significantly impacting final scores. It appears females who reported higher baseline IR dimension scores also reported an increase in final IR dimension scores. Longitudinal research on the psychopathic dimensions is still in the early stages, and in the need of additional attention, particularly for the IR dimension.

The current study looked at gender differences in IR dimension scores and stability. The results showed there is a significant difference between males and females IR dimension scores. Males were shown to have an additional 1.51 points than females in the IR dimension on average. The IR dimension appears to have the least amount of difference in scores according to gender, out of the three psychopathic dimensions. Findings for Research Question 3C were in line with the hypothesis, as it expected to find gender differences in IR dimension scores. However, the study took an exploratory approach to the depth of those differences in IR dimension stability.

Findings for Research Question 3C revealed males and females both showed a decrease in IR dimension scores in adolescence, but females had an additional .182 point decrease in final IR dimension scores on average. This is in line with the hypothesis, as the current research expected to find gender differences in the IR dimension but took an exploratory approach to the depth of the difference. A recent 2021 study focusing on the

stability of the three psychopathic dimensions reports this dimension has four trajectories (low, low-moderate, moderate, and high) accessing IR dimension stability (Lee & Kim, 2021). Additionally, the study notes this dimension is very similar to the construct of low self-control studied in criminology (Lee & Kim, 2021). However, this study focused solely on adjudicated adolescent males. Less empirical attention has been given to psychopathic stability (as a whole, and for each dimension) when it comes to females.

The findings for Research Question 3C showed several insignificant relationships, which could be attributed to the difficulties connected with the use of data on the adjudicated youth. Due to the lack of significant relationships, the author was not able to have a full assessment of the relevancy of attachment theory in IR dimension development. However, differences in gender-specific findings appear to be in line with gender schema, socialization, and gender role theories, and support the use of said theories in this line of research.

Summary: Research Question 3C

Findings for Research Question 3C showed White males reported higher final IR dimension scores than Non-White males. An increase in the motivation to succeed resulted in a decrease in final IR dimension scores in males. An increase in baseline IR dimension scores in males increased final IR dimension scores in males. Females were shown to only be significantly impacted by one variable. Gender-specific findings for females indicated an increase in baseline IR dimension scores increased final IR dimension scores. Additionally, males were shown to have higher IR dimension scores

than females. Males and females showed a decrease in IR dimension scores throughout the study, though females showed a steeper decrease.

As stated earlier, the current study hypothesized motivation to succeed, and IQ would be significant antecedents to IR dimension development. This hypothesis was partially supported, as IQ was not significant, but motivation to succeed was found to be significant for males. The current study hypothesized there would be a difference in IR dimension stability and took an exploratory approach to gender differences in this aspect. This hypothesis was supported, as there was a significant difference between male and female IR dimension scores and stability. The findings for Research Question 3C are partially supported by the available literature. Findings for Research Question 3C appear to support attachment theory as a possible reason for psychopathic development in males and females. Furthermore, gender-specific findings support gender schema, socialization, and gender role theories.

Policy Implications

The study of psychopathy has been historically approached from a psychological perspective but has recently begun to gain criminological attention. Researchers have gone as far as stating psychopathy is the unified theory of crime, contending it is the most considerable explanation for antisocial behavior and facilitates the study of antisociality across all life stages (DeLisi, 2009). This construct is essential to criminologists as psychopathic individuals are believed to account for a substantial amount of crime (Laurell & Dåderman, 2007), and respond poorly to available intervention methods (Salekin, Worley, et al., 2010). As such, the policy implications stemming from the study

on this topic may be significant. Three important policy implications of the current study include an increase in research focusing on developmental psychopathy, improvement of identification of at-risk youth, and the creation of individualized, evidence-based treatment.

The current study centered on developmental antecedents, gender differences in psychopathy, and the psychopathic dimensions. The results showed several variables may be impacting psychopathy development, and these variables are different for males and females. Although available literature supports parts of these findings, there is a lack of information on developmental antecedents in psychopathy, gender differences in psychopathy development, and understanding of female psychopathy. As such, the current study is a step in the right direction but needs further examination by employing evidence-based research. Empirical attention is needed particularly on identifying developmental antecedents at a much younger age. The current study found many insignificant relationships. This could be due to many of the youth after they had already scored high on psychopathy and being adjudicated.

An increase in developmental research will help aid in the early identification of at-risk youth. Although a portion of individuals with psychopathy are believed to be born with traits that lead to the disorder, a greater number are believed to develop psychopathy as a response to trauma. This is an important distinction as individuals who develop psychopathy in response to trauma are more likely to experience anxiety (Karpman, 1941, 1948; Flexon & Encalada, 2020). The addition of anxiety has been shown to indicate an increase in violent and problematic behavior (Skeem et al., 2011). Individuals

who work in close proximity to children, such as practitioners, doctors, teachers, guidance counselors, therapists, and court workers in the dependency and juvenile system should receive training on the developmental antecedents and early warning signs of psychopathic trait development. These trainings should include information on the differences in psychopathic development and manifestation for males and females, as well as the differences between psychopathic traits and normative development. These trainings will hopefully better inform early identification and allow for appropriate intervention.

Once at-risk youth have been identified, intervention methods should be tailored to each youth and the psychopathic traits they are manifesting. This can be done through therapeutic involvement, with a professional who specializes in developmental disorders. Current interventions for psychopathic people have been shown to be largely unsuccessful (Salekin, Worley, et al., 2010), because they are designed for the average criminal and not specifically designed for psychopathic individuals (Hare, 2006). Intervention attempts for psychopathic individuals include individual and group verbal therapy (Skeem et al., 2002), residential therapeutic communities (Van Stelle et al., 2004), and treatment intensive supervision (Morrissey et al., 2007). These intervention methods have shown low to moderate success (Salekin, Worley, et al., 2010). Some research has found scope, intensity, and duration of treatment to be very important in successful intervention, and indicates a mix of individual therapy, group therapy, and treatment of the psychopathic individual's family may lead to an increase in intervention success (Salekin, 2019).

Future intervention methods are advised to be built upon theory and additional research on the scope of psychopathic emotions (Salekin, Worley, et al., 2010). The current study recommends intervention methods start early and includes a mix of approaches including individual therapy, group therapy, and familial involvement. The current research indicates intervention methods should be tailored specifically to males and females, as they are impacted by different antecedents. Additionally, normal adolescent development should be taken into consideration, as normative adolescent traits can show an overlap with psychopathic development. Lastly, intervention methods and later assessment of said methods should keep in mind that males and females appear to have a decrease in psychopathic scores, with females showing a steeper decline in all aspects. These methods may be helpful for psychopathic individuals, depending on the strength of their traits. As stated, psychopathic traits are believed to fall on a spectrum (Murrie et al., 2007). Additional research is necessary into intervention methods and the effect they have on psychopathic individuals in the different developmental pathways (low, low-moderate, moderate, and high).

Another important point to consider is intervention assessment. The field appears to be split into three groups when it comes to opinions of intervention methods: 1) that they will have no effect, 2) the condition will worsen (Harris & Rice, 2006), 3) the condition might improve (Skeem et al., 2002). One of the most important parts of assessing in the success of the intervention method comes down to the goals set, and how success is measured. In this regard, some believe recidivism is the most important indicator of success (Harris & Rice, 2006), while others rely on psychopathy measurement tool scores below the cutoff (Morrissey et al., 2007), or a decrease in

violent behaviors (Salekin, Worley, et al., 2010). This author recommends that intervention methods be considered successful when the psychopathic individual is no longer engaging in criminality, violence, or harmful behavior toward themselves and others.

When it comes to professionals engaging with psychopathic individuals in the dependency and delinquency system, the current study offers few recommendations. As stated earlier, the number of caring adults was not significant for females, and though significant for males, it did not curtail psychopathic development in males. The author posits this is due to the lack of a bond between youth and the adult in question. In cases where court intervention or monitoring is in place, it might be favorable to have consistency in providers outside of case workers, as that field has been shown to have high turnover rates (Kim & Stoner, 2008). Possible alternatives might include therapists, mentors, or Guardian ad Litems. The emphasis on consistency could facilitate the development of a bond that could act as a protective factor, instead of overwhelming the youth with additional providers. This intervention method would also need to happen during a developmental period where the youth is more open to change.

Another important aspect of training in the court systems is the de-stigmatization of individuals with psychopathic traits, especially youth. It is important to remember that normal adolescence overlaps with some psychopathic traits, such as impulsivity and narcissism (Flexon & Meldrum, 2013; Salekin et al., 2008). The labeling of youth could result in harsher punishment, lack of access to possible rehabilitative opportunities, and a host of other problematic outcomes, which could cause more harm than good. Especially

as the current research found males and females reported a decrease in each of the psychopathic dimensions, as well as the total psychopathy score. This shows there is variability in psychopathy stability and that with the appropriate intervention method, at-risk youth can see a decrease in psychopathic traits, especially those who develop them as a response to environmental factors.

Limitations

The current study included several limitations. The first consisted of the difficulties associated with the Pathway to Desistance data (PTD). As stated in Chapter 3, the PTD study started data collection in 2000 and included information on 1,354 adjudicated youths between 14 and 17 years old (Mulvey et al., 2014). These youths committed largely felony-level offenses, with some committing serious misdemeanors in Maricopa and Philadelphia County (Mulvey et al., 2014). This dataset includes an oversampling of felony offenders and excluded those with property offenses, weapon offenses, and those who commit sexual assault (Mulvey et al., 2014). As such, the generalizability of findings is limited to the sample population.

Another limitation was the use of various measures which relied on self-report data (Mulvey et al., 2014). Several limitations may be attributed to self-reported data, and the responses may be affected by an individual's ability to answer honestly, especially as they are undergoing court supervision, and the participant's introspective ability to accurately assess themselves. However, the PTD data combats these limitations by using additional information gained from collateral reports, FBI records, and court records.

Another limitation surrounds the encountered gender disparity. The current study attempted to research gender differences in psychopathy development but struggled with a large gap in the number of male and female participants as the sample population was made up of mostly males (80%) (Mulvey et al., 2014). This issue is common in the limited research focusing on female psychopaths because of the difficulty in finding large female samples. This issue may be attributed to several challenges in the field, including the ongoing disagreement on the role criminality and anti-social behavior play in psychopathy (Coid & Ullrich, 2010), a possible gender bias in the diagnostic criteria of psychopathy (Forouzan & Cooke, 2005), or the lack of information regarding the dark figure of psychopathy (Flexon, 2018).

Yet another limitation of the current study surrounds the field's lack of consensus regarding nearly all aspects of psychopathy. The available literature is contradicting in terms of the genetic component of psychopathy development, the conceptualization of the disorder, measurement tools, and lack of research on key aspects. These issues create difficulties, as there is no clear groundwork upon which to build. Much of psychopathy research appears to be atheoretical and so the current research attempts to take an exploratory approach to find which antecedents impact psychopathy development. The research method used consisted of stepwise regressions, full multiple regressions, and *t*-tests. Although the research methods met all necessary assumptions, a few limitations exist.

First, the stepwise regression may face problems when not all of the available predictors have been identified, resulting in an underspecified model. The current study

attempted to guard against this by providing a full regression, however, one is unable to draw inferences regarding causation based on the regression analysis (Farina et al., 2018). Consistency of findings among the methods used provided confidence in the results and indicated the robustness of the findings. However, motivation to succeed appeared to come in and out of significance, mainly in the supplemental tables.

Although the current study faced several limitations, the researcher hopes the results help provide clarify the relationship between developmental antecedents, gender differences in psychopathy development, and stability. The reported results may still be useful to scholars, clinicians, and policymakers. The next session details possible directions for future research.

Future Research

The current study acts as a starting point for future studies looking to focus on psychopathic development as a whole, the psychopathic dimensions, and gender differences. In many ways, this topic is still in its infancy and provides several opportunities for future research. This is particularly true when it comes to the role gender plays in psychopathy development. Though the current research used a variety of variables to study developmental antecedents, several insignificant relationships emerged. This might be due to the use of data focusing on adjudicated youth and the effect those interventions had on the respondents. Research on developmental psychopathy is very important and should focus on possible risk factors, protective factors, gender differences, and gender-specific psychopathic expression. Ideally, this research should be longitudinal and conducted on non-institutionalized individuals. Additionally, future

research should focus study on a younger sample, to better understand psychopathy development and how it differs from normative development.

Interestingly, the current study found race and ethnicity consistently appeared to be significant in the analyses. However, additional research is needed into the relationship between race, ethnicity, and psychopathy to better understand cultural factors affecting psychopathy development. In this regard, caution is advised when blending race and ethnicity into a single variable. As stated earlier, the concepts are not interchangeable, and merging them may cause a misunderstanding of their true role and impact on psychopathy development. Additionally, it is also important to use measurement tools properly validated for all races and ethnicities, to be able to trust the results.

The motivation to succeed variable vacillated in and out of significance in the current study. Future research should include variables targeting motivation to succeed to better understand the role it plays in psychopathy development or expression. This may be particularly important for research focusing on primary and secondary psychopathy. The current study found one article on this topic specifically. This research indicated motivation to succeed did not appear to be significant, but found perception of chances for success was significant (Delgadillo, 2018). Given this 2018 study, and present findings, additional information in this area should be replicated and developed.

Future research should include a heavier focus on the three psychopathic dimensions, especially the GM and IR dimension, as opposed to solely focusing on the CU dimension. This research should focus on the developmental antecedents and gender

differences in each of the dimensions. Additionally, the study of psychopathy stability is much needed to identify what developmental periods are most likely to lead to successful intervention. In the same vein, research on possible intervention methods is necessary. Research on developmental antecedents and early identification of at-risk youth is pointless if better intervention methods are not identified.

Given all the contradicting information and debate in the field, research opportunities in psychopathy are broad. To move forward, the field needs to come together on conceptualizations and the core features of psychopathy. Future research would do well to include longitudinal data, a noninstitutionalized population, larger female samples, and measurement tools without a heavy focus on behavior or criminal background.

Conclusions

The current study examined psychopathy predictors in males and females, while also focusing on the psychopathic dimensions and stability in males and females. This was done through the use of three research questions. The research findings show a select few variables appear repeatedly through the three research questions: race, gender, presence of caring adults, motivation to succeed, and baseline psychopathy. Findings show these variables are more impactful in the male sample. Unfortunately, the only consistent factor affecting final psychopathy scores in females was baseline psychopathy scores. Lastly, the current study found that males and females decrease in final psychopathy scores and scores on each of the psychopathic dimensions. Although males

and females showed a decrease, females had a higher drop in scores for each of the analyses performed.

The available literature on psychopathy is confounding at best. This is particularly true of research focusing on gender, developmental pathways, psychopathic dimensions, and stability. The author hopes the current study aids in clarifying some of the uncertainty in the field by uniting possible developmental antecedents into one study and bringing in areas in need of attention. Though the current study helps fill the literature gap, much more research is needed in this area. Especially through the use of appropriate psychopathy measures, data surrounding noninstitutionalized populations, and longitudinal data. The findings reported in the current study are important, particularly to researchers, clinicians, and policymakers. These findings show the importance of evidence-based research to help identity at risk-youth toward appropriate intervention methods and, hopefully, successful responses to treatment during early developmental stages when individuals are more malleable to change.

Appendix Table A.

Variable	Question	Measure	Response Scale	Coding used in the current study
Gender	Subject Gender	PTD (Mulvey et al., 2014)	1- Male 2- Female	1- Male 2- Female
Age	Subject Age as of the interview date - Turnicated	PTD (Mulvey et al., 2014)	14 - 20	14 - 20
Ethnicity	Subject ethnicity - Recoded	PTD (Mulvey et al., 2014)	1- White 2- Black 3- Hispanic 4- Other	1- White 2- Black 3- Hispanic 4- Other
Caring Adult	Count of unique adults mentioned based on the name of the adult	Caring Adult Inventory (Boulder, 1990; Nakkula et al., 1990; Phillips)	0 – 7	0 – 7
Maternal Warmth	Mean of 9 items assessing maternal warmth	Quality of Parental Relationship Inventory (Conger et al., 1994)	1- Always 2- Often 3- Sometimes 4- Never	1- Never 2- Sometimes 3- Often 4- Always
Prosocial Peer Relationships	Count of 4 closest friends ever arrested	PTD (Mulvey et al., 2014)	0 friends arrested 1 friend arrested 2 friends arrested 3 friends arrested 4 friends arrested	1- 4 friends arrested 2- 3 friends arrested 3- 2 friends arrested 4- 1 friend arrested 5- no friends arrested
Friendship Quality	Mean of 10 items	Friendship Quality Scale (Pierce, 1994)	1 Not at all 2 A little 3 Quite a bit 4 Very much	1 Not at all 2 A little 3 Quite a bit 4 Very much
Exposure to Violence	Witness Subscale (7 item count)	ETV (Selner-O'Hagan et al., 1998)	0 - 6	0 - 6
Victimization	Victim Subscale (6 item count)	ETV (Selner-O'Hagan et al., 1998)	0 - 4	0 - 4
Religion	I experience a close personal relationship to God	The Importance of Spirituality Measure (Maton, 1989)	1- Not at all true 2- Not very true 3- Somewhat true 4- Pretty true 5- Completely true	1- Not at all true 2- Not very true 3- Somewhat true 4- Pretty true 5- Completely true
Motivation to Succeed	Mean score computed from 6 items	Motivation to succeed (Eccles et al., 1998)	1- Strongly disagree 2- Disagree	1- Strongly disagree 2- Disagree

			3- Neither agree nor disagree 4- Agree 5- Strongly Agree	3- Neither agree nor disagree 4- Agree 5- Strongly Agree
IQ	Full Scale IQ	WASI (Weschler, 1999)	55 to 128	55 to 128
Final psychopathy Score (Wave 11)	50 item sum score	YPI (Andershed et al., 2002)	55 - 106	55 - 106
GM Dimension (Wave 11)	Sum of 20 items in this dimension	YPI (Andershed et al., 2002)	20 - 70	20 - 70
CU Dimension (Wave 11)	Sum of 15 items in this dimension	YPI (Andershed et al., 2002)	15 - 53	15 - 53
IR Dimension (Wave 11)	Sum of 15 items in this dimension	YPI (Andershed et al., 2002)	15 – 60	15 - 60
Baseline Psychopathy Score	50 item sum score	YPI (Andershed et al., 2002)	42 - 105	42 - 105
Baseline GM Dimension	Sum of 20 items in this dimension	YPI (Andershed et al., 2002)	12 - 68	12 - 68
Baseline CU Dimension	Sum of 15 items in this dimension	YPI (Andershed et al., 2002)	7 - 58	7 - 58
Baseline IR Dimension	Sum of 15 items in this dimension	YPI (Andershed et al., 2002)	15 - 60	15 - 60
Interaction effects	A total of 12 interaction effects were created by multiplying gender by each of the IV.	Current Study		

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VITA

T. MICHELLE ENCALADA
Born, Guayaquil, Ecuador

2011-2013 Bachelor of Art
Sociology
Florida International University
Miami, FL

2013-2016 Master of Science
Criminal Justice
Florida International University
Miami, FL

2017-2022 Doctor of Philosophy
International Crime and Justice
Florida International University
Miami, FL

PUBLICATIONS

Encalada, T. M. (2021). Comparative Analysis of Empathy Traits Differences in Males and Females. *Abuse: An International Impact Journal*, *2*(1), 60-78.

Encalada, T. M. (2019). Co-Correctional Prisons. *The Encyclopedia of Women and Crime*, 1-2.

Encalada, T. M. (2017). Child Pornography. *The Encyclopedia of Juvenile Delinquency and Justice*, 1-3.

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