ADVERSE CHILDHOOD EXPERIENCES, COPING STYLE AND CRIMINAL THINKING: EVIDENCE FOR A MEDIATION RELATIONSHIP

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Abbreviations

ACE: Adverse Childhood Experiences

CSI: Coping Strategies Inventory

PICTS: Psychological Inventory of Criminal Thinking Styles

CFC: Consideration of Future Consequences

GCT: General Criminal Thinking

P: Proactive Criminal Thinking

R: Reactive Criminal Thinking

PFE: Problem focused engagement

EFE: Emotion focused engagement

PFD: Problem focused disengagement

EFD: Emotion focused disengagement

Abstract

The purpose of this study is to explore the relationship between adverse childhood events, coping strategies and pro-criminal thinking style among non-incarcerated males in New Zealand. Furthermore, it is to investigate whether these variables are related to the consideration of future consequences. Research conducted in the past has drawn mixed conclusions regarding whether the cycle of abuse is present. Some major issues between these studies are the different types of research designs, the definition of terms being used and most importantly, participant characteristics. This study seeks to explore this relationship through a mediation study. A total of 119 male participants from the general population in New Zealand completed an anonymous online questionnaire. Participants were recruited though various platforms, including Neighbourly; a website that allows the general public to post notices and ads online, social media and the University. The scales being used in this research are the ACE Scale, The CSI, The PICTS – Layperson Edition as well as The CFC scale. It was hypothesised that there would be a relationship between adverse childhood experiences, coping strategy and adult pro-criminal thinking and that coping strategies would mediate ACE and PICTS. Results confirmed a significant relationship between adverse childhood events, coping strategy and pro-criminal thinking styles among this sample. Using the Sobel test for mediation, the hypothesised mediation relationship between these variables was also confirmed. Multiple regression confirmed that ACE, CSI, and CFC significantly predicted pro-criminal thinking. Limitations to this study include a small sample size and the lack of variability in characteristics in that a large majority were students. Future studies should consider conducting a longitudinal study to gain more insight into the patterns involved in the cycle of abuse. Within this sample, the cycle of abuse appears present, however viewed alongside other studies, the conclusion is still mixed. More research is needed to further understand this cycle in order to break it.

Introduction

In New Zealand, a total of 29,961 children suffered either from physical, sexual or emotional abuse or neglect in between 2013 and 2014 (New Zealand Human Rights Commission, 2015). Abuse is defined as the act of treating other individuals with the intention to cause harm through violence or cruelty either repeatedly or regularly (abuse, n.d). This could either be sexual, physical, psychological or emotional abuse as well as neglect and witnessing abuse. On the other hand, abuse has also been defined as a pattern of behaviour that is used to gain and maintain control and power over someone (National Domestic Violence Hotline, 2016). These two different definitions alone could possibility recruit different samples for studies that are exploring similar ideas. However, with the different definitions, results could be dramatically different. Many studies have been conducted on the different types of abuse, whether it is sexual or physical abuse or a combination of the two. Although these studies have been published, their definitions of the types of abuse are inconsistent (Paolucci, Genuis, Violato, 2001); some studies look at physical abuse, some look at emotional, some look at a combination of abuses therefore leading to mixed findings. For example, Bagley, Wood and Young (1994) focused on history of sexual abuse; however they touched on history physical and emotional abuse also. In contrast, Coxe and Holmes (2002) only focused on sexual abuse history. Fagan (2005) focused only on adolescent physical abuse history and the cycle of abuse whereas Widom (1989) looked at both physical and sexual abuse.

A review of the literature will explore the long term effects of childhood abuse, different types of coping strategies and most importantly the cycle of abuse. The effects of abuse will be explored, along with the type of coping strategies individuals use. The cycle of abuse will be looked at closely as well as relevant theories that may explain this cycle. This review will also examine the consideration of future consequences among individuals. The

goal is to identify gaps in existing research and to make connections between these variables in the current research. The variables that will be considered are types of coping strategies and whether these could mediate adverse childhood events and criminal thinking. Following this view, individuals might lean towards a particular kind of coping strategy as a result of childhood abuse. These strategies might be maladaptive in terms of increasing the likelihood of antisocial cognitions.

Effects of abuse

The effects of abuse have been studied extensively, including whether it is experienced directly or indirectly, such as by witnessing. In a study conducted on a New Zealand birth cohort, looking at the effects of partner violence victimization and perpetration, results showed that some degree of partner violence occurs in approximately 70% of relationships (Fergusson, Boden & Horwood, 2008). The abuse ranged from minor psychological abuse to extreme cases of assault. The study also found that those who were exposed to the abuse during childhood were more likely to develop conduct problems. Alongside these adverse effects, exposure to abuse during childhood significantly predicted partner violence perpetration at the age of 25 (Fergusson, Boden, & Horwood, 2008). Effects of abuse have been found in children as young as two years old (DeJonghe, von Eye, Bogat, & Levendosky, 2011). DeJonghe and colleagues found that children who had witnessed domestic violence were more prone to display externalizing behaviours such as physical aggression and disobeying rules. A study conducted in Spain looked at children between four and seventeen who either witnessed, were involved or victims of partner violence (Bayarri, Ezpeleta, & Granero, 2011). Just as DeJonghe et al., (2011) had found, Bayarri et al., (2011) also found that those who had witnessed the abuse were more likely to develop externalizing behaviours and internalizing behaviours such as social withdrawal and depression. Witnessing violence and abuse at home also contributed significantly to intellectual

functioning, especially verbal abilities (Huth-Bocks, Levendosky, & Semel, 2001). As well as these negative impacts, children who witnessed violence at home were found to have significantly lower executive functioning, compared to children who had not at school entry age (Gustafsson, Coffman, & Cox, 2015). Executive functions are a set of cognitive processes that are required for cognitive controls; these include attention control, working memory, cognitive flexibility and problem solving. This set of cognitive processes is important as it helps with children's long-term success at school. Children that display low levels of executive functioning may demonstrate difficulties in school such as lower IQ and language competency (Gustafsson et al., 2015),

Coping strategy

Coping is the process whereby an individual changes cognitive and behavioural efforts in order to manage specific internal and/or external demands that exceeds the person's resources (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). There are three features of the coping process. The first is process oriented, this focuses on how the individual's actions and thought processes occur during the stressful encounter and how it changes as the stress unfolds. The second is that coping is influenced by the individual's assessment of the demands needed by the stressful encounter and the resources they have. Finally, coping is defined by how the stress is managed whether successful or not, no prior assumptions are made about what is defined as good or bad coping (Folkman et al., 1986).

There are two main functions of coping, emotion-focused coping and problem focused coping. Emotion focused coping involves regulating the emotions that are associated with the stressor, whereas problem focused coping involves changing the environment that is causing the stress. A study conducted in 1980 found that both emotion focused and problem focused coping were used by 98% of the sample (Folkman & Lazarus, 1980). The sample

consisted of 100 men and women aged 45 to 64. The individuals were interviewed monthly and completed self report questionnaires regarding stressful events experienced.

Feelgood, Cortoni and Thompson (2005) investigated sexual coping, general coping and cognitive distortions among incarcerated rapists and child molesters compared with violent offenders. The results indicated that for general coping, child molesters were more likely to adopt an emotional coping strategy than violent offenders. They found no differences between the three groups for task focused coping strategy and avoidance coping. In terms of sexual coping style, child molesters were significantly more likely to use sexual coping strategies than rapists and violent offenders. Endler and Parker (1999) and Holahan, Moos and Schaefer (1996) identified three different types of coping strategies; emotional oriented, task oriented and avoidance (as cited by Feelgood et al., 2005). They described that emotionally oriented individuals cope with problems by addressing the emotions that resulted from the problem. This often leads to poor psychological adjustment as well as poor health. Those who approached problems with task oriented strategies either solved the problem caused by the stressor directly, or by reframing the problem. Avoidance strategies occur when the individual distances themselves from the problem caused by the stressor. They could take part in other activities such watching TV or sometimes in more extreme cases, taking drugs (Feelgood, Cortoni, & Thompson, 2005). Results of this study suggested that child molesters tend to engage in emotional based coping strategies when involved with a stressful situation, and were also more likely to engage in sexual acts as a form of coping. This result suggests the possibility of the cycle of abuse, however the authors did not state whether these offenders had a history of abuse victimization.

Impulsivity as a predictor of antisocial behaviour

Impulsivity is a characteristic that involves the individual tending to behave with little or no thought are put into the action (dictionary.com, n.d.). These individuals tend to act on their immediate needs without thinking about the consequences of these actions (MedicineNet, n.d.). An individual's patterns of thinking, acting and feelings towards a situation are commonly referred to as their personality. A person's temperament is referred to as the stable and inherent characteristics they display when responding to their surrounding environment. There are many behaviours that make up an individual's temperament. Some individuals have the ability to adapt to their surroundings effortlessly, on the other hand, some cannot. An important aspect is learning experiences throughout individual's life time, these experiences help shape the individuals and how they respond to change in their environment (Andrews and Bonta, 2015).

Much research has been conducted in the area of temperament in the past, as cited by Andrews and Bonta (2015), the original study conducted by Thomas, Chess, Birch, Hertzig and Korn (1963) looks at 133 newborns and assessed on how they reacted to their environment based on nine different characteristics. From these, three different characteristics were formed; easy, warm, and difficult. These were then grouped into two categories; traits and facets. Traits describe an individual's overall temperament whereas facets are more specific. Following this, it has now been identified that different temperamental traits are related to antisocial behaviours, one of which is impulsivity. This specific trait has been defined as high stimulation seeking that is un-socialized. Individuals with this specific trait have often been linked to having antisocial behaviours. As cited by Andrews and Bonta (2015), Gottfredson and Hirchi's theory (1990) states that the lack of self control (i.e. impulsivity) is the general characteristic of criminality. Moffitt (2003) found that offenders

tend to score low on measures of constraint, which is made up of impulsiveness and the need for excitement (as cited by Andrews and Bonta, 2015).

A longitudinal study was conducted in 1994 that looked at the relationship between impulsivity and antisocial behaviour among adolescents (Luengo, Carrillo-de-la-Peña, Otero, & Romero, 1994). This study was a part of a larger longitudinal study that examined the risk factors of drug abuse and later delinquency which included personality. This study contained 1226 adolescent boys and girls between 12 and 18 years old. The authors of this study also specified a range of antisocial behaviours; vandalism, theft, aggression, rule breaking and drug abuse. Participants of this study completed a self report questionnaire. Lugengo et al., (1994) conducted correlational analysis to determine the relationship which confirmed the relationship between impulsivity and antisocial behaviour. Their results showed that impulsivity relates to different types of anti-social behaviour such that it has a stronger correlation with vandalism, aggression and rule breaking. The results also revealed that impulsivity is related to an increase in future antisocial behaviour and it is also a marker for antisocial behaviour at a given time.

Childhood Attention Deficit/Hyperactivity Disorder (ADHD) has been linked to adult criminality (Babinski, Hartsough, & Lambert, 1999). Research has shown that children with ADHD are more likely to be involved in criminal behaviours when compared with children who do not have behavioural disorders (Babinski et al., 1999). However, because the definition of ADHD has changed over time in the Diagnostic and Statistic Manual (DSM), it is difficult to make generalize its relationship with adult criminality. Babinski et al., (1999) conducted a study in which they looked at the relationship between childhood ADHD and adult criminality following the definition from DSM-IV. The longitudinal study followed 230 males and 75 females from on average nine years old until on average 26 years old at follow up. The participants' behaviours were rated by their parents and teachers during early

childhood. These ratings were then examined to determine the role conduct behaviour issues, hyperactivity-impulsivity and inattention have in adult criminality. Official arrest records and self reports were used to measure adult criminality during follow up. Babinski et al., (1999) found that hyperactivity-impulsivity as well as early conduct problems both predicted a higher chance of having an official arrest record for males. The result also indicated that conduct problems and hyperactivity-impulsivity were significant predictors for males who had reported ten or more official arrests. The results of this research found that hyperactivity-impulsivity and conduct problems were both significant at predicting adult criminality alone and in combination with each other (Babinski et al., 1999).

A recent review looked at the cognitive impulsivity and intelligence of 1517 men as predictors of the age-crime curve (Loeber et al., 2012). The age-crime curve assumes that criminal activity is most prevalent during adolescent period then decreases again as the individual enters adulthood (Hirschi and Gottfredson, 1983). This review summarizes the main findings from the Pittsburgh Youth Study. The aim of the review was first to summarize the findings, the second aim was to show whether impulsivity predicts later offending. Out of the 1517 participants in the original study, this review looked at a total of 422 boys whose IQ and cognitive impulsivity were assessed at the age of 12; the participants criminal records used were up to when they were 28 years old. The results from this review indicated that impulsivity and intelligence significantly predicted the age-crime curve. The review also indicated a significant interaction between impulsivity and intelligence. Result showed that those with higher IQ scores and impulsivity were more likely to offend during early adolescence, then a rapid decline as they enter early adulthood. However there is a slight increase in criminal offending occurring again in their late 20s. The results also showed that impulsivity did not independently influence criminal behaviour for individuals with low IQ at any developmental periods.

The cycle of abuse

The cycle of abuse is a theorised process which involves an individual who has experienced any form of abuse or trauma in the past, having an increased risk of becoming a perpetrator of abuse and trauma. There are many theories that act as a base for the cycle of abuse hypothesis; such as psychodynamic theory, social theory, cognitive behavioural theories and family and systems theories (Hyde-Nolan & Juliao, 2012). Psychodynamic theory focuses on an individual's psychological processes that allow them to accept aggressive and violent behaviours. Social theory focuses on how individuals inherit aggression, abusive and violent behaviours from family members. Cognitive behaviour theories focus on how aggression, abuse and violent behaviours are learnt from the family. Family systems theory looks at how the interaction between family members and family events affects each individual (Hyde-Nolan & Juliao, 2012).

One psychodynamic theory is objection relations theory. This theory states that during early childhood, individuals form mental representations for themselves, others and the relationship between themselves and others. These mental representations are carried throughout life and influence their relationships. Early life experiences with caregivers are vital for developing a stable and healthy mental representation of oneself and others as well as healthy emotions within relationships. The early stages of life are crucial for developing a healthy mental representation of self as well as learning to regulate emotions. Following this theory, individuals who had witnessed violence throughout their childhood may struggle to regulate their emotions as well as form healthy self-esteem due to the lack of nurturing early in life. As a result of this, as an act of desperation during adulthood to fulfil needs that were not meet during childhood such as emotion regulation, individuals may turn to violence. As cited by Hyde-Nolan and Juliao (2012), Dutton et al., (1996) found that individuals who were

perpetrators of partner violence during adulthood had experienced violence in their family during childhood and also experienced rejection from their caregivers.

One social theory is the exosystem factor theory, which focuses on stressful life events or experiences for an individual. According to this theory, stressful life events or experiences are a risk factor for violence. However, violence as a result of stress only occurs when there are other factors present, one of which is exposure to violence during childhood.

According to Hyde-Nolan et al., (2012), the leading cognitive behavioural theory is social learning theory. Following the Social Learning Theory proposed by Albert Bandura, learning occurs as a result of modelling behaviour (Bandura & Walters, 1977), as demonstrated by Bandura's well-known Bobo Doll experiment investigating whether behaviour could be learned though observation and modelling. In this experiment, children were placed in three different stages; stage one children either watched adult models act aggressively towards a toy doll called Bobo doll, or they were with adult models who were not aggressive, or the control group where they were not with any adult model. In the second stage, all children were taken separately into a room to play with toys and were exposed to mild aggression. In the final stage, children were taken into a room separately again and exposed to both aggressive and non-aggressive toys. The results indicated that children who were exposed to aggressive adult models were more likely to display aggressive behaviour during the third stage. Another example of modelling is corporal punishments, leading to both short and long term negative effects. Short term effects include antisocial behaviours and poor relationship with parents, long term behaviours include criminal behaviours, aggression, and abusive behaviours towards partners. As demonstrated by social learning theory, children who grew up around violent behaviours learn and imitate violent and aggressive behaviours and act them out later in life.

Family and systems theories place emphasis on the family system in order to explain individuals' behaviours within relationships, and societal systems (Hall, 1981). The family systems theory states that in order to understand an individual, they must be understood as a part of their family unit. Individuals cannot be understood as an isolated individual. The central idea behind this theory is that when one member is affected by an event, the entire family is also affected and what affects the family as a whole, each member of the family is also affected in some way (Hyde-Nolan et al., 2012). This theory serves as a skeleton for understanding basic characteristics of individuals' relationships and functions within their family and how their emotional and behavioural problems are passed onto the future. It appears that it may be an important characteristic to allow further understanding on how abuse and violence is passed onto the next generation.

The cycle of abuse hypothesis states that when abuse is experienced early in life by any perpetrator, it will lead to perpetration of the same abuse later on in life (Gómez, 2010). This cycle is generally passed down to children from their parent, caregiver or any adult who has authority over them. Individuals that had experienced abuse during their childhood tend to feel rejected by non-deviant peer groups and will seek friendship with deviant peers (Feiring & Furman, 2000) leading to the possibility of an abusive cycle occurring.

The cycle of abuse is a topic that has been studied for many years. However, the evidence for the cycle of abuse is mixed. Twenty-three retrospective studies on the cycle of sexual abuse were reviewed in 1996, with the authors finding that between 0% and 79% of sex offenders reported being sexually abused during their childhood (Rezmovic et al., 1996). This large variation highlights the inconsistency between research methodology and definitions of abuse. According to Rezmovic et al., child sex offenders were likely to have been sexually abused during their childhood compared to non-offenders. However, they also stated that when compared with other sex offenders such as rapists and other non-sexual

offenders, child sex offenders were not more likely to have experienced sex abuse during their childhood. The authors identified limitations of the research they had reviewed; the major limitation was that most studies focused on sex offenders that have been incarcerated or have received treatments therefore these offenders are not a true representation of all child sex offenders. Another limitation is that responses from the sex offenders studied are all obtained through self reports. According to Rezmovic et al., offenders attempt to gain sympathy or create excuses for their offending though over reporting their abuse history. The major limitation identified is that a retrospective design cannot reveal whether individuals who were sexually abused during their childhood will become sex abusers as adults. In order to determine the likelihood of childhood sexual abuse victims of becoming sex offenders they would need to be followed for a period of time.

The same authors also reviewed two prospective studies better suited to exploring the cycle of abuse (Widom, 1995; Williams, Siegel, Banyard, Jasinski & Gartner, 1995). These two studies identified known children that were victims of sex abuse into early adulthood. One study in particular followed 147 boys under 14 years old who were admitted into the emergency room as a result of sex abuse between 1971 and 1975. According to Rezmovic et al., (1996) a control group was also matched to the sexually abused boys by race and age who were also in the emergency room at the same time for non-sexual abuse related issues. The official police records were collected for the sample between 1992 and 1994. Fifty sexual abuse victims and 56 control group participants were interviewed. The authors of the study found minor differences between the victim and control group: 40% of the control group interviewed indicated that had been sexually abused and 55% of the victim group interviewed did not report to have been sexually abused. Between seven and 26% of the sex offenders had been sexually abused. The author of the study found no significant differences between the victim and control group of becoming a sex offender. However, Rezmovic et al., (1996)

noted that the finding should be interpreted with caution as non-significant findings may at times be a result of small sample size instead of a true no relationship finding.

Rezmovic et al., (1996) stated that although a prospective design allows a better understanding of whether a sexually abused individual is likely to become an abuser, there are still limitations. Matching control group participants to victim group can be difficult as it is hard to determine whether individuals had actually been abused in the past as it relies on self report. They also noted that there should be more than one method of measuring offending as individuals may report offences but it may not be a recorded offence.

Rezmovic et al., (1996) concluded in their review that childhood sexual abuse was not sufficient to explain offending during adulthood due to the methodology differences between studies that resulted in different conclusions.

The majority of the research that has looked at the cycle of abuse has been conducted on sex offenders who had experienced sexual abuse during their childhood. In one study examining the relationship between childhood abuse and neglect and adult behaviour, it was expected that there would be a significant relationship between victimization during childhood and later criminality as well as arrests of violent offences in adulthood (Widom, 1989). The abused and neglected group were matched to a control group on age, sex, race, and socioeconomic background. The result of the prospective cohort study (Widom, 1989) indicated that individuals who were abused and neglected during their childhood had a much higher rate for criminality and violent offences during adulthood. Compared with the control group (21.1%), Widom found that 28.8% of those who were abused and neglected went on to have criminal records during adulthood.

In another study, Groff and Hubble (1984) studied the relationship between father-daughter and stepfather-stepdaughter incest and briefly touched on the subject of the cycle of

abuse. Of the 42 offender cases they studied, only two offenders had been sexually abused as a child (Groff & Hubble, 1984). This finding highlights the inconsistent support for the cycle of abuse, much like Widom's study in 1989 where only 28.8% of the abused and neglected individual went on to have criminal records.

Dhawan and Marshall looked at the sexual abuse histories of 45 sex offenders and 20 non sex-offenders in 1996. This study involved an interview as well as a questionnaire regarding participants' history of abuse and family backgrounds. 58% of sex offenders in this study had been sexually abused during their childhood while only four of the non-sex offenders (i.e., 20%) were sexually abused as a child (Dhawan & Marshall, 1996). The authors' analysis indicated that being a victim of childhood sexual abuse was a significant predictor of being a sexual offender in adulthood.

In 1995, Widom looked at childhood sexual abuse victims and the consequences of being a victim. This research looked more specifically at whether sexual abuse victims were more likely to commit crimes compared to other abuse victims. This research also looked at whether being sexually abused as a child would lead to being involved in sex crimes such as prostitution in adulthood. The results revealed that those who were sexually abused were more likely to be arrested for crimes during adulthood compared to those who suffered no abuse at all. Abused and sexually abused individuals were just as likely to be arrested compared to individuals who had not suffered from abuse (Widom, 1995). Although most of the childhood sexual abuse victims in the study were not arrested for sex and other crimes, they were more likely to have been arrested for prostitution compared to victims of childhood physical abuse and neglect (Widom, 1995).

In 2001, 843 individuals (747 males, 96 females) from a psychotherapy out-patient centre for sexual deviants and offenders were examined (Glasser et al., 2001). These

individuals were referred to the center by medical services, psychotherapists, psychologists, social services, probation services, solicitors, other professional agencies as well as family or self referrals. 27% were child sex offenders. Of these, 35% of males had been victims of sexual abuse in the past and 43% of females were victims of abuse during their childhood. Looking at the relationship between being a victim and perpetrator, Glasser et al. (2001) found that being a perpetrator was positively correlated with being a child sexual abuse victim. They also found that 35% of the male sample reported as being perpetrators also reported being victims, 11% of non-perpetrators were reported as being victims, and only one female victim out of the 43% reported being a perpetrator. The results of this study provide evidence that the cycle of abuse among sex offenders is present among male perpetrators but not the females in this study.

Further evidence of this cycle was provided in 2002 from a study involving child molesters (Coxe & Holmes, 2002). The purpose of the study was to investigate the presence the cycle of abuse. A total of 147 sex offenders were examined, and of those, 32 reported being sexually abused during childhood. The 32 offenders had adolescent aged victims as well as victims under 10 years old. The other 115 offenders who did not report being a victim of childhood sexual abuse, 35 of them had child victims under the age of 10. The result indicated that those who were abused were more likely to have child victims (59% child victims) compared to those who had not been abused in the past (30% child victims). This finding provides further evidence in favour of the cycle of abuse.

A meta-analysis was conducted that looked at child sex offenders, adult sex offenders and non sex offenders (Jespersen, Lalumière, & Seto, 2009). They tested whether the sexually abused-sexual perpetrator hypothesis was validated or not. According to this view, those with a history of sexual abuse victimization were significantly more likely to engage in sexual offending later in life. This hypothesis is in line with the cycle of abuse

hypothesis – those who are abuse victims will be more likely to become perpetrators. Comparing sex offenders with non-sex offenders, the authors reviewed 17 studies and found that sex offenders were significantly different to non-sex offenders on sexual abuse history but not on physical or emotional abuse and neglect. The authors also found that sex offenders against children were significantly more likely to have reported a history of childhood sexual abuse victimization than sex offenders against adults. However, sex offenders against adults were more likely to report a history of physical abuse victimization. The result of the meta-analysis therefore supported the hypothesis, with higher levels of sexual abuse history being found among sex offenders compared to non sex offenders. This provided support for the presence of the cycle of abuse among sex offenders is. However, those who were abused were just as likely to become sex offenders which further supports the cycle of abuse.

In a longitudinal study, 224 male victims of child sexual abuse were examined and 26 (11.6%) of them became abusers and committed sexual abuse with children (Salter et al., 2003). As well as being victims of sexual abuse during their childhood, Salter et al., (2003) identified significant risk factors that also contributed to the victim-abuse cycle that contributes to later offending. These included neglect, lack of supervision and violence within the family. Although their results indicated that the majority of male sex abuse victims do not go to become abusers, they have identified a set of risk factors that contribute to the risk of being a perpetrator later on in life. As well as the risk factors listed above, victims who go on to become abusers were more likely to have experienced beatings so severe that marks were left on the head, or had been victims to attempted choking or smothering as well as receiving second degree burns. They were also more likely to have been physically neglected as well as sexually abused.

Regarding the long term consequences of physical abuse during childhood, Malinosky-Rummell and Hansen (1993), indicated in their review that males who were

physically abused as a child were more likely to display more violent acts when compared to non-abused males. This review looked at many long term consequences of physical abuse, including non-violent criminal behaviour, substance abuse, emotional problems and interpersonal problems. The results revealed a relationship between physical abuse history and violence within and outside of the family. In terms of non-violent criminal behaviours, they found that individuals with a history of physical abuse were more likely to engage in externalizing behaviours. Malinosky-Rummell et al., (1993) also found that individuals with histories of physical abuse were more likely to engage in substance abuse compared to those with no physical abuse history. These individuals were also more likely to have emotional problems such as anxiety and depression as well as psychosis. They also reported that 30% of those who were abused or neglected during their childhood subsequently abuse their own children.

While the majority of the research reviewed has looked at either physical or sexual abuse, emotional abuse has also been explored, however little is known. College students were examined regarding their sexual, physical and emotional abuse during their childhood and later victimization and perpetration during late adolescence (Zurbriggen, Gobin, & Freyd, 2010). Their result indicated that experiencing emotional abuse during childhood for men and women was positively correlated with sexual aggression victimization and perpetration during adolescence. When controlling for both physical and sexual abuse that occurred in the participants' childhood, emotional abuse that occurred during their childhood was revealed to be the strongest predictor for sexual perpetration during the adolescent period for women and the strongest for male adolescent sexual victimization (Zurbriggen, Gobin, & Freyd, 2010).

The majority of the studies reviewed place emphasis on sexual abuse and its long term effects (Dhawan & Marshall, 1996; Groff & Hubble, 1984; Widom, 1989). The cycle of abuse has therefore mostly been examined among sex offenders. Due to this, little is known

about the cycle of abuse among other type of offenders. According to the cycle of abuse hypothesis, it is expected that there should be a large percentage of offenders who are perpetrators of the type of crime they were a victim to. However, as shown in the literature mentioned above, only a small amount of sex offenders were sexual abuse victims themselves (e.g., Rezmovic et al. (1996) found that between seven and 26% of the sample in their review became sexual perpetrators). According to the hypothesis, a large percentage of abuse victims should go on to become perpetrators. However, Salter et al., (2003) concluded that the majority of their sample did not go on to commit the type of crimes they were a victim of. On the other hand, results from a study in 2012 indicated that 60.6% of childhood sexual abuse victims had contact with the police compared to 52.3% in the control group (Ogloff, Cutajar, Mann, & Mullen, 2012). However, 23.6% of childhood sexual abuse victims had a general criminal history, compared to 5.9% in the control group who were matched to the victims based on age and gender. Those who experienced childhood sexual abuse were also more likely to have had violent offence charges as well as theft and bad public behaviour (Ogloff et al., 2012).

Following the psychodynamic theory, social learning theory and cognitive behaviour theory mentioned above the cycle of abuse hypothesis should be supported, not mixed. The psychodynamic theory states that aggressive and violent behaviour are accepted by the individual. Social theory states that aggressive behaviour is inherited through members of the family and cognitive behaviour theory states that these behaviours are learnt though modelling. These theories all suggest that aggressive and violent behaviour should occur in a cycle as these behaviours are present in an individual's life the moment they witness violence and learn these behaviour though modelling. This suggests that there may be other factors that are not explained by the theories. There are a large amount of individuals who were

victims and never become perpetrators. There are also offenders who were never victims of the crimes they commit.

One area that has seemly been neglected by previous research exploring the cycle of abuse has been coping styles of offenders and how this could relate to the cycle of abuse. Exploring the effects of coping styles on the cycle of abuse would be worthwhile. According to object relations theory, looking at coping styles may assist in understanding how individuals use coping strategies to regulate their emotions. Relatedly, the exosystem factor theory identifies the role of stress and past abuse in predicting later abusive acts. Exploring coping strategies for stressful situations would help understand how stress is linked to the cycle of abuse. Social learning theory states that behaviour is learnt through modelling, therefore if an individual is presented with a stressful situation, they could turn to aggressive or violent behaviour to cope with the stress.

One study (Cortoni & Marshall, 2001) looked specifically at coping strategies among incarcerated adult offenders. The main goal of the research was to determine whether sexual activity was used as a type of coping mechanism for sex offenders when they are faced with a stressful situation. Participants of this research included rapists, child molesters and violent non-sexual offenders. The results indicated that rapists and child molesters used sexual coping strategies significantly more than violent non-sexual offenders (Cortoni & Marshall, 2001). Cortoni and Marshall also demonstrated that rapists and child molesters had an increased number of sadomasochistic themes of sexual fantasies than violent offenders. Within the same research, the authors replicated the study on a different sample. These results also indicated that rapists and child molesters were more likely to use sex as a coping strategy compared to violent offenders and the general offenders. Although it is clear that all participants in this study used sex as a form of coping strategy, the only difference is that sex offenders uses this strategy extensively.

A similar study looked at the relationship between personality style, parenting styles and coping strategy between juvenile sex offenders, juvenile non-sex offender and juvenile non offenders to understand their motivation behind their offending (Margari et al., 2015). Participants completed questionnaires regarding their crimes and personality traits as well as their relationship with their parents and coping styles. Results indicated that juvenile sex offenders were more likely to be from single parent families and to have failed academically, as well as having sexual intercourse more often. Compared to the control group (juvenile non offenders), juvenile sex offenders and juvenile non-sex offenders were also more likely to use coping strategies that were avoidant- and distraction-based when encountered with a stressful situation.

Current research

Research conducted by Cortoni et al., 2001 indicated that sex offenders use sex as a coping strategy when confronted with stress. Margari et al., 2015 found that juvenile sex offenders were more likely to use avoidant coping strategies when faced with a stressful situation. Although they did not look at the cycle of abuse, both studies revealed that incarcerated offenders tend to adopt a coping strategy that does not directly solve the stressor. Assuming many of their samples may have been victims of abuse of some sort during their childhood, following the social learning theory and exosystem factor theory adopting a coping strategy that does not solve the stressor may have lead to their incarceration. Based on victimization studies such as Widom (1989) and Dhawan et al., (1996), examining whether coping strategies may have an influence on the cycle of abuse may find evidence for the cycle of abuse hypothesis. Following the theories and victimization studies mentioned previously, adaptive or helpful coping strategies may disrupt the cycle of abuse by acting as a mediator between the effects of abuse and later perpetration.

Due to the fact that the studies reviewed above have only examined incarcerated offenders with the emphasis placed on sex offenders and sex abuse, this current research did not limit itself to any specific type of abuse and participants are from the general population. By not limiting to any specific type of abuse, it allows for a wider variety of childhood adverse event to be studied which allows for wider and more general understanding of the cycle of abuse. Having participants from the general population means that the cycle of abuse is examined among general cases instead of the more extreme cases that has led to a conviction. Looking at the cycle of abuse within the general population with no specific types of abuse may allow for a wider pattern to be identified and analysed to prevent extreme cases from occurring.

To test for the cycle of abuse in a non-incarcerated population, participants' presence of antisocial thinking styles will be examined as opposed to officially sanctioned criminal behaviour (as it is expected that will be rare among the sample). Research conducted in the past has led to the idea of examining whether abuse victims are more inclined to use coping strategies that may promote pro-criminal thinking and behaviour that may result in violence and therefore in an abuse cycle. Also, whether the use of more adaptive or helpful coping strategies among individuals with abuse histories, may be a mediating factor, disrupting the cycle of abuse.

This research project therefore seeks to determine whether coping strategies mediate the link between childhood abuse history and adult criminality. Based on past research, it is hypothesised that individuals who have been victims of abuse as children will be more likely to engage in coping strategies that will not directly solve stress provoking problems encountered. Instead, they will avoid the problem altogether, leading to a potential cycle of abuse evidenced by pro-criminal thinking styles. It is also hypothesised that coping strategies

involving disengagement will have a mediating effect on the relationship between childhood abuse history and pro criminal thinking.

Furthermore, this research also seeks to explore the relationship between childhood abuse history, coping strategy, adult criminal thinking and impulsivity by looking at the consideration of future consequences. This relationship will be examined to see whether consideration of future consequences will have an effect on coping strategy and adult criminal thinking. It is hypothesised that those who adopt coping strategies that avoid the problem will not consider the consequences of their actions, therefore relating to pro criminal thinking.

Methods

Participants

Participants were from the general male population. They were recruited through a number of ways including websites such as findparticipants.com, neighbourly.co.nz, notice boards at supermarkets and other shops around Christchurch New Zealand, social media such as Facebook, and undergraduate University of Canterbury students via email. Participants who responded to notice board advertisings were emailed the briefing sheet which contained a link to the anonymous questionnaire.

A total of 190 participants were recruited, of these, 119 were included in the final analysis as the others did not complete the survey. Participants that completed up to the PICTS scale were included in the final analysis even if they had not completed CFC.

Scales

Adverse Childhood Experiences (ACE): To measure victimization during the participant's childhood, the **Adverse Childhood Experiences scale (ACE)** was chosen (Felitti et al., 1998). The ACE scale was developed from the adverse childhood experiences study. This study is the largest study in this area to have been conducted over the period of a decade with 17,000 participants involved to examine the short and long term impacts of childhood trauma. The purpose of the study was to investigate the possible health and social effects these experiences will have over the individual's life. This scale was chosen as the ACE study had identified a relationship between childhood trauma and multiple negative consequences in the future such as health issues, social problems as well as diseases and disabilities in adulthood. It was also chosen as it is used as a retrospective scale for past adverse events experienced, as cited by Murphy, Steele, Dube, Bate, Meissner & Steele (2014), Dube et al., 2003 reported good to excellent test-retest reliability. Not only does the ACE assess abuse and trauma during the first 18 years of the individual's life, it also assesses non-traumatic stresses such as divorce. There are ten questions in this scale; each question is answered with either a yes or no. The scale is designed for individuals 18 years or older which is suitable for the targeted participants of this study. Scores of four or higher are typically considered as high exposure to adverse events. A Cronbach's alpha of .88 has been reported for this scale by Murphy et al., (2014). Murphy et al., (2014) also reported high probabilities when cross tabulating any ACE with likeliness of experiencing 4 or more ACEs which provides indication of high internal consistency.

Coping Strategies Inventory (CSI): To measure the coping strategies of the participants, **the Coping Strategies Inventory** was employed (Tobin, Holroyd, Reynolds, & Wigal, 1989). This inventory was designed to assess the different dimensions of coping and an individual's behaviour as a response to a specific stressor. The Coping Strategies

Inventory contains three different scales that are made up of 14 subscales; eight primary scales, four secondary and two tertiary. The primary subscale includes specific coping strategies individuals use, problem solving, cognitive restructuring, social support, expressive emotions, problem avoidance, wishful thinking and social withdrawal. The secondary subscale includes problem focused engagement, emotion focused engagement, and problem focused disengagement and emotion focused disengagement. The tertiary subscale includes engagement and disengagement. These subscales consist of 72 items. Each item is rated on a 5-point Likert scale (1 = not at all, 2 = a little, 3 = somewhat, 4 = much, 5 = very much). Participants' responses are summed to calculate a single score for each subscale; a higher score indicates higher use of the coping strategy. This scale is chosen as each stressful situation is unique to the individual as they are asked to think of a specific stressor prior to answering the questionnaire. This version of the inventory was based on and contains 23 items from the Ways of Coping Questionnaire (Folkman & Lazarus, 1988). Cronbach's alpha range from 0.71 to 0.94, indicating good internal consistency, and a two week test-retest Pearson correlation coefficients range from 0.67 to 0.83 (Tobin et al., 1989)

The Psychological Inventory of Criminal Thinking Styles (PICTS) – layperson edition: This scale was chosen to measure the criminal thinking styles of the participants. This scale was first developed in 1989 and consisted of 32 items. It was then revised in 1990 to have 40 items and the rating system was changed to a 4 point scale instead of three. In 1992, it was revised again so that each scale contained eight items, which resulted in a total of 80 items. This scale was designed to measure the eight different types of thinking styles that are associated with maintaining and supporting a criminal lifestyle. These are: mollification; cut-off; entitlement; power orientation; super-optimism; sentimentality; cognitive indolence and discontinuity. There are three validity scales: number of omitted items; confusion; and defensiveness. There are also four factor scales: problem avoidance;

infrequency; self-assertion/deception; and denial of harm. Current and historical criminal thinking styles make up the two general content scales. The higher order scales comprise of proactive and reactive criminal thinking scales. This inventory also includes a general criminal thinking score as well as a fear of change scale. The PICTS has an internal consistency between 0.61 and 0.94 among males and 0.54 to 0.93 for females indicating that items in this scale are reliable at measuring the constructs. Mean inter-item correlation range from 0.17 and 0.36 for males and 0.11 and 0.39 for females indicating that the items in the scales are validated for measures. The test-retest reliability at two weeks was above 0.70 for both male and female and above 0.50 at 12 weeks indicating that the measure is reliable over time. The laypersons edition of the PICTS was chosen as the original version is intended for incarcerated individuals. It has been found to show significant correlation between self reported crimes (violent and property) and PICTS thinking styles among college students, providing support for the predictive validity of the PICTS (Walters, 2006).

In terms of criminal thinking, the PICTS looks at proactive criminal thinking and reactive criminal thinking these two makes up the general criminal thinking factor. Participants are given a proactive criminal thinking score as well as a reactive criminal thinking score; these are then summed to give their raw general criminal thinking score.

Consideration of Future Consequences (CFC): To measure whether participants thought about whether their current actions will impact their future, the **Considerations of Future Consequences** scale was used. This scale is also used as a way to measure impulsivity. This scale was developed by Strathman, Gleicher, Boninger and Edwards in 1994. This scale aims to measure the individual's concern for the future based on their current actions or decisions. Individuals who score high on this scale typically focus on how their current behaviour will impact their future. Those who score low on this scale focuses on their immediate needs. This scale contains a total of 12 items, and uses a 5-point rating scale.

This scale was chosen for the current study as it captures information about whether the participant will consider their actions in relation to their future consequences such as committing a crime and its consequences. Internal consistency was obtained from four different samples and range from 0.80 to 0.86. Two out of the four samples were used for a test-retest reliability, $r= 0.76$, $p<0.001$ and $r= 0.72$, $p<0.001$ (Strathman, Gleicher, Boninger, & Edwards, 1994). Participants were also given a score for the Consideration of Future Consequences scale.

Procedure

Ethics was granted by the University of Canterbury Human Ethics Committee. Participants completed the 20 minute long online questionnaire during their own time. They were not told the true nature of the study, but informed consent was provided. The questionnaire consisted of the scales described above. Participants first answered a series of questions regarding their demographics. They then completed the ACE questions with regards to the first 18 years of their life. For the CSI, participants were instructed to consider strategies for specific recent stressors that had occurred in their own life. For the PICTS, participants were instructed to answer as honestly and quickly as they could in order to obtain accurate responses. Finally, for the CFC, participants were asked to indicate whether statements were characteristic of them. Once they had finished, they were debriefed and the true nature of the study was revealed to them.

Data analysis method

The data was analysed using IBM SPSS version 24, with a 0.05 significance level. Sobel tests were performed to investigate the mediation relationship between ACE, CSI and PICTS (Sobel, 1982). AMOS graphics was also used to test for indirect paths.

Data was first analysed for any outliers that may influence the outcome by examining normality plots. Deletion of data was decided based on its deviation from the expected normal line on the normal Q-Q plots produced on SPSS. This resulted in one data point being removed as it was evident that the participant was responding carelessly. Although some participants did not complete the questionnaire, if they had completed the ACE, CST and PICTS scales and not CFC, they were included in the final analysis. Resulting in two data points added into the sample; making up 119 in total. This decision was made as they had completed the sections that were needed in order to investigate the main relationship being studied. However, they were excluded from any analysis that involved The Consideration of Future Consequences scale.

The descriptive statistics for ACE, CSI, PICTS and CFC were also obtained and examined. Correlations were also conducted between ACE and the subscales of CSI to examine the relationship ACE has between the secondary and tertiary subscales of CSI. This correlation analysis was conducted for ACE and the subscales of PICTS. This was then repeated for the secondary subscales of CSI as well as PICTS.

To test for a mediation relationship between ACE, CSI and PICTs, correlations were conducted between ACE and CSI primary, secondary and tertiary scales. Correlations were also calculated between ACE and PICTS (Proactive, reactive, general criminal thinking and fear of change scales) as well as between PICTS (proactive, reactive, general criminal thinking and fear of change scales) and the secondary and tertiary scales of CSI. Once these correlations were established, multiple regressions were conducted to obtain the raw regression coefficients. This was conducted between ACE and CSI engagement and CSI disengagement with ACE being the predictor variable. This was then repeated twice with ACE and both CSI factors as the predictor variables and PICTS general criminal thinking

variable. With the raw regression coefficients, the Sobel test was conducted for both CSI factors.

The mediation test was then repeated again for PICTS proactive criminal thinking as well as reactive criminal thinking.

To examine the relationship between CSI, CFC and PICTS, a correlation was conducted. To understand the relationship between all the variables, CFC was added to the regressions performed. To test for CFC and CSI as competing predictors of PICTS, bootstrap analysis were conducted. Multiple regressions were also conducted to break down the variance accounted for.

Results

Demographics

The age range of the participants was between 18 years old and 70 years old, with a mean age of 32 years old. Of the 119 participants included, 22 participants did not indicate their age.

76.5% of the sample identified as being of white/Caucasian ethnicity, 13.4% indicated Asian, 4.2% Maori, 2.5% Pacific Islanders and 3.4% had indicated “other”. The majority of the sample indicated High School as their highest level of education completed (75.6%), 18.5% of the sample had completed a Bachelors degree, 5.0% have a Masters degree and one person (0.8%) has a Doctoral degree (table 1).

Table 1. Demographics of sample for 119 participants

	n	%
Ethnicity		
White/Caucasian	91	76.5
Asian	16	13.4
Maori	5	4.2
Pacific Islander	3	2.5
Other	4	3.4
Education Level		
Less than high school	0	0
High School	90	75.6
Bachelors	22	18.5
Masters	6	5.0
Doctoral	1	0.8
Employment Status		
Student	44	37.0
Full Time	34	28.6
Part Time	26	21.8
Casual	6	5.0
Unemployed	4	3.4
other	5	4.2
Criminal Offence		
Yes	10	8.4
No	109	91.6
Violent offence		
Yes	3	2.5
No	7	5.9

In regards to employment status, 37.0% of the sample indicated they were currently students, 28.6% worked full time, 21.8% were working part time, 5.0% had casual jobs, 3.4% were unemployed and 4.2% indicated “other” employment status. 10 individuals (8.4%) of the sample indicated that they had been convicted of a criminal offence. Of these, three indicated they had been convicted for a violent offence (2.5%).

ACE

The mean ACE score for this sample was 2.00 with a standard deviation of 1.99, indicating that this sample scored low on ACE. Higher ACE scores indicate more exposure to adverse and traumatic events in the individuals' lives prior to turning 18. 26.9% of the sample scored 0, 24.4% scored 1, 18.5% scored 2, 8.4% scored 3, and 21.8% scored between 4 and 7.

Coping strategy

The minimum score on the engagement scale for this sample was 47.00 and the maximum was 141.00 (M = 95.66, SD = 21.55) (table 2). For the disengagement scale, the minimum score was 41.00, maximum score was 163.00 (M = 97.26, SD = 28.33). This indicates that this sample is more likely to adopt an engagement coping strategy when encountered with stress than disengagement, as shown by the higher minimum score. However, they are just as likely to adopt a disengagement style as the means and standard deviations overlaps. This result reveals that the majority of the sample uses both engagement and disengagement coping strategy when experiencing stress. However, the standard deviation indicates that there are also participants that adopt a preferred method; engagement or disengagement.

Table 2. Basic statistics for all CSI subscale.

Subscale		Min	Max	M	SD
Primary	**Problem Solving**	13.00	44.00	25.87	5.79
	Cognitive Restructuring	9.00	42.00	25.33	7.53
	Express Emotion	10.00	37.00	22.68	7.06
	Social Support	10.00	43.00	21.78	8.10
	Problem Avoidance	11.00	37.00	21.62	6.08
	Wishful Thinking	10.00	43.00	26.86	9.03
	Self Criticism	9.00	45.00	22.92	10.86
	Social Withdrawal	9.00	45.00	25.86	9.85
Secondary	**Problem Focused Engagement**	24.00	77.00	51.20	12.12
	Emotion Focused Engagement	20.00	74.00	44.46	13.17
	Problem Focused Disengagement	23.00	80.00	48.48	13.40
	Emotion Focused Disengagement	18.00	89.00	48.78	18.09
Tertiary	**Engagement**	47.00	141.00	95.66	21.55
	Disengagement	41.00	163.00	97.26	28.33

Note. Higher values indicates more usage of coping method

PICTS

As shown in table 3 below, the lowest proactive criminal thinking score among this sample was 35.00 with the highest being 109.00 (*M* = 55.10, *SD*= 15.59) the lowest score for reactive criminal thinking was 26.00 and a maximum score of 86.00 (*M* = 48.79, *SD* =

13.50). For the general criminal thinking scale, this sample scored a minimum of 63.00 and a maximum of 186.00 (*M* = 103.89, *SD* = 25.92).

Table 3. Raw and t-scores for criminal thinking styles (n=119)

	min	**max**	**M**	**SD**
Reactive criminal thinking	26 *(38)*	86 *(83)*	48.79 *(54)*	13.50
Proactive criminal thinking	35 *(38)*	109 *(93)*	55.10 *(52)*	15.59
General criminal thinking	63 *(37)*	186 *(88)*	103.89 *(54)*	25.92

Note. T-scores are reported in brackets. T-scores from Walters, 2006

The low proactive criminal thinking score for this sample is equivalent to a t-score of 38.00, and a t-score of 93.00 for the higher score with a mean t-score of 52.00. 68.0% of the sample scored low on proactive criminal thinking; this indicates that these individuals do not show signs of proactive or planned criminal thinking. 16.0% of the sample scored between a t-score of 55.00 and 64.00, indicating that 16.0% of the sample shows signs of moderate proactive criminal thinking. These individuals are typically described as calculating and scheming(Walters, 2006). Those who had a t-score higher than 65.00 (16.0%) typically have a high level of proactive criminal thinking. These individuals are described the same as those above, however these characteristics are more prominent. The mean t-score for this sample indicates that the majority of the participants are low on proactive criminal thinking.

For reactive criminal thinking, the low score for this sample equates to a t-score of 38.00, and a t-score of 83.00 for the high raw score (mean t-score = 54.00). 54.6% of the sample scored below a t-score of 55.00, indicating that they do not show signs of reactive or impulsive criminal thinking. 27.5% showed moderate levels of reactive criminal thinking. These people are often described to be hostile and emotional. The crimes committed by these individuals are often as a result of their reaction to situations they encounter. They are also more likely to interpret other people's actions as hostile. 14.8% of the sample was classed as high on reactive criminal thinking; this is associated with higher levels of impulsivity as well

as recklessness. On average, this sample scored below 55.00 for reactive criminal thinking, indicating that the majority of the participants do not show signs of reactive or impulsive criminal thinking.

The general criminal thinking scale is the most valid and reliable measure of this scale as it is a result of adding up the raw scores of the subscales (Walters, 2006). This sample scored a minimum t-score of 37.00, maximum t-score of 88.00 and the mean was 54.00. 36.1% of the sample scored below a t-score of 50.00, indicating that their general criminal thinking is not present, well hidden, or weak. Those who scored above 50.00 indicates that they are higher than average in criminal thinking. There are three levels within this top half (Walters, 2006), 37.6% are in the moderate level, 18.3% moderately high, and 7.2% scored high. The mean score for this sample indicates that the majority scored high on general criminal thinking. However the majority of participants (37.6%) are on the lower end of this scale.

Consideration of future consequences

A higher score on the CFC indicates that an individual tends to consider the future consequences of their current actions. This may imply that those with a lower score tend to make impulsive decisions. The mean score for this sample was 41.53 (*SD*=8.75) with 17.00 being the lowest score and 58.00 being the highest (table 4). This scale also looks at the immediate consequences of actions, the mean score for immediate consequences is 18.72 (*SD*=6.10) and a mean score of 18.26 for future consequences (*SD*=4.19). This result indicates that participants consider the immediate as well as future consequences of their current actions.

Table 4. Descriptive statistics for Consideration of Future Consequences (n=118)

	Min	Max	M	SD	Median
Overall	17	58	41.53	8.75	43
Immediate	7	35	18.73	6.14	18
Future	5	25	18.26	4.19	19

Correlations

Correlational results (table 5) revealed a positive and significant relationship between ACE and disengagement coping style (r = .33, p < .001). This indicates that the higher a person's ACE score, the more likely they were to adopt a disengaged coping style. The correlation between ACE and engagement coping style indicated that individuals with high ACE scores are less likely to adopt an engaged coping strategy for stresses they face. However this correlation was not significant for this sample (r = -.17, p = .062).

The correlation between disengagement coping strategy and PICTS general criminal thinking revealed a positive relationship. Higher scores in coping strategies indicated higher general criminal thinking score (r = .53, p < .001). The correlation between engagement and general criminal thinking also revealed a positive relationship, however this was not significant (r =.11, p = .23).

The correlation between ACE and general criminal thinking indicated that individuals with higher ACE scores also scored higher on general criminal thinking (r = .19, p = .039).

The correlation between engagement coping strategy and proactive criminal thinking indicated a positive relationship (r = .19, p = .035). The relationship between disengagement coping style and proactive criminal thinking was positive and significant (r = .35, p < .001).

A positive significant relationship was also found between disengagement coping style and reactive criminal thinking (r = .61, p < .001).

The correlation between ACE and proactive criminal thinking was non-significant (r = .14, p = .13). However, ACE and reactive thinking were significantly correlated (r = .20, p = .026).

Table 5. Correlation between ACE, CSI, PICTS (n=119)

Measure	ACE	Disengagement	Engagement	P	R	GCT	CFC
ACE	1						
Disengagement	0.33**	1					
Engagement	-0.17	-0.13	1				
P	0.14	.35**	.19*	1			
R	.20*	.61**	-0.01	.59**	1		
GCT	0.198	.55**	0.11	.91**	.85**	1	
CFC	-0.083	-0.44**	0.053	-0.41**	-0.56**	-0.54**	1

Note. **. Correlation is significant at the 0.01 level (2-tailed)
*. Correlation is significant at the 0.05 level (2-tailed)
P: Proactive criminal thinking, R: Reactive criminal thinking, GCT: General criminal thinking.
CFC: Consideration of Future Consequences, n=118

Further correlational analyses were conducted between ACE and the primary subscales of CSI (table 6). A positive relationship between ACE and cognitive restructuring (r = .19, p = .043) was found. A positive relationship was also identified with problem avoidance (r = .22, p = .017), wishful thinking (r = .28, p = .002), self criticism (r = .20, p = .026) and social withdrawal (r = .34, p < .001). This was also conducted for the secondary subscales (table 6). Significant relationships were found for problem focused engagement (r = -.18, p = .046), problem focused disengagement (r = .29, p = .001) and emotion focused disengagement (r = .31, p = .001).

Table 6. Correlation between ACE and CSI primary, secondary subscale

	Measure	ACE
Primary Subscale	**ACE**	1
	Problem Solving	-0.14
	Cognitive Restructuring	-0.19*
	Express Emotion	-0.01
	Social Support	-0.17
	Problem Avoidance	.22*
	Wishful Thinking	.28**
	Self Criticism	.20*
	Social Withdrawal	.34**
Secondary Subscale	**Problem Focused Engagement**	-0.18*
	Emotion Focused Engagement	-0.11
	Problem Focused Disengagement	0.29**
	Emotion Focused Disengagement	0.31**

Note. **. Correlation is significant at the 0.01 level (2-tailed)
*. Correlation is significant at the 0.05 level (2-tailed)

Correlations were also more closely looked at between ACE and the different subscales of PICTS (table 7). Significant correlations were obtained for a number of subscales; revised confusion (r = -.26, p = .004), revised defensiveness (r = .20, p = .030), mollification (r = -.20, p = .030), cutoff (r = -.25, p = .007), current criminal thinking (r = -.199, p = .031), infrequency, (r =-.19, p = .034), reactive criminal thinking (r = -.20, p = .026), general criminal thinking (r = -.19, p = .039) and fear of change (r = -.27, p = .003).

The correlational relationship between secondary coping scales and the scales of PICTS were examined to understand how different coping strategies correlate with criminal thinking styles (table 7). Problem focused engagement coping strategy is negatively correlated with cutoff (r = -.32, p <.000), positively correlated with sentimentality (r = .25, p = .007). It is also negatively correlated with current criminal thinking (r = -.27, p = .003) as well as problem avoidance (r = -.24, p = .009). Problem focused engagement is also

positively correlated with denial of harm (r = 2.54, p = .005) and negatively correlated with reactive criminal thinking (r = -.23, p = .012) as well as fear of change (r = -.270, p = .003).

A positive correlation between emotion focused engagement and mollification was found (r = .22, p = .016), entitlement (r = .18, p = .048), power orientation (r = .26, p = .005), sentimentality (r = .32, p <.001), discontinuity (r = .21, p = .024). Emotion focused engagement is also positively correlated with current criminal thinking (r = .20, p = .026), problem avoidance (r = .188, p = .042), infrequency (r = .23, p = .010), denial of harm (r = .26, p = .005), proactive and reactive criminal thinking (r = .23, p = .012; r = .20, p = .034, respectively). A positive correlation was also found for general criminal thinking (r = .24, p = .009).

Problem focused disengagement was positively correlated with all PICTS subscales (table 7). Emotion focused disengagement was positively correlated with mollification (r = .29, p = .001), cutoff (r = .50, p < .000), entitlement (r = .200, p = .029), power orientation (r = .31, p = .001), sentimentality (r = .20, p = .034), cognitive indolence (r = .36, p <.000) and discontinuity (r = .46, p < .000). Current criminal thinking as well as historical criminal thinking is also positively correlated (r = .48, p < .000; r = .34, p < .000 respectively). Problem solving was also positively correlated (r = .41, p <.000), this is also the same for infrequency (r = .26, p = .005), self assertion / deception (r = .34, p <.000), proactive criminal thinking (r = .27, p = .003), reactive criminal thinking (r = .50, p <.000), general criminal thinking (r = .42, p < .000) and fear of change (r = .45, p < .000).

Table 7. Correlation between ACE, CSI secondary scales and PICTS

Scale	Measure	ACE	PFE	EFE	PFD	EFD
Thinking Styles	**Mollification**	-0.20*	-0.003	0.22*	0.35**	0.29**
	Cutoff	-0.25**	-0.32**	0.15	0.55**	0.50**
	Entitlement	-0.08	0.11	0.18*	0.31**	0.20*
	Power Orientation	-0.137	0.14	0.26**	0.37**	0.31**
	Sentimentality	-0.10	0.25**	0.32**	0.38**	0.20*
	Superoptimism	-0.08	0.085	0.15	0.26**	0.14
	Cognitive Indolence	-0.16	-0.16	0.17	0.56**	0.36**
	Discontinuity	-0.14	-0.14	0.21*	0.56**	0.46**
Content	**Current Criminal Thinking**	-0.20*	-0.27**	.02*	0.60**	0.48**
	Historical Criminal Thinking	-0.16	-0.04	0.11	0.41**	0.34**
Factor	**Problem Avoidance**	-0.15	-0.24**	0.19*	0.56**	0.41**
	Infrequency	-0.19*	0.09	0.23	0.33**	0.26**
	Self-assertion/deception	-0.14	-0.091	0.11	0.39**	0.34**
	Denial of harm	0.13	0.25**	0.26**	0.30**	0.11
Higher order	**Proactive Criminal thinking**	-0.14	0.095	0.23*	0.37**	0.27**
	Reactive criminal thinking	-0.20*	-0.23*	0.2*	0.62**	0.50**
General	**General criminal thinking**	-0.19	-0.062	0.24**	0.54**	0.42**
Special	**Fear of change**	-0.27**	-0.27**	0.16	0.44**	0.49**

Note. **. Correlation is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

PFE: Problem focused engagement, EFE: Emotion focused engagement, PFD: Problem focused disengagement, EFD: Emotion focused disengagement

Sobel test

The Sobel test found that disengagement coping style significantly mediated the relationship between ACE and general criminal thinking ($z = 3.23$, $p < .001$), figure 1.

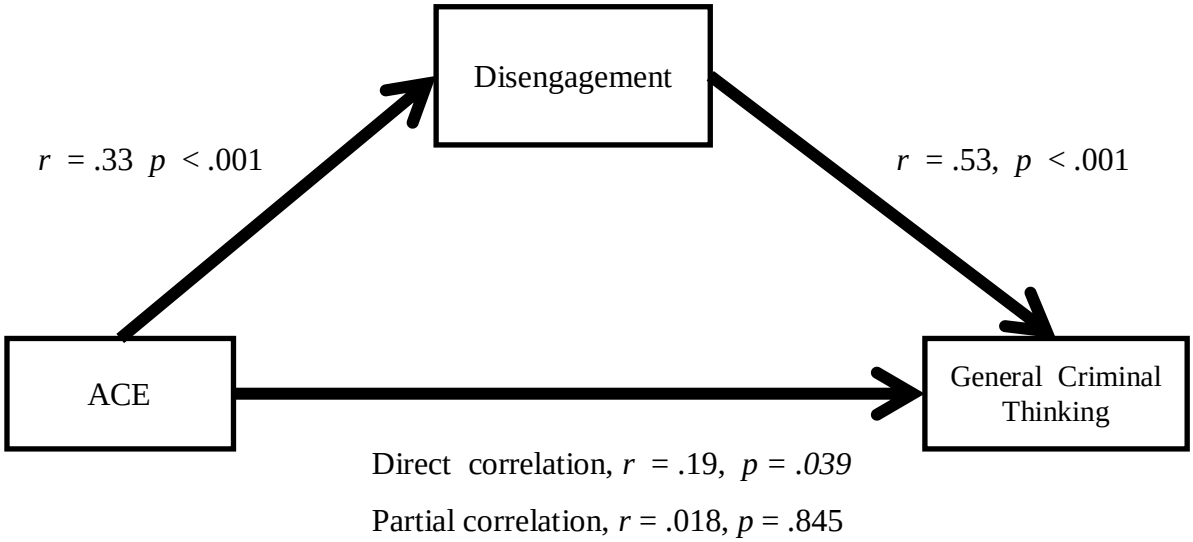

Figure 1. Mediation model and correlation coefficients for ACE, disengagement coping strategy and general criminal thinking

This was also true for disengagement mediating ACE and proactive criminal thinking (z = 2.59, p < .001), figure 2, however the direct correlation between ACE and proactive criminal thinking was not significant.

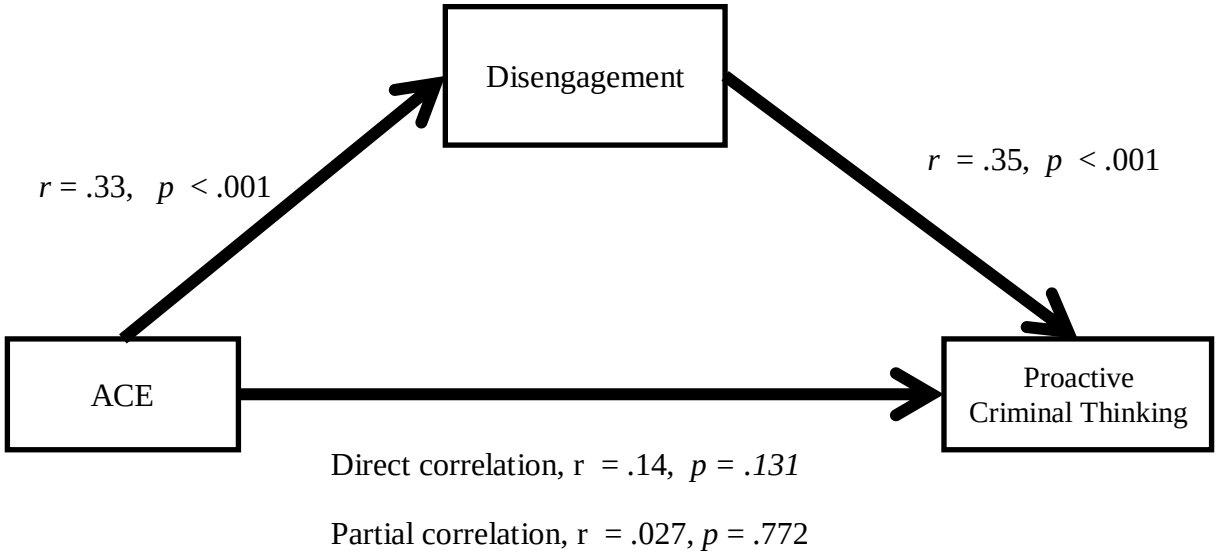

Figure 2. Mediation model and correlation coefficients for ACE, disengagement coping strategy and proactive criminal thinking

A significant result was also found for ACE, disengagement coping strategy and reactive criminal thinking (z = 3.42, p < .001), figure 3.

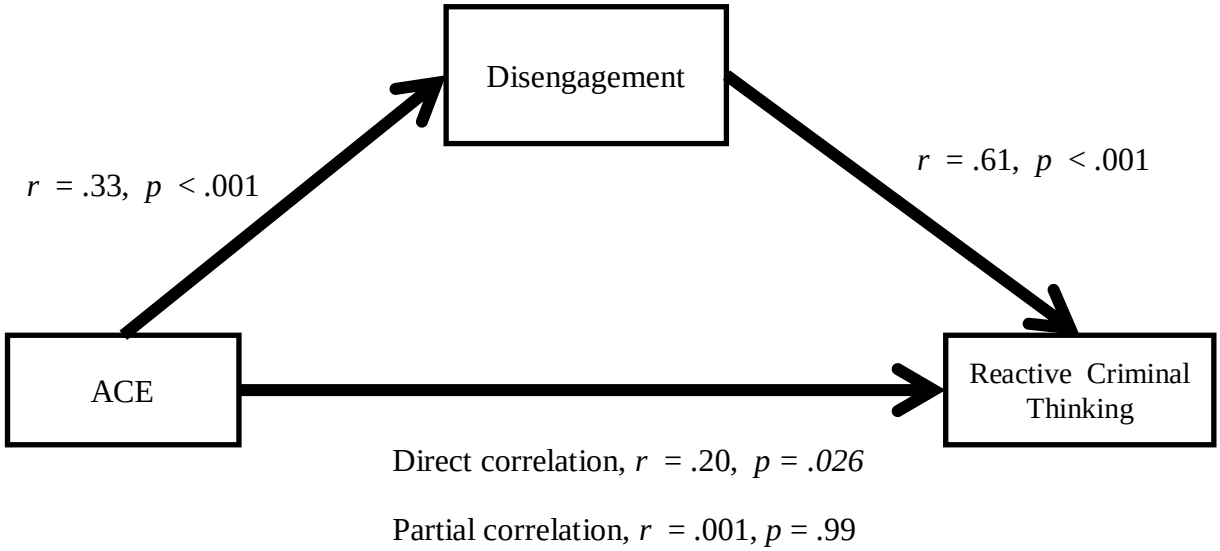

Figure 3. Mediation model and correlation coefficients for ACE, disengagement coping strategy and reactive criminal thinking

Multiple Regression

Multiple regression analysis was conducted to look at the different types of coping strategy and consideration of future consequences as competing predictors for PICTS. The first sets of multiple regression looks at the secondary coping strategies and CFC as predictors of PICTS. Then the tertiary subscales of coping strategy and CFC were looked at.

Secondary subscale of coping strategy and CFC predictors of PICTS

General criminal thinking was looked at first, and then broken down into proactive and reactive criminal thinking.

Problem focused engagement was not a significant predictor of general criminal thinking. Emotion focused engagement and CFC explained for 32.8% of the variance in general criminal thinking where 27.7% is unique to CFC and 4.2% is unique to emotion focused engagement coping. Problem focused disengagement and CFC explained 42.1% of variance in GCT, 13.2% is unique to CFC and 13.5% is unique to problem focused disengagement. Emotion focused disengagement and CFC explained 33.1% of the variance in GCT, 16.1% is unique to CFC and 4.4% is unique to emotion focused disengagement.

For reactive criminal thinking, problem focused engagement and CFC explained 34.0% of the variance, where 27.8% of it is unique to CFC and 3.0% is unique to problem focused engagement. Emotion focused engagement and CFC explained 33.6% of variance in reactive criminal thinking, 31.2% is unique to CFC and 3.7% belongs to emotion focused engagement. Looking at problem focused disengagement and CFC, 50.7% of the variance in reactive criminal thinking is explained by the two predictors. 12.7% is unique to CFC and 19.7% is unique to problem focused disengagement. Emotion focused disengagement and CFC explains 39.2% of the variance in reactive criminal thinking, 20.2% is unique to CFC and 11.9% is unique to emotion focused disengagement.

Looking at proactive criminal thinking, problem focused engagement was not a significant predictor. However, emotion focused engagement is along with CFC, they explain for 20.6% of the variance. 15.8% is unique to CFC and 4.1% is unique to emotion focused engagement. Problem focused disengagement and CFC in the next model explains 21.6% of the variance in proactive criminal thinking with 8.8% unique to CFC and 5.1% unique to problem focused disengagement. Emotion focused disengagement was also not a significant predictor.

Summary: These results indicate that for general criminal thinking, problem focused engagement was not a significant predictor, CFC was a stronger predictor than emotion focused engagement. This was also true when compared with emotion focused disengagement. However, problem focused disengagement was a stronger predictor for GCT than CFC. For reactive criminal thinking, CFC was a stronger predictor when compared with problem focused engagement, emotion focused engagement and emotion focused disengagement. This was also true when compared with problem focused disengagement. Looking at proactive criminal thinking, both problem focused engagement and emotion focused disengagement were not significant predictors. Compared with emotion focused

engagement and problem focused disengagement, CFC was a stronger predictor of proactive criminal thinking.

Tertiary subscales of coping strategies and CFC as predictors of PICTS.

Two sets of multiple regressions were conducted for general criminal thinking, the first multiple regression conducted was between CFC and disengagement coping strategy, the second was with engagement coping strategy. Results indicated that CFC and disengagement were significant predictors for general criminal thinking. 38.6% of the variance in GCT is explained by CFC and disengagement coping. In this model, 9.98% of unique variance belongs to disengagement coping and 11.9% belongs to CFC. Engagement coping strategy was not a significant predictor.

The next set of analyses used CFC and disengagement as well as CFC and engagement coping strategy as predictors for reactive criminal thinking. Results indicated that CFC and disengagement coping strategy were significant predictors of reactive criminal thinking and explains 47.2% of its variance. 16.2% of the variance was uniquely predicted by disengagement coping and 10.7% by CFC. Engagement coping strategy was not a significant predictor.

The same analysis was conducted for proactive criminal thinking. 19.6% of the variance in proactive criminal thinking was explained by CFC and disengagement criminal thinking. 3.09% was unique to disengagement coping strategy and 8.41% was unique to CFC. For proactive criminal thinking, engagement coping was a significant predictor. 20.6% of the variance in proactive criminal thinking was explained by CFC and engagement coping strategy. 4.08% of the variance is unique to engagement coping strategy and 17.3% is unique to CFC.

Summary: Results from these analyses indicated that for general criminal thinking, engagement coping strategy was not a significant predictor. Between CFC and disengagement coping, CFC was a stronger predictor. For reactive criminal thinking, engagement coping strategy was not a significant predictor. However, disengagement was a stronger predictor compared to CFC. For proactive criminal thinking, CFC was a stronger predictor compared to disengagement and engagement coping strategy.

Bootstrap mediation model analysis was conducted using AMOS to evaluate the differences between coping strategies and CFC as predictors of PICTS. These analysis uses the entire sample (n = 192) which includes missing and incomplete data entries from participants. This is due to the different parameter estimation AMOS to allow the use of incomplete cases.

General criminal thinking was the first model tested (Figure 4). Chi-square failed to reach significance indicating a good model fit (χ^2 = .65, p = .42). An RMSEA value of .000 was also obtained. Regression weights were all significant for each path at the .001 level with the exception of ACE and GCT (p = .58). This result indicates that both CFC and disengagement coping strategy significantly predicts general criminal thinking.

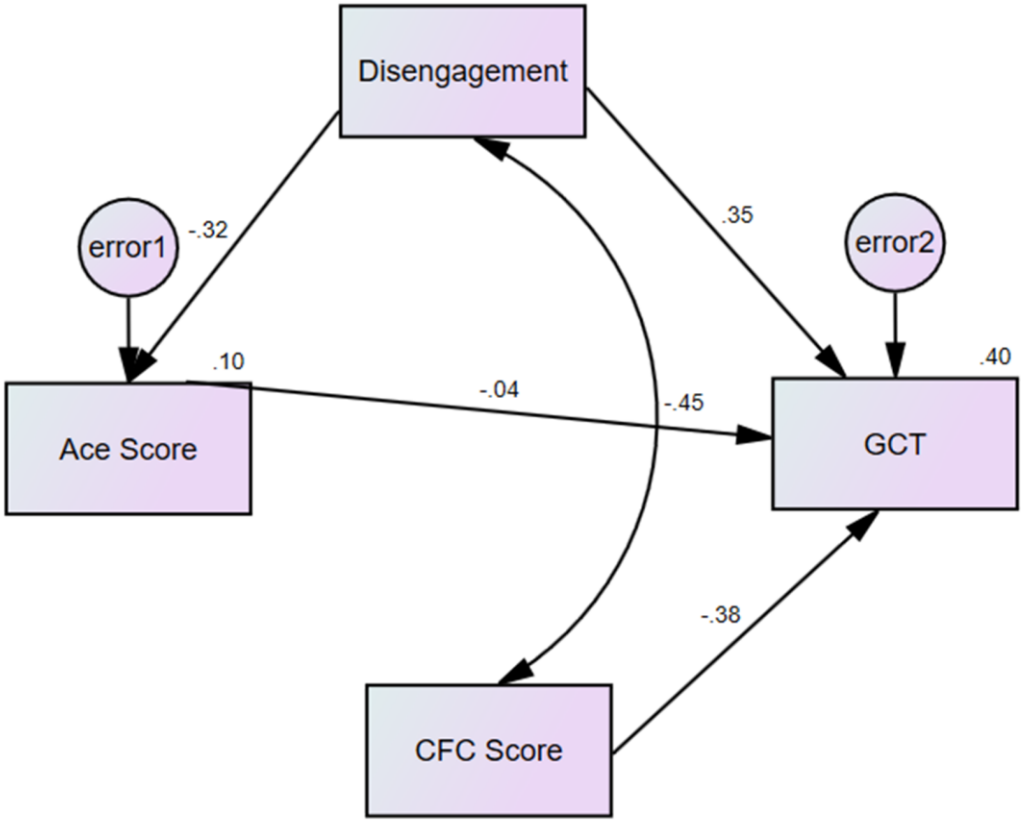

Figure 4. Standardized estimates for path analysis predicting general criminal thinking
GCT: General Criminal Thinking CFC: Consideration of Future Consequences

Chi-square value for proactive criminal thinking (Figure 5) also failed to reach significance indicating a good model fit also (χ^2 = .645, p = .422), RMSEA value of .000 was also obtained. Regression weights were significant at the .001 level for all paths with the exception of ACE and proactive criminal thinking (p = .576) as well as disengagement and proactive criminal thinking (p = .050). This model indicates that CFC is a better predictor of proactive criminal thinking; however disengagement coping strategy also significantly predicts proactive criminal thinking.

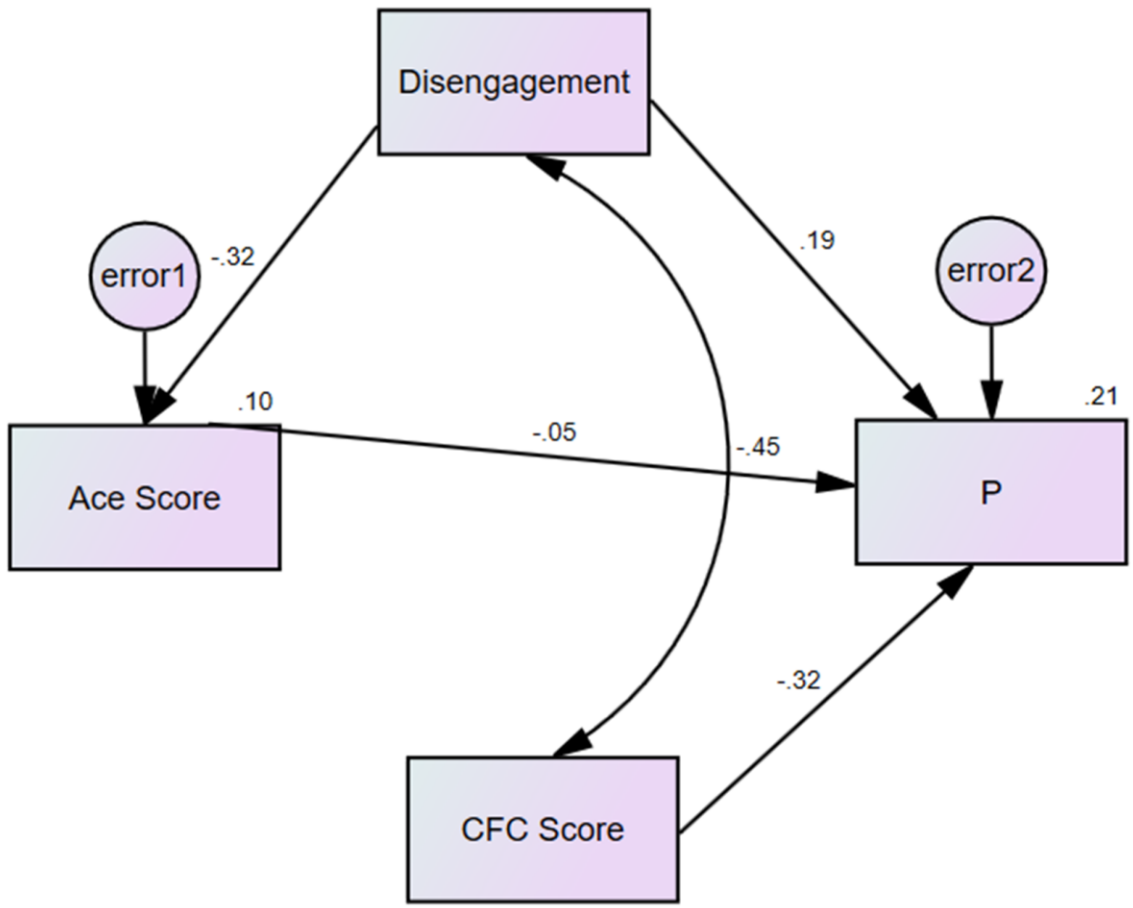

Figure 5. Standardized estimates for path analysis predicting proactive criminal thinking
P: Proactive Criminal Thinking, CFC: Consideration of Future Consequences

The final model tests for CFC and disengagement coping strategy predicting reactive criminal thinking. Chi-square value for this model (Figure 6) also failed to reach significance indicating a good model fit also (χ^2 = .644, p = .422), RMSEA value of .000 was also obtained. Regression weights were all significant at the .001 level with the exception of ACE and reactive criminal thinking (p = .731), indicating that both CFC and disengagement coping predicts reactive criminal thinking.

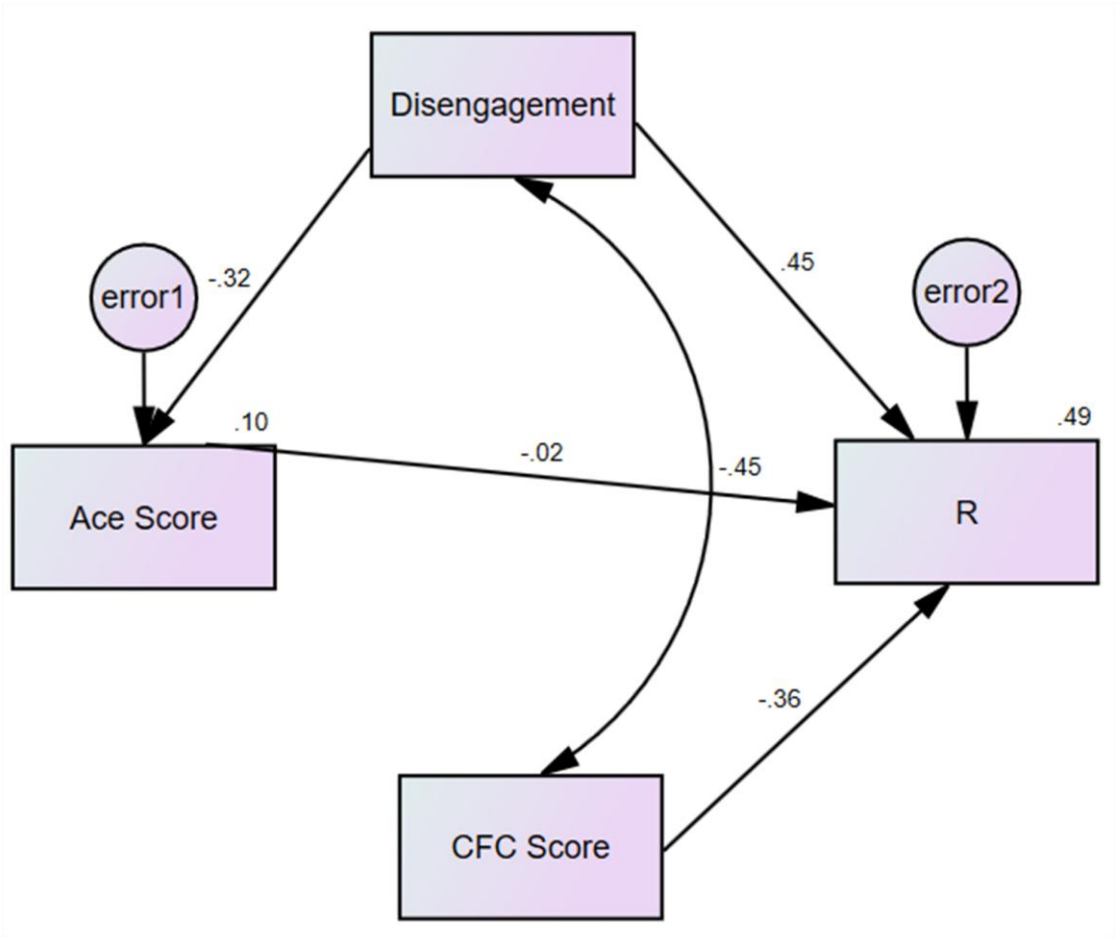

Figure 6. Standardized estimates for path analysis predicting reactive criminal thinking
R: Reactive Criminal Thinking, CFC: Consideration of Future Consequences

Relationship between ACE, PICTS, CSI, CFC

Correlation analysis (table 5) indicated that consideration of future consequences was negatively correlated with proactive criminal thinking (r = -.41, p < .001). It was also negatively correlated with disengagement coping strategy as well as reactive criminal thinking, (r = -.44, p < .001; r = -.56, p < .001 respectively). Consideration of future consequences is also correlated to general criminal thinking (r = -.54, p < .001)

Multiple regression analysis was conducted between all the variables to examine whether CFC is related to criminal thinking (table 8 and table 9). Partial correlations were also conducted. Consideration of future consequences was significant for all regressions, indicating that it may have an effect on all types of criminal thinking. Although ACE was not

a significant predictor for GCT and reactive criminal thinking when CFC was added into the regression, CFC was still significant. This could indicate that CFC has relationship with disengagement coping strategy and criminal thinking. As indicated in table 8, consideration of future consequences was a positive predictor of general criminal thinking along with ACE and engagement coping strategy $F(3, 114) = 18.7$, $p < .001$, $R^2 = .330$. Prior to adding consideration of future consequences into the regression engagement coping strategy was not a significant predictor of GCT. This result indicated that future consequences could have an effect in general criminal thinking when individuals adopt an engagement coping style.

Controlling for ACE and both coping strategies, CFC is significantly correlated with general criminal thinking ($r = -.41$, $p < .001$). This relationship was also true for CFC and reactive criminal thinking ($r = -.41$, $p < .001$) as well as CFC and proactive criminal thinking ($r = -.32$, $p = .001$). These correlational results provide evidence for the relationship between CFC and criminal thinking.

Table 8. Regression between ACE, disengagement coping, PICTS and CFC

Model		**B**	**SE B**	**β**	***t***	R^2
GCT						
	ACE	0.56	1.01	0.04	0.56	0.39
	Disengagement	0.31	0.08	0.34	3.88*	
	CFC	-1.14	0.24	-0.39	-4.73*	
Proactive						
	ACE	0.39	0.70	0.05	0.56	0.20
	Disengagement	0.10	0.06	0.18	1.80	
	CFC	-0.58	0.17	-0.33	-3.49*	
Reactive						
	ACE	0.17	0.49	0.03	0.36	0.47
	Disengagement	0.21	0.04	0.44	5.48*	
	CFC	-0.56	0.12	-0.37	-4.81*	

Note. * $p < .05$

Table 9. Regression between ACE, engagement coping, PICTS and CFC

Model		B	SE B	β	*t*	R^2
GCT						
	ACE	2.21	1.02	0.17	2.18*	0.330
	Engagement	0.19	0.10	0.15	0.197*	
	CFC	-1.57	0.23	-0.53	-6.87*	
Proactive						
	ACE	1.12	0.66	0.14	1.71	0.230
	Engagement	0.18	0.06	0.23	2.72*	
	CFC	-0.73	0.15	-0.41	-4.92*	
Reactive						
	ACE	1.09	0.53	0.16	2.08*	0.350
	Engagement	0.02	0.05	0.03	0.41	
	CFC	-0.81	0.12	-0.55	-7.11*	

Note. * $p < .05$

Multiple regressions were conducted with disengagement coping and CFC predicting criminal thinking styles. Table 10 shows the regression coefficients for each variable. The regression results indicate that disengagement coping strategy and CFC significantly predicts all three criminal thinking styles. Given that impulsivity has been linked with anti-social cognitions/behaviours previous, this relationship provides evidence for impulsive decision making as a predictor for criminal thinking.

Table 10. Regression between PICTS, disengagement coping and CFC

Model		B	SE B	β	*t*	R^2
GCT						
	CFC	-1.13	0.24	-0.38	-4.71**	0.390
	Disengagement	0.32	0.08	0.35	0.433**	
Proactive						
	CFC	-0.57	0.17	-0.32	-3.37**	0.200
	Disengagement	0.12	0.05	0.20	2.12*	
Reactive						
	CFC	-0.56	0.12	-0.36	-4.82**	0.470
	Disengagement	0.22	0.36	0.45	5.95**	

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

Discussion

The purpose of this research was to explore the relationships between adverse childhood events and later criminality and how coping strategies is employed for stressful events may affect this relationship. It was hypothesised that those who had been exposed to abuse or neglect as children would be more likely to engage in a coping strategy that avoids the problem and show pro-criminal thinking. The second hypothesis was that coping strategy would have a mediating relationship between histories of childhood abuse or adverse events and pro criminal thinking. Significant correlations established from this research indicated that in the current sample there was indeed a relationship between adverse events that occurred in the first 18 years of a person's life, the way they cope with stress, and how they think in terms of criminality. Specifically, a mediating relationship was established between ACE, a disengagement coping strategy and proactive, reactive and general criminal thinking. Finally, it was also found as hypothesised, that those who adopt coping strategies that avoid the problem tend not to consider the consequences of their actions, which also related to higher levels of pro criminal thinking.

The average ACE score for this sample was two, with a standard deviation of 1.99. This result is similar to what was reported in the original ACE research where over half of the respondents reported at least one adverse event (Felitti et al., 1998). The results for coping strategies indicated that participants of this sample had similar scores for engagement and disengagement coping strategy. This indicates that they are likely to adopt both types of coping strategy as shown by the overlapping of the means and standard deviations. This result is in line with the research conducted by Folkman and Lazarus, (1980).

Participants of this research on average scored below 55 for reactive criminal thinking, therefore the majority did not endorse signs of reactive criminal thinking. The

majority of the participants were also low on proactive criminal thinking. General criminal thinking is the most accurate and reliable scale in PICTS as it contains 56 of the 80 items. The mean score obtained from this sample revealed that the majority of the participants scored high on general criminal thinking, but towards the lower end of the high range. This current sample also tend to consider the immediate and future consequences of their current action.

The correlational result obtained between adverse childhood events and coping strategies revealed that adverse events experienced in the first 18 years of life had a significant positive correlation with the use disengagement coping strategies. As described by Tobin, Holroyd and Reynolds (1984), a disengagement coping strategy consists of problem avoidance, wishful thinking, social withdrawal and self criticism. The result of this positive correlation is in line with the results of Feelgood et al., (2005), in which the authors reported that their sample tended to engage in an emotional based coping strategy when involved with a stressful situation, and were also more likely to engage in sexual acts as a form of coping than non-sexual offenders.

Cortoni et al., 2001 found that sex offenders were more likely to use sex as a coping strategy than non-sex offenders when encountered with a stressful situation. This shows that they adopt an emotional based strategy which disengages them from the problem. Margari et al. (2015) found that juvenile sex offenders use coping strategies that allow them to avoid the stressor, or disengages and distract them from the stressor when encountered. Following the studies conducted by Cortoni and Marshall (2001) and Margari et al. (2015), the results of this research indicated that those who experienced adverse events during their childhood were more likely those who did not, to adopt a disengagement coping strategy. These participants also scored higher on general criminal thinking, proactive criminal thinking and reactive criminal thinking. The results of these regressions are therefore in line with the findings of

Cortoni et al. (2001) and Margari et al. (2015), providing further support for the relationship between disengagement coping strategy and later criminality in adulthood.

Correlational analysis revealed that consideration of future consequences was negatively correlated with general, proactive and reactive criminal thinking as well as with a disengagement coping strategy. This infers that individuals who tend to consider future consequences tend to have lower levels of criminal thinking. Partial correlations conducted between CFC and all three criminal thinking styles controlling for ACE and both types of coping strategy revealed a negative relationship between the two variables. This could imply that as individuals place more emphasis on the future consequences of their current actions, their criminal thinking decreases. Multiple regression also showed that consideration of future consequences significantly predicted general criminal thinking, alongside ACE and engagement coping strategy. This indicates that individuals who experienced adverse events during the first 18 years of their life were likely to adopt an engagement coping strategy and were more impulsive leading to higher general criminal thinking score. These individuals maybe likely to actively manage the stressor encountered without considering the consequences of these actions. This result did not support the hypothesis. This could indicate that these individuals are actively trying to reduce the stressor, however they may not have the best methods for doing so.

Further analysis revealed that ACE was significantly negatively correlated with cognitive restructuring indicating that those who scored high on ACE are less likely to try to view the stressful situation from a different perspective. These individuals are less likely to view the stressful situation from a positive perspective to help them overcome the issue. Results also revealed a positive relationship between ACE and problem avoidance. This indicates that higher ACE score are associated with the individual avoiding the problem causing them stress and avoiding actions or thoughts regarding the event. Results also

indicated positive correlations between ACE and wishful thinking and social withdrawal. This indicates that individuals who scored high on ACE are more likely to hope or wish that the stressful situation would get better. They also do not have the ability to reframe the stressful situation to help them overcome the issue and may blame themselves for the situation.

The correlation between ACE and the secondary subscales of the CSI revealed significant relationships with problem focused engagement, problem focused disengagement and emotion focused disengagement. A negative relationship with problem focused engagement indicated that those who scored high on ACE are less likely to use cognitive and behavioural methods to alter the stressful situation. A positive relationship with problem and emotion focused disengagement indicates that individuals actively use cognitive and behavioural strategies to avoid the stressful situation. Lastly, the correlation with emotion focused disengagement indicates that the individuals who scored high on ACE are more likely to keep to themselves and blame themselves for the stressful event occurring.

These correlational results show that within this sample, those who scored high on ACE are more likely to engage in behaviours as well as cognitive strategies that will allow them to avoid the stressful event that has occurred.

Comparing CFC and disengagement coping as predictors for PICTS, CFC was a stronger predictor for general criminal thinking when compared with emotion focused engagement and disengagement. However, problem focused disengagement was a stronger predictor than CFC. For reactive criminal thinking, CFC was the best predictor when compared to all four secondary CSI subscales. For proactive criminal thinking, CFC was a stronger predictor than emotion focused engagement and problem focused disengagement. Comparing CFC with the tertiary subscales of CSI, CFC was a better predictor than

disengagement coping for general criminal thinking. It was also a better predictor for proactive criminal thinking when compared with disengagement and engagement coping. However, disengagement coping was a better predictor for reactive criminal thinking than CFC.

ACE was not a significant predictor in the regression models performed with disengagement coping and CFC. However, both CFC and disengagement coping significantly predicted all general criminal thinking as well as reactive criminal thinking. This result could indicate that CFC has a relationship with coping strategies as well as criminal thinking. Further multiple regression analyses conducted between criminal thinking styles, CFC and disengagement coping style indicated that CFC and disengagement coping predicted criminal thinking. This result indicates a relationship between time perspective (CFC) and the three criminal thinking styles. These results therefore provide evidence for coping styles in addition to 'impulsive decision making' as predictors for criminal thinking which is in line with many previous studies (Luengo, Carrillo-de-la-Peña, Otero & Romero, 1994; Mazas, Finn & Steinmetz, 2000).

Overall, then, the results found from this research imply that among this sample, the cycle of abuse is present and that a disengagement coping strategy has a mediating relationship between adverse events experienced and later pro-criminal thinking. In addition to disengagement coping style, consideration of future consequences is also a significant predictor of criminal thinking. Together, these result give evidence for coping styles in addition to 'impulsive decision making' as predictors for criminal thinking. Although this research does not look at specific abuse experienced nor was the sample an incarcerated population, a relationship between past abuse and criminal thinking is present. This result provides support for the presence of the cycle of abuse.

Limitations

Although the results supported the hypotheses generally, not all relationships were supportive of the hypothesis. This could be due to many factors.

One possibility is the sample size; the target was to recruit a minimum of 200 participants. Although 190 participants were recruited; only 119 were included in the final analyses. Due to the fact that participants were allowed to exit the questionnaire, a large number of the responses were incomplete and therefore had to be deleted. Data collection also took much longer than anticipated therefore it had to stop prior to reaching 200.

Initially, an age restriction was placed on the questionnaire, but because data collection took longer than anticipated, the upper age limit was removed. The target age group was between 18 and 35 as this is the critical age of criminal offending. However, the mean age of this sample was nonetheless within that age bracket.

The incentive for this questionnaire may have lead unwanted respondents to participate. The nature of the questionnaire was anonymous. Participants were also not asked for their gender as the advertising specified for male respondents only. It is therefore possible, for example, that some respondents may have been female, potentially influencing the relationships between the variable. Given that male norms from the various test manuals were used, this could have impacted the relationships obtained. Due to the anonymous nature, participants' genders will have to be assumed as males.

Of those who did begin the questionnaire, not everyone completed the questionnaire. Those who did complete at least PICTS, ACE, and CSI were included as this still allowed the main hypothesis to be explored. However, even among those who did reach the end of the questionnaire, not everyone answered every question. Some responses were left incomplete,

such as the participant's age. This occurred as forced response was not applied from the beginning of data collection; however this was rectified as soon as it was noticed. Although some participants did not reveal their age, there were no missing data within the scales for this questionnaire. Because some did not reveal their age, the results obtained may not be true for some of the average group of this sample as the average age obtained could be inaccurate.

Another possible limitation to note is that a high proportion of the sample was students (37.0%). This could have affected the results as those who seek higher tertiary education may come from a more stable family background and receive more social support when encountered with challenging and stressful events or situations. Due to this, these participants may have adopted better and more effective coping strategies.

Although the correlations between ACE, PICTS and CSI were all significant, the Sobel tests to confirm the mediation relationships were not significant for all. This could be due to many factors, including the sample size as mentioned above. Sample size can impact whether a relationship will reach statistical significance or not. Although some of the relationships were not significant, with more participants, this could have been different. Participant demographics will also have a large influence on the relationship between the variables. Since the majority of the participants were students, they may all have similar characteristics. Participants were also recruited from personal Facebook friend lists which could potentially result in a selection bias. The sample distribution revealed that among some scales, data were not normally distributed which could have affected the correlations. However, data not being normally distributed was not of concern given that the majority of the participants scored within the normal range for ACE, coping strategies and consideration of future consequences. This indicates that the distribution of the sample were within expectations in terms of childhood adverse experiences and the other variables. Again, if a

larger sample had participated in this research, there could have been more variation on participant characteristics, which could have produced a normal distribution.

Due to the nature of this study, the questions involved in the questionnaire (particularly the ACE items) could have triggered unwanted negative past experiences. This could cause the participants distress therefore resulting in incomplete questionnaires; leading to low completion rates. The nature of the questionnaire was also long. Participants may have had the best of intentions to participate, but decide to exit as it was taking too long, leading to the low completion rates.

Despite the potential limitations, the results of this study did show a relationship between experiencing adverse events during the first 18 years of life, how the individual cope when encountering a stressful situation and criminal thinking in adulthood.

Future directions

To further understand the cycle of abuse, future studies could go in many different directions. It would be beneficial to explore the relationship between these variables included in this study in more depth, especially the relationship between consideration of future consequences with criminal thinking and coping strategies.

To further understand the cycle of abuse, it would be beneficial to follow participants over a longer period of time through a longitudinal study. By doing this, the variables under study could be measured over time, resulting in a clearer picture of how this cycle occurs.

To conclude, the results of this study suggest a significant relationship between adverse childhood events, coping strategies and pro-criminal thinking with coping style mediating between ACE and PICTS. However, more research is needed to explore these relationships further.

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