

PSYCHOPATHY, DELINQUENCY & ATTACHMENT:
TESTING THE MEDITATIONAL RELATIONSHIP IN ADOLESCENCE

By

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Abstract

Research on psychopathy in adolescence has increased substantially over the last two decades. The majority of this research has focussed on the developmental trajectory of psychopathy and the predictive reliability for future offending (Lynam et al., 2007). There has been a recent shift towards an understanding of potential protective factors that may act as a buffer against negative outcomes for young people with psychopathic characteristics. Attachment has been proposed as one of these potential mediators (Saltaris, 2002). The current research hypothesised that attachment to parents and peers would act as a mediator between psychopathy and self-reported delinquency. Two separate populations were sampled, undergraduate university students (predominantly late adolescent and young adult), and high school students (adolescents aged 16 to 18). Participants completed self-report measures of psychopathy, delinquency and attachment to peers and parents, with the university sample doing so at three separate time points. Results indicate that attachment to parents, but not peers, acted as a significant protective factor, reducing the strength of the relationship between psychopathy and delinquency for the university sample only. This finding was stable over a 16-week period. Although male participants reported higher levels of psychopathy than females across both samples, undergraduate females report increasing levels of primary psychopathy over the three time points. Additionally, high-school females report significantly higher levels of primary psychopathy than university females. The focus on adolescent self-report psychopathy is a first in this country. While further research is needed in this area, these findings point to the significance of bonds between adolescents and their caregivers.

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List of Abbreviations

ADD	Attention deficient disorder
AL	Adolescent limited
ASPD	Antisocial Process Device
ASPD	Antisocial personality disorder
CU	Callous unemotional
CPS	Child psychopathy scale
CBCL	Child behaviour check list
CD	Conduct disorder
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders
DS	Delinquency scale
FGC	Family group conference
IPPA	Intertory of parent and peer attachment
LSRP	Levenson Self report physhology scale
LCP	Life course persistent
PCLR	Psychopathy check list revised
PCLR-SV	Psychopathy check list screening version
PCL-YV	Psychopathy check list youth version
PPI	Psychopathic personality inventory
SES	Socio-economic status
SRD	Self report Delinquency
YPI	Youth Psychopathic Traits Inventory

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Chapter 1

Introduction

Context

There is growing momentum in psychopathy research towards a focus on the developmental trajectory of the psychopathic personality (Salekin, Dillard, Lee & Kubak, 2010). Researchers have found that psychopathy measured as young as 13 is predictive of psychopathy measured up to a decade later (Lynam et al., 2007). In adolescence, psychopathic characteristics are indicative and predictive of external behavioural outcomes, such as delinquency and antisocial behaviour (Asscher et al., 2011).

This chapter will describe psychopathy and summarise its history and conceptualisation. It outlines the common measurements used in the literature, and reported prevalence and stability findings for psychopathy. Risk factors for psychopathy are also addressed, along with a discussion on the utilisation of psychopathy as a tool for predicting future offending.

Psychopathy

Psychopathy is a construct used to describe a constellation of personality characteristics. People with this personality type (or disorder) are known to be callous, fearless, manipulative, lacking in empathy, but with a superficial charm (Hare, & Neumann, 2008). In addition they often have a history of antisocial lifestyle factors such

as a criminal history, alcohol and drug problems and a parasitic and irresponsible lifestyle (Hare, 1991). Psychopathic characteristics have similarities to antisocial and narcissistic personalities described in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 2000). Presently, there is no formal DSM psychopathy diagnosis and while psychopathy is superficially comparable to Antisocial Personality Disorder (ASPD) it is generally recognised as being distinctly different. While some of the behavioural items on the Psychopathy Checklist (PCL-R; Hare, 1991) are captured in the definition of ASPD, many of the interpersonal items are not. And it is these items that Karpman (1941) argues are essential to psychopathy if not representing ‘true’ psychopathy.

Common representations of psychopaths in the media include fictional characters such as Hannibal Lector in the popular *Silence of the Lamb*’s trilogy, and Dexter in the hit Showtime self-titled series. Both of these modern characters are serial killers and encourage the notion of the psychopath as a ‘human monster’ (Hesse, 2009). The mistake in using these characters as the sole portrayal of psychopathy is in the widely accepted notion that psychopathy is not a distinct personality type. Rather it falls on a continuum, with serious, violent offenders falling at the severe end of the continuum, and a range of examples of the personality at the opposite end (Hare & Neumann, 2008).

While the term ‘psychopathy’ is a fairly contemporary one, the syndrome of features that characterise the personality have been recognised and documented for over two centuries (for example, see Karpman, 1941). The concept or syndrome was used in its earliest form by Philippe Pinel, a French physician, to describe a broad category of people and mental disorders (Pitchford, 2001). He described people who were ‘insane without delirium’. In the mid 20th century several prominent clinicians and researchers redefined the term. In 1941, Cleckley published his work “The mask of sanity”, which was a rich description of a small but select group of people whom he considered to be psychopathic. He describes them as sane and seemingly intelligent but clearly disturbed. In the same year Karpman (1941) proposed a twofold typology of psychopathy. He proposed two main groups; one, symptomatic psychopathy, including the behavioural characteristics, and the second, idiopathic psychopathy, which encompassed the core interpersonal features of psychopathy. Following from this, the McCords (1959; 1964) argued for the application of the term to a diverse group of adolescents who were

displaying characteristics similar to, but distinctly different from, those diagnosed with conduct disorder (CD).

Prevalence and Stability of Psychopathy

While the prevalence of psychopathy in the general population is estimated to be only 3% (based on estimates of antisocial personality disorder) it increases in offender populations to approximately 23% (Blair, Mitchell & Blair, 2005). Psychopathy in non-institutionalised populations is often referred to subclinical psychopathy, and in a sample of high risk and low risk adolescents the prevalence of subclinical psychopathy has been reported at 9% (Andershed, Gustafson, Kerr, & Stattin, 2002). In adolescent populations the prevalence of sub-clinical psychopathy has been reported at 9% in a sample of high risk and non-high risk adolescents (Lynam, Caspi, Moffit, Loeber & Stouthamer-Loeber, 2007).

Subclinical psychopaths do not differ qualitatively from clinical psychopaths, but in the degree of behaviours. Clinical psychopaths are more likely to engage in extreme behaviours such as rape and robbery, which make it incapable for them to live in the community. Subclinical psychopaths engage in less extreme forms of the behaviour, such as sexual harassment in the workplace, or fraud, but manage to maintain relationships (Lebreton, Binning, & Adorno, 2006).

Reported levels of psychopathy differ depending on the measure used. For example, mean levels of psychopathy in self-report measures (e.g. Antisocial Process Screening Device) were lower than a clinically administered psychopathy measure (Psychopathy Checklist Revised: Youth Edition; PCL-YV) in a sample of adolescent delinquents (Spain, Douglas, Poythress & Epstein, 2004).

In New Zealand, data on the presence of psychopathy in both offender and general populations is limited. Most of the research that is available on the offender population has been carried out by the Department of Corrections (for example, Wilson, 2003). There is a need for more research to be conducted in the New Zealand offender population.

Psychopathy is a fairly stable construct that is resistant to change. Although difficult to treat, psychopathy is not impossible to treat. However, there is evidence that some treatment programmes exacerbate the symptoms (for example, Ogloff, Wong & Greenwood, 1990; Rice, Harris & Cormier, 1992). Treatment programmes that reported

a worsening of symptoms or offense rates may, however, have utilised questionable treatment conditions, for example, two-week “nude encounters” and drug treatment including LSD (Rice, Harris & Cormier, 1992). Researchers have since relegated the psychopath’s ‘failure’ to be rehabilitated as an almost acceptable reaction to such treatment (Devon & Ross, 2010).

In a critical analysis of treatment of psychopathic offenders, Skeem and colleagues (2009) cast a positive light on what works in reducing offending. They review several studies that indicate that for those offenders who score very highly (≥ 25) on the Psychopathy Checklist Revised (PCL-R; Hare, 1991), higher doses of treatment are more likely reduce reoffending (Skeem, Polashek, & Manchak, 2009). For example, violent young offenders who were subjected to a more intensive treatment programme than their counterparts were 2.6 times less likely to reoffend, indicating this approach was a relative success (Caldwell, Skeem, Salekin, & Van Rybroek, 2006). Two New Zealand offender programmes that have utilised this type of intensive treatment have also reported promising findings in relation to reducing reoffending compared to older treatment methodologies (see Berry 2003, Polaschek, 2008; 2010).

Measuring Psychopathy

The most widely used clinical measurement for psychopathy, the Psychopathy Checklist Revised (PCL-R; Hare, 1991), requires that participants be over the age of 18. This mirrors the DSM guidelines about care in diagnosing any axis II disorders for adolescents due to their development (American Psychiatric Association, 2000). The PCL-R is a clinic diagnostic tool consisting of 20 items. Items are rated 0 “does not apply”, 1 “applies somewhat”, or 2 “wholly applies”. Items are split into two sub-scales, the first; thought of as factor one, contain the items that relate more to the interpersonal features of the personality (superficial charm, lack of remorse and shallow affect). The second, factor two, contains items that relate to the behavioural characteristics of the personality (poor behavioural control, impulsivity).

However, because of the need to understand the development of such characteristics it is necessary to find a way to measure them earlier in life (Loney, Taylor, Butler, Iacono, 2007). Several clinical measures, designed to be equivalent, have been developed to assess psychopathy at an earlier age (for example, the Antisocial Process Screening Device; Frick & Hare, 2001), however these are generally

for use with clinical or offender populations and require a registered and trained clinician to conduct lengthy file analyses and interviews. To that end there have also been several self-report measures developed to assess the prevalence of psychopathy. One of these is the checklist designed by Levenson, Kiehl, and Fitzpatrick (1995) which was developed to be similar to the PCL-R. The Levenson Psychopathy Scale (LSRP) assesses the two distinct factors originally proposed by Karpman in 1941. He argued that there are two separate types of psychopathy; primary and secondary. Primary psychopathy is characterised by interpersonal characteristics such as callousness, manipulation, and lying. Secondary psychopathy is made up of characteristics which resemble an antisocial and disorganised lifestyle (Levenson et al., 1995). While the two-factor solution to the construct has been longstanding in the literature (Harpur, Hare & Hakstian, 1989), three-factor (e.g., Cooke & Michie, 2001) and four-factor (e.g., Vitacco, Neumann & Jackson, 2005) models have also been proposed.

There are several benefits to researching psychopathy using self-report methods within the general population. Firstly, there are often difficulties in gaining access to large samples of clinically recognised psychopaths. Using subclinical samples allows researchers to continue to understand the development and correlates of the disorder at a faster and more economical rate than using solely incarcerated populations. Secondly, because it is estimated that 1% of the population may meet the criteria for psychopathy, there are many people who, while displaying psychopathic characteristics, will never come into contact with the criminal justice system. They are what have been referred to as ‘successful’ psychopaths (e.g., Falkenbach, Poythress, Falki & Manchek, 2006; Ullrich, Farrington & Coid, 2008). Hare, the author of the PCL-R and one of the leaders in psychopathy research has stated that if studying psychopaths in prison was not an option, the next best place would be the stock market (Hare, 1991).

Two of the more popular scales used to assess subclinical psychopathy are the Psychopathic Personality Inventory (PPI; Lilienfeld & Andrews, 1996) and Levenson’s Self-report Psychopathy Scale (LSRP; Levenson, et al., 1995). While both measure psychopathy, the LSRP was designed to closely represent its clinical counterpart, the PCL-R, whilst the PPI was developed with a broader theoretical approach that combined the behavioural-based and personality-based approaches (Lilienfeld & Andrews, 1996). This resulted in the PPI being more than seven times the size of the LSRP (Poythress, Lilienfeld, Skeem, Douglas, Edens, Epstein & Patrick, 2010).

In a study comparing these two scales it was concluded that while both performed adequately on tests of reliability and validity, the PPI was the superior of the two, specifically in terms of measuring the interpersonal characteristics of psychopathy. However, many researchers opt to use the LSRP purely because it is a shorter measure (26 items), than the PPI (187 items), requiring less time to administer (Falkenbach, Poythress, Falki, & Manchak, 2007).

A more recent investigation by Lynam, Whiteside and Jones (1999) utilised a stringent multi-method validation design in order to test the validity and reliability of the LSRP. They explain that previous attempts at validating the measure have used other self-report measures as comparisons which can cause problems due to item overlap. They argue that a way around this is to use performance measures that distinguish between psychopath and non-psychopaths. In their study, participants completed two computer-based performance tasks in addition to the two self-report measures of psychopathy. Their results indicate that the LSRP has excellent test-retest reliability and internal consistency.

Originally the LSRP was developed with a two-factor structure in place. The primary scale consisted of 16 items matching factor one on the PCL-R, the interpersonal and affective characteristics, and the secondary scale consisting of 10 items correlating to factor two of the PCL-R (Hare, 1991), the impulsivity and lifestyle items. Although there have been attempts to use a three factor solution on the LSRP (Cooke & Michie, 2001), the two factor solution is still the most widely validated and used (Lynam et al., 2010).

Risk Factors Associated with Psychopathy

Causes of, and risk factors for psychopathy are often separated in the literature. Causes tend to refer to physical and genetic factors, whereas risk factors are generally thought of as the social and environmental factors that influence development of personality (Blair, Peschardt, Budhani, Mitchell & Pine, 2006). Although a comprehensive review of the literature on genetic and psychobiological causes of psychopathy is beyond the reach of this paper, it should be noted that there is a general consensus from a number of twin studies (e.g. Blair et al., 2006; Forsman, Lichtenstein, Andershed, & Larsson, 2008; 2010) that indicate a substantial proportion of genetic influence is responsible for the emotional dysfunction in psychopathy.

Research on the social and environmental factors that play a part in the development of psychopathy is plentiful (Leistico, Salekin, DeCoster & Rogers, 2008). These can be split further into stable or malleable factors that are proposed to increase or decrease psychopathic characteristics. Gender and ethnicity are usually included in research as data on these are easy to gather.

Gender findings are reasonably consistent across the psychopathy literature; the prevalence of psychopathy in males is higher than in females in both general and offender samples (Jackson, Rogers, Neumann & Lambert, 2002), and males consistently score higher than females on measures of psychopathy (Vitale, Smith, Brinkley & Newman, 2002). Despite these common findings there is reason to question any results that generalise about females and psychopathy. The PCL-R, its derivatives, and the majority of other measures of psychopathy have been validated on a predominantly white, male, offender population (Vitale et al., 2002), leaving little clear-cut evidence with female samples.

There is limited research on the relationship between ethnicity and psychopathy, however findings do suggest that there is no evidence that the prevalence of psychopathy is higher in one ethnicity than another (Skeem, Edens, Camp & Colwell, 2004). However, again, caution is needed as this may be the product of the population the scales were developed with.

It may be that cultural differences are more relevant than ethnic group differences in the psychopathy literature. Meta-analyses of PCL-R scores across seven different countries in North America and Europe support the use of the construct in industrialised western countries (Cooke, Michie, Hart & Clarke, 2005). These analyses also point to a set of distinct characteristics within the psychopathy framework that are particularly stable across cultures. They used the three-factor model proposed by Cooke and Michie (2001) and found that ratings for factor two, Deficient Affective Experience, provided more reliability and precision than the other two factors. They argue that this is evidence for Deficient Affective Experience to be the “pan-culture core of psychopathy” (Cooke et al., 2005, pg 290).

The majority of research in adult populations has focussed on risk factors for developing psychopathy, factors which increase the likelihood of a person being diagnosed with psychopathy. There is very little research into factors which may contribute to a positive outcome; either a decrease in psychopathy or prevention of negative outcomes despite the presence of psychopathic characteristics (Salekin, Lee

Dillard & Kubak, 2010). These protective or buffering factors are crucial to further understanding the development of psychopathy and in the application of treatment for those institutionalised or incarcerated. Whilst information on protective factors will certainly be informative for adult populations it is perhaps most pertinent for child and adolescent populations who may be more responsive to change and are less likely to have a long history of criminal offending. The opportunity for change in this age group needs to be taken advantage of.

Prediction of Future Offending

The reason psychopathy demands so much attention is its ability to predict future offending, particularly violent offending. The use of the Psychopathy Checklist in the prediction of future offending is widespread amongst clinicians assessing violent offenders (see Hare, 2003 for a review of the evidence). However, because of the possibility of error in *this type* of prediction it is crucial that the most accurate tools are used for assessment. Prediction of low frequency crime, such as murder, will be more likely to over-identify offenders compared to other crimes (Yang, Wong, & Coid, 2010). The consequences of this can be costly, both emotionally and financially. Offenders who are deemed as high risk for future offending are likely to be preventatively detained, regardless of their past offending and the time they have already spent in prison (Yang, Wong, & Coid, 2010). A recent meta-analysis of nine commonly-used assessment tools conducted by Yang and colleagues found that both the PCL-R and the PCL-SV (the PCL-Screening Version is a shorter version of the PCL-R) performed as well as all other tools, however this was due almost solely to the predictive validity of Factor two (antisocial lifestyle). Factor one, the personality features associated with psychopathy, was not useful in predicting future arrest conviction rates (Yang, Wong & Coid, 2010).

The importance of accurate predictions are therefore essential, particularly when the adolescent version of the PCL-R is used for prediction of offending in a population where offending may also be an occurrence of a developing adolescent who is experimenting (Moffit, 1993). Although the predictive validity of the PCL-YV has been well documented (see meta-analyses by Edens, Campbell & Weir, 2007), specifically for general and violent recidivism, it's ability to predict over long periods has not been as successful (Cauffman, Kimonis, Dmitrieva & Monohan, 2009). In a large study with male offenders (who had committed serious felony offences) aged between 14 and 17

years of age, psychopathy was assessed with three separate measures; the PCL-YV (Forth, Kossen & Hare, 2003), the Youth Psychopathy Traits Inventory (YPI; Andershed et al., 2002), and the NEO (Neuroticism-Extroversion-Openness) Psychopathy Resemblance Index (Miller & Lynam, 2003) over a 36-month period. Two significant findings were detailed: the first was the lack of agreement between the measures in identifying an offender as psychopathic, the second was that there was very little predictive validity for the PCL-YV at any of the three time points (Cauuffman et al., 2009).

Summary

This chapter has discussed the historical conceptualisation of psychopathy and the importance of recognising the distinct sub types of psychopathy. Psychopathy is a stable construct that is resistant to treatment and highly predictive of future re-offending.

The following chapter will introduce the relevance of applying the concept of psychopathy to adolescence. The development of psychopathy in adolescence is a fairly new area within the psychopathy literature and this will be considered in relation to attachment in the next chapter.

Chapter 2

Adolescence

Introduction

The relationship between psychopathy and delinquency as an outcome of such a personality is not a straightforward one, and learning more about what may mediate this relationship is important in planning interventions for youth who are portraying antisocial characteristics. Attachment has been identified as an important protective factor for the development of antisocial behaviour (Fonargy et al., 1997). This indicates the importance of education for parents that will encourage and foster positive attachment with their children.

This chapter will consider the development of psychopathy in adolescence. It will then consider the importance of attachment in relation to the development of psychopathy traits.

Development of Psychopathy

The stability of psychopathy across time is difficult to measure as it requires access to adequate numbers of participants over an extended period of time to provide reliable and valid results (Frick, Kimonis, Dandreaux & Farell, 2003). High stability coefficients have been found in two studies (Schroeder, Schroeder & Hare, 1983; Rutherford, Cacciola, Alterman, McKay & Cook, 1999) which tracked psychopathy

over a relatively short period of time, however the application of findings is limited due to the sampling periods (10 months and 24 months respectively). The money and time needed to conduct longer studies are often too prohibitive for researchers to consider. Consequently the research on the developmental trajectory of psychopathy over time is fairly limited. Despite this, there are several, high quality, longitudinal studies which have shown the predictive validity of psychopathy in childhood and adolescence for future antisocial behaviour and offending (Gretton, Hare & Catchpole, 2004; Frick Cornell, Barry, Bodin, & Dane, 2003; Lynam et al., 2007; Schmidt, Campbell & Houlding, 2011).

Frick et al. (2003) measured child psychopathy using a measure of callous-unemotional traits, and reported it to be predictive of adolescent psychopathy over a four-year period. It cannot be assumed from this however that these adolescents will continue displaying psychopathic characteristics in adulthood. The majority of these youth will desist in the kind of behaviour that would inflate scores on the antisocial behaviour scale of psychopathy measures, due to lifestyle changes as they get older (Moffit, 1993). Longitudinal models must follow participants over a longer period of time in order to provide adequate predictive validity.

Over a 10 year period Gretton, Hare and Catchpole (2004) followed 157 boys who had been referred to Youth Forensic Psychiatric Services in Canada. They found that scores on the total PCY:YV predicted violent offending, but not non-violent or sexual offending. Additionally, those who scored higher on the PCL:YV reoffended significantly earlier than the lower scoring participants. Their research highlights the relatively stable nature of psychopathic characteristics, even in adolescence.

Over a 10-12 year time frame Lynam et al. (2007) tracked male participants (sample was a mix of high and low risk) from age 10-13 until ages 22-26 and assessed them on a variety of measures. The authors assessed adolescent psychopathy using the CPS (Child Psychopathy Scale; Lynam, 1997) and adult psychopathy using the PCL-SV (Psychopathy Checklist – Screening Version; Hart, Cox & Hare, 1995). Accounting for several control factors including delinquency, Lynam et al. (2007) found that psychopathy at age 13 was predictive of psychopathy at age 24, regardless of initial levels of psychopathy and initial risk status. Initial risk status was judged by a combination of the Child Behaviour Checklist (CBCL) and a self report delinquency measure (Loeber, DeLamatre, Tita, Cohen, Stouthamer-Loeber, & Farrington, 1999).

In another 10-year time period, Schmidt and colleagues (Schmidt, Campbell & Houlding, 2010) found that psychopathy, as measured by the PCL:YV predicted recidivism for a sample of high-risk adolescents. They reported that the presence of more psychopathy traits was strongly predictive of violent and sexual offending over the 10-year period. Additionally, their results found the PCL:YV was predictive of female recidivism.

While this research is helpful in predicting future offending, it doesn't necessarily denote that these children grow up to be psychopaths. This distinction is important when keeping in mind the asymmetrical relationship between psychopathy and offending. Because of the relationship between psychopathy and violent and chronic offending (Hare, 2003), longitudinal evidence supporting the stability of psychopathy may be more helpful in predicting offending.

In a large meta-analysis of recidivism data for adolescent psychopathy, Edens, Campbell and Weir (2007) reported that although there was a significant relationship between psychopathy and recidivism, there was still a large amount of variability that needed to be explained by other factors such as gender and ethnicity. Effect sizes were much smaller for those studies that included female delinquents or had a high proportion of non-Caucasian participants. This implies that the relationship between psychopathy and offending is dependent on gender and ethnicity. This has important implications for the use of measures of psychopathy in legal settings to assess risk for re-offending. Edens et al.'s findings imply that the PCL-R should not be used for female or non-Caucasian offenders to assist imprisonment length or parole decision making, due to its unreliability in prediction of recidivism for these populations.

Applying the term to adolescents

There are two main concerns about using the label 'psychopath' with adolescents. The first is that it may be misdiagnosed because of its co-morbidity with other psychopathology (Seagrave & Grisso, 2002; Skeem & Cauffman, 2003). Secondary, it may be over-identified because of the similarity to 'normative' delinquency that many adolescents experiment in as they develop (Moffitt & Caspi, 2001).

Salekin (2006) argues that youth who display symptoms of CD and attention deficit disorder (ADD) are at risk for also being labelled as psychopaths because of the

overlap in symptomology in the disorders. He argues that there is not a clear enough differentiation in the DSM-IV between the symptoms of the disruptive disorders and current measures of child or adolescent psychopathy. In short, many adolescents may display general psychological dysfunction rather than a specific psychopathic nature (Salekin, 2006).

Changes proposed for the DSM-V (due for release in 2013) include a recommendation to include a callous-unemotional specifier that can be used with the diagnosis of CD (Frick & Moffitt, 2010). This proposal is a way of delineating a subgroup of antisocial individuals who also display the core affective and interpersonal features of psychopathy. Callous-unemotional (CU) traits show little overlap with DSM definitions of CD and are often indicative of a subset of children and adolescents who have more severe behaviour (Viding, Blair, Moffitt & Plomin, 2005).

In addition to this issue, Moffitt and Caspi's (2001) dual pathway theory indicates that there is a point in the adolescent's life where they are at a higher risk of being identified as psychopathic purely because they are following a normative developmental path that involves experimentation with delinquency and criminal activity. They argue that there are two separate groups of delinquent adolescents. The first are those whose behaviour problems started in childhood. These adolescents had difficult childhoods characterised by inadequate parenting, high neurocognitive risk and poor temperament. Moffitt and Caspi (2001) use the term 'Life Course Persistent' (LCP) to differentiate these offenders from their peers. The second group, follow an 'Adolescent Limited' (AL) pathway of offending and are mimicking the behaviour of their LCP peers in an attempt to gain autonomy from their parents and find social status amongst their friends. While it is obvious that their theory indicates a large level of social influence in the offending of the AL group, it also points to the genetic components that are likely to influence the LCP group. Moffitt and Caspi (2001) argue that the LCP delinquent has inherited specific neuropsychological variation, causing cognitive difficulties and difficult temperament. This genetic base, combined with environmental factors such as poor parenting living in a low socio-economic neighbourhood, provides a breeding ground for delinquent behaviour to develop into a more permanent personality.

Delinquency and Psychopathy

The concept of delinquency is a twentieth century neologism that arose from concerns for a need for separate justice systems for adults and children (Seigal & Welsh, 2009). The term ‘juvenile delinquency’ was adopted as a generic phrase rather than labelling the child or adolescent as a burglar or thief, and indicates that they needed the care and protection of the state. In legal terms, juvenile delinquency refers to a minor (usually younger than 16 or 18 but varies between countries and states within the U.S.) who has violated the penal code (Siegel & Welsh, 2009).

The term ‘delinquency’ also allows for the inclusion of ‘status’ offenses. These are offenses that, if committed by an adult, would not be illegal. Examples of status offences are; the purchase, use or possession of tobacco or alcohol, truancy, and running away from home. In New Zealand when a child or adolescent commits a ‘status offence’ (not a term commonly used in this country) they are referred by the school, parents, police or other authority to Child, Youth and Family which are a service of the Ministry of Social Development. The most common outcome for child offenders (children aged between 10 and 14) is referral by a social worker to attend a Family Group Conference (FGC). At this conference, plans are made to address the child’s offending, make some sort of amends to victims, and ensure the care and protection of the child within the family (Child, Youth & Family, 2010).

The relationship between delinquency and psychopathy is complex. Delinquency can be viewed as both a risk factor for the development of psychopathic tendencies and also an outcome of one having psychopathic characteristics (Asscher, Vugt, Stams, Dekovic, Eichelsheim, & Yousfi, 2011). Numerous cross-sectional studies have found that psychopathy is moderately to highly correlated with past and current levels of delinquency (Caldwell et al., Frick et al., 2003; Gretton et al., 2004; Skeem & Cauffman, 2003 & Vaughn, Howard & DeLisi, 2008). A recent meta-analysis of 53 studies found delinquency to be moderately related to psychopathy (Asscher et al., 2011). Research using a large sample of juvenile offenders found that psychopathic personality traits were predictive of delinquency (Vaughn et al., 2008). However in order to look at the two in a causal relationship it is important that the measure of psychopathy being used does not include items that measure offending or delinquency. Leaving these items in an analysis runs the risk of essentially measuring and comparing the same construct. The current four factor conceptualisation of psychopathy proposed

by Hare (2003) separates antisocial behaviour as the fourth factor making it then difficult to use the scale score total to predict delinquency.

Attachment

Attachment researchers have linked attachment, (specifically disorganised attachment), to psychopathy over several decades of research (Frodi et al., 2001; Saltaris, 2002; Van Ijzendoorn et al., 1997). One of the most prominent researchers in the field of attachment states that “disruption of attachment during the crucial first three years of life can lead to ‘affectionless psychopathy’: the inability to form meaningful emotional relationships, coupled with chronic anger, poor impulse control and a lack of remorse” (Bowlby, 1969). This conclusion came from his ethnographic work among homeless delinquent boys in London in the 1940’s. The majority of conceptualisations of attachment utilise Bowlby’s theory in the development of measurements of attachment (O’Connor & Byrne, 2007).

Attachment is defined as an “enduring affectional bond of substantial intensity” (Armsden & Greenberg, 1987, p. 428). Attachment functions to serve several specific goals for the infant. Firstly, the attachment relationship provides a safe haven for the infant to turn to in times of distress, to be comforted and reassured. Secondly, it provides a secure base for the infant to explore the world beyond their primary attachment figures. And lastly, it performs proximity maintenance by propelling the infant to seek constant proximity and resist separations from the caregiver (Hazan & Shaver, 1994).

The development of attachment bonds also gives the child a basis for self-regulation and empathy. The attachment between children and parents influences how emotional understanding develops (Laible & Thompson, 1998). Children construct ‘internal working models’ that help them decide how to deal with different situations. These models are developed as a part of the early socialisation that occurs within the family unit (Kochanska, Koenig, Barry, Kim, & Yoon, 2010). This early development of attachment also sets the stage for how future attachments will form. Kochanska and colleagues have argued that fostering of the early conscience in children is “the single most powerful factor that promotes adaptive, competent functioning and prevents destructive, antisocial, and callous behaviour problems” (Kochanska et al., 2010, pg 1320). Their prospective longitudinal research found that those children who, as

toddlers, had a strong history of empathy towards their parent and internalised compliance of rules, displayed fewer antisocial problems in school.

Traditionally, attachment theory has focussed on the relationship between the child and their primary caregiver. As the mother is usually the one with the closest proximity to the child, it is often assumed that 'caregiver' is synonymous with 'mother'. Cultural differences and historical changes to parenting roles have seen a recent change, to allow 'caregiver' a broader definition (Cassidy & Shaver, 1999). Questionnaires on attachment now commonly refer to 'parental figure' or 'primary caregiver,' allowing for the definition to apply to any maternal or paternal figure. Additionally, measures such as the Inventory of Parent and Peer Attachment (Armsden & Greenberg, 1987) also allow attachment relationships to peers, and even relationships with God to be measured (Kirkpatrick, 1998).

Ainsworth operationalised Bowlby's theory into a scientific framework that would allow his theory to be tested (Ainsworth & Bell, 1970). Her initial experiment involved infants over the age of 12 months who interacted with their mother. They would play quietly with toys in a room while a stranger (to the child) entered and talked to the mother. The stranger then left the room and the mother and baby continued to play. After a short period of time the mother left the room and the stranger re-entered. Infant's behaviour was coded on their response to this change.

The outcome of the initial experiments was the formation of three (later revised to four) attachment categories. The first category, secure attachment, describes those infants who play and explore happily with their mother, show distress upon their mother leaving the room and are unsure about the stranger, but quickly settle and later respond immediately to their mother on her return. This category accounts for approximately 60% of the population (Hazan & Shaver, 1994). The second category, anxious-ambivalent, accounts for about 15% of the population and describes infants who appear anxious and angry and do not readily explore with their mother present. The final category, anxious-avoidant attachment, describes the infants who appear to pay little attention to their mother and are not overtly affected by the entrance of the stranger or the disappearance and reappearance of their mother. On average, about 25% of the population fall into this category of attachment. These percentages are based on a white, middle class background and different patterns have been observed across cultures (van Ijzendoorn & Kroonenberg, 1988).

More recently, Main and Solomon (1990) have identified a fourth category, disorganised/disorientated attachment, due to a number of infants who participated in the strange situation experiment could not be classified into any of the three previous styles. This category describes infants who do not have a logical approach for managing anxiety and show a mixture of avoidant and ambivalent behaviours. This pattern is argued to be the result of parental depression or abuse (Green & Goldwyn, 2002).

Attachment in Adolescence

Attachment relationships continue to change and develop throughout adolescence. Adolescence brings with it the development of formal-operational thinking, and logical and abstract reasoning (Christie & Viner, 2005). This kind of thinking can lead to an assumption (right or wrong) that parents are no longer able to meet their attachment needs (Allen & Land, 1999). The drive for autonomy from parents is a normal consequence of this stage of life as adolescents begin to see themselves as distinct from their caregivers to a greater extent than ever before (Allen & Land, 1999).

With less dependence on parental figures to meet their attachment needs, adolescents naturally turn to their peer groups for close relationships (Dozier, Stovell & Albus, 1999). These peer attachments become particularly relevant in understanding an adolescent's trajectory towards delinquent behaviour. The closer they are to their peers, the more likely they are to conform to their friends' values and behaviours as their own (Dozier, Stovell & Albus, 1999). Additionally their somewhat reflexive desire to gain approval from their parents has now transferred to a need for approval from their friends. It is in this transference (or addition) of important attachment relationships that adolescents may make poor decisions to follow the lead of delinquent peers.

While attachment to peers becomes important in adolescence this does not mean that the attachment bonds to parents become completely ineffective. In fact, in times of distress, individuals in early and mid-adolescence are still more likely to turn to their parents in times of trouble (Allen & Land, 1999). This indicates the potential for attachment to parents in acting as a protective factor against adverse outcomes.

Studies comparing psychiatric populations to general high school populations have found that an insecure attachment is more common in the latter population after accounting for gender and Socio-Economic Status (SES) (Allen, Hauser & Borman-

Spurrell, 1996). Longitudinal studies linking attachment and severe psychopathology are few. In their 11-year follow up, Allen and colleagues found that severe psychopathology at age 14 predicted insecure attachment at age 25.

Wallis and Steele (2001) investigated attachment in a group of adolescents institutionalised for varying emotional and behavioural issues. They found that the majority had insecure or dismissive attachment patterns and very few had secure attachments. In a similar, although much larger study, Nakash-Eisikovits, Dutra and Westen (2002) found that disorganised attachment correlated with the majority of DSM-IV personality disorders they measured (e.g. schizoid, avoidant, antisocial and histrionic). Specifically, disorganised attachment was positively correlated with all of the personality disorders measured.

Attachment and Psychopathy

Despite the extensive research into negative outcomes of a disordered or dismissive attachment, there has been little focus on its relationship to the development of an antisocial lifestyle and specifically a psychopathic personality. The research that has been conducted indicates a direct link between disordered attachment and the personality traits of psychopathy. In fact some authors have already made the bold causal argument that “violence and crime are... disorders of the attachment system” (Fonagy, Target, Steele & Steele 1997, 163). Part of their explanation for how a disordered attachment leads to psychopathic characteristics is that the individual lacks a mental representation of others, making violence towards them an easier option for conflict resolution than those who have this mental representation (Fonagy et al., 1997).

Research with incarcerated offenders has found that the attachment classification of offenders differs greatly from comparison populations of non-offenders. For example, Van Ijzendoorn and colleagues (1997) utilised the Adult Attachment Interview (AAI) to assess attachment in 40 violent male offenders. They found that compared to non-clinical populations, these offenders were more likely to fit into the ‘unresolved-disorganized’ category or the ‘unclassifiable’ category (Van Ijzendoorn, Feldbrugge, Derkes, Ruiters, Verhagen, Philipse, van der Staak, & Riksen-Walraven, 1997). Similarly, Fonagy’s research found an over-representation of both ‘dismissing of attachment’ categories and the ‘unresolved-disorganized’ categories (Fonagy et al., 1997).

In light of this, Frodi and colleagues (Frodi, Dernevik, Sepa, Philipson & Bragesjo, 2001) sought to clarify the relationship between psychopathy and attachment using the PCL-R to measure psychopathy. Although they found that the majority of their adult male participants had dismissive attachment styles they did not find that attachment style differed with degree of psychopathy. However this was due to the homogeneity of their sample.

Similarly, the link drawn between sexual offending and attachment difficulties is fairly well established (examples include; Ward, Hudson & Marshall, 1996 and Ward, Hudson, Marshall & Siegert, 1995). Marshall (1989; 1993, as cited in Abracen, Looman, Di Fazio, Kelly, & Stirpe, 2006) has proposed that the intimacy deficits observed in sexual offenders are a result of attachment difficulties at particular age (e.g. adolescence).

Research exploring attachment and psychopathy in adolescence is even more limited than that with adults and has only recently gained more attention (Frick, Lilienfeld, Ellis, Loney, :Silverthorn, 1999; Loney, et al., 2007). Additionally the majority of research has been carried out with incarcerated or known youth offenders and little is known about the relationship between attachment and sub-clinical psychopathy (but see Williams, Spidel & Paulhus, 2005, for an exception).

Research with adolescent delinquent males (on probation) found that scores on the IPPA parent scale were negatively correlated with scores on the PCL-YV (Kossen, Cyterski, Steuerwald, Neumann, & Walker-Matthews, 2002). They also reported no correlation between psychopathy and scores on the peer scale of the IPPA (Kossen et al., 2002). A similar study with incarcerated males utilised a later version of the IPPA that splits the parent scale into mother and father scales. These findings indicated that psychopathy negatively correlated with attachment to father but not to attachment to mother or peers (Flight & Forth, 2007).

Summary

This chapter has discussed some of the major longitudinal research in the area of adolescent psychopathy that point to the stability of the construct over time, and to the predictive validity of several of the main measures of psychopathy. Additionally, it addressed some of the concerns about applying the term to adolescents or children,

specifically in relation to overlapping symptoms with CD and delinquency. Finally has introduced the concept of attachment and discusses the potential protective mechanism.

The following chapter will build on this work and outline the hypothesis for the remainder of this thesis. It will discuss two studies constructed as part of this thesis to assess the role of attachment as a mediating factor in the development of psychopathy in adolescence, and will then consider appropriate measures to assess the effect of this.

Chapter 3

Methodology

Introduction

The current study aims to extend the literature on attachment and psychopathy in subclinical samples. Specifically, it aims to provide further validation and reliability data for the LSRP, the IPPA and the Self-report Delinquency (SRD) scales in a New Zealand Sample. Because data is to be collected at three time points over approximately 12 months, test re-test reliabilities will also be calculated. Furthermore this study aims to contribute to the understanding of the development of psychopathy by assessing the construct over time and looking at the possible mediating variable of attachment.

The research has surveyed two distinct populations, a university aged population, and a high school aged one. There are several reasons for doing this. University participants are a relatively easy population to access making data collection quick and efficient. Furthermore, the majority of research using the LSRP has utilised university populations so doing so here enables direct comparisons to be made. Given that one of the central elements of this thesis concerns the development of psychopathy during adolescence it is logical to try and look at the traits with a younger group of adolescents. While the two populations are fairly similar, there is one main difference between them that is relevant for this research. High school students are almost exclusively going to be residing with their parent/s, whereas university students are more likely to be living in halls of residence or other student accommodation. This

difference will potentially result in differences in levels of attachment with both parents and peers.

The remainder of this chapter will outline the hypotheses for this thesis, the participant details for both populations and the procedures involved in sampling them. Finally it details the three measures used in the survey.

Hypotheses

Based on the findings from Lynam (1997) and Vaughn et al (2008) it is expected that the relationship between psychopathy (overall scale score of the LSRP) and delinquency will be a significant positive one, with those participants that report higher levels of historical delinquency also reporting higher levels of psychopathy. It is expected that this relationship will be stronger with primary psychopathy, given the findings from Levenson et al (1995), who reported higher levels of delinquency were more strongly associated with primary psychopathy than secondary psychopathy.

In accordance with Vaughn et al's (2008) findings that higher psychopathy scores predict delinquent careers, it is also expected that although both primary and secondary psychopathy scores will make a unique contribution to the prediction of delinquency. It is unclear from the limited research whether primary or secondary will make a stronger prediction to delinquency scores. Based on the findings from correlational analyses (Levenson et al, 1995), it could be expected that primary psychopathy will be the better predictor. However, conceptually it makes more sense for the secondary psychopathy scale to be a better predictor given it measures similar things to the delinquency scale.

Research on attachment and delinquency has been largely focussed on the 'types' (e.g. dismissive) of attachment that are associated with delinquency. For example, Van Ijendoorn (1997) found male offenders to be likely to fit into the unresolved/disorganised category.

Rather than being a categorical assessment of attachment, the measure of attachment used in the current study measures attachment to parental figures and peers separately as continuous constructs (scores on a continuum). However, it is logical that classifications of dismissive, unresolved or disorganised attachment would be broadly equivalent to scoring low on a general measure of attachment (Armsden & Greenberg, 1987). Therefore it is expected that scores on the parent subscale of the IPPA will

correlate negatively with scores on the delinquency scale, such that greater reported delinquency is expected to be associated with less positive attachment.

The relationship between peer attachment and delinquency is not as clear in the literature. While there is some evidence that negative attachment to parents correlates with delinquency (e.g., Leas & Mellor, 2000), and a positive attachment to delinquent peers correlates with increased delinquency, there is some thought that this may be dependent on the age of the adolescent (see Elliott & Menard, 1996). Younger adolescents are likely to spend more time at home with their parents than university-aged students, many of whom have left home for the first time, and many leaving the city/town they grew up in to attend university. This naturally results in a reduction of time spent with their parents and an increase in time spent with peers (in halls of residence or student flats). It is this change in amount of time spent with parents and peers that is thought make older adolescents more susceptible to the influences of their delinquent peers (Warr, 1993). Given these conclusions it is therefore logical to expect that attachment to peers for the university sample may be more strongly associated with increased delinquency than the high school sample, who continues to receive the protective effects of attachment to their parents.

It is expected that the relationship between secure attachment and psychopathy will be negative. The more attached an individual is to parents and peers; the less highly they are expected to score on psychopathy. However it is hypothesised that this relationship may be driven by the parent component of the scale and that, like Kossen et al. (2002), no relationship will be found between psychopathy and peer attachment.

According to the literature (e.g. White, Moffitt, Caspi, Jeglum Bartusch, Needles, & Stouthamer-Loeber, 1994) an individual's scores on the psychopathy scale should significantly predict their scores on the delinquency scale, based on the assumption that pathologies of personality will manifest behaviourally. This hypothesis will be tested by adding primary and secondary psychopathy into block 1 of the regression model. Attachment variables will be added in block 2 of the regression models as they are thought to have less predictive value than the psychopathy variables. Due to the expectations for the relationship between peer attachment and delinquency, scores on the peer subscale are hypothesized to predict unique variance in scores on the delinquency scale.

In order to further unlock the relationship between the three variables, psychopathy, delinquency and attachment, meditational analyses will be utilised.

Mediation is a statistical model designed to explain the relationship between an independent and dependant variable via a third variable, the meditational variable. It attempts to explicate the mechanism or route by which X results in Y. In the meditational model, variable X is thought to affect variable Y, through one or more intervening variables (Baron & Kenny, 1986).

Given the above predictions and findings of previous research it is expected that attachment to both parents and peers will act as a mediator between delinquency and psychopathy. Specifically it is thought that high levels of attachment to both parents and peers will act as a buffer and reduce the hypothesized positive relationship between delinquency and psychopathy. Such a finding would suggest that the potential influence of psychopathic personality traits might be ameliorated (or exacerbated) by more secure (or insecure) attachments to peers and parents.

The longitudinal nature of study one allows an investigation of changes in endorsement of each variable, relationships between variables, and potential causal relationships. Firstly, it is logical to expect a decrease in reported attachment to parents and an increase in attachment to peers over time. Additionally it is also thought that scores on delinquency may increase over time, perhaps due to increased opportunity to partake in delinquent behaviour (Jang & Thornberry, 1998, Warr, 1993). No significant changes are expected in scores on either psychopathy scale due to it being a measure of a fairly stable personality trait (Frick et al., 2003).

The relationship between attachment to peers and delinquency may increase over time. Additionally, although scores on the psychopathy scale in general should remain stable there may be an increase in the relationship between secondary psychopathy and attachment to peers. The secondary measure of psychopathy has many behavioural elements that are more susceptible to change over time. This would also naturally result in an increase in the relationship between secondary psychopathy and delinquency.

In study 2, the younger sample of adolescents, it is expected that attachment to parents will be stronger than the university sample. It is also expected that delinquency scores would be lower than the university sample. There are no clear expectations from the literature about any differences in psychopathy scores between the different age groups.

University Study

Participants and Procedure: Time 1

Participants were 758 (504 female, 252 male) undergraduate students enrolled in a first year psychology paper at Victoria University, Wellington. Participants were aged between 16 years and 70 years of age with the majority being aged 17-19 years old (75.1%). Participants also provided information on their ethnicity. Three quarters (77%) of the sample identified themselves as Pakeha (New Zealand European), 6.7% as Maori, and the remaining 16.2% chose the category 'other' and typed their ethnicity.

Participants in study one filled out a number of surveys across different topic areas in their first laboratory class for the semester. The surveys were all self-report and administered via the computer using Survey Monkey (www.surveymonkey.com), an online tool for gathering data. Participation in the study was voluntary and no penalty was given if students did not participate.

Participants and Procedure: Time 2

A total of 647 university students participated in the second wave of data collection at time 2 (beginning of trimester 2). This survey was identical to the survey given at time 1 and administered 19 weeks after time 1. Participants were again asked to complete the survey as part of a larger survey in their first laboratory session for the semester. Sixty-eight percent of these participants were female, 30.9% male, and two participants did not give information on sex. Ages of participants ranged from 17 to 70 with the majority (82%) being between the ages of 18 and 20. Three-quarters of the sample (75.2%) identified their ethnicity group as Pakeha, and 7.2% identified their ethnicity as Maori. The remaining 17.7% of participants indicated various ethnicity groups. Just over half of the participants were enrolled in an arts degree (56.5%), 38.8% in a science degree and the remainder were enrolled in either law or commerce or a mixture of degrees.

Participants and Procedure: Time 3

A total of 108 students participated in the third wave of data collection at time 3 which was the beginning of trimester 3. Of these 108 participants only 65 were matched

as having also completed both time 1 and time 2 surveys. The survey was identical to those given at the previous two time points in this study.

Of these 65 participants, 76.9% were female, and 23.1% were male. Ages ranged from 17 to 28 years old with the majority of participants being ages 18 and 19 (69.2). The majority of the sample identified themselves as pakeha (81.5%), 3.1% as Maori, and the remainder indicated a variety of ethnic groups.

High School Study

A total of 104 high school students participated in study three. Participants were students from Wellington College and Hutt Valley High School. Ages ranged between 16-17 years old. The sample was predominantly male (87.5%) as a result of the participation of an all boys college. Information on ethnicity was not collected.

Approximately one week in advance of the researcher visiting the school, students were informed by their teachers that they would have the opportunity to participate in a survey on personality. In consultation with teachers at both schools, several classes were made available for the researcher to attend and conduct the survey. Students were given a brief introduction to the study and asked to participate. None of the students declined to participate. Paper surveys were handed out and students given approximately 15 minutes to fill them in. The researcher then collected the surveys and debriefed the students.

Measures

Psychopathy

Psychopathy was measured using the LSRP, a 26-item scale that assesses two distinct types of psychopathy, primary and secondary, on a continuum. Items 1 to 16 comprise the primary psychopathy scale which measures callousness, while items 17 through 26 comprise secondary psychopathy and measure impulsivity/poor behavioural control. Example items on the primary scale are, “Looking out for myself is top priority”, and “Success is based on survival of the fittest; I am not concerned about the losers”. Examples of items on the secondary scale include, “I have been in a lot of shouting matches with other people”, and “I am often bored”. While the notion of primary and secondary psychopathy, or indeed, a two-fold typology, is somewhat dated

now this scale is still the most commonly used for assessing psychopathy in a non-institutionalised population. Internal reliability has been found to be acceptable for both the scale as a whole (0.85), and for primary (0.83) and secondary (0.69) psychopathy (Brinkley, Schmitt, Smith, & Newman, 2001). Reliability for the secondary psychopathy scale is typically less satisfactory however this is a common finding in the literature (Miller, Gaughan & Pryor, 2008). Reliability for the current study can be found in the results section. The scale was originally designed to produce two factors similar to the widely used Hare Psychopathy Checklist (Harpur, Hare, & Hakstian, 1989) among clinical populations.

Items in the original LSRP are responded to on a 4-point likert scale with 1 being “disagree strongly” and 4 being “agree strongly”. The current study utilised a 7-point scale to enable comparisons with other studies using the LSRP.

Previous studies have found endorsements rates of the LSRP to be relatively high. For example, in Lynam et al’s (1999) study of undergraduate students, 54% responded agree strongly or agree somewhat for the item “Looking out for myself is my top priority”. Sixty-five percent of the items were endorsed at 20% or more by their sample.

There have been limited investigations of test re-test reliability for the scale in the literature. Lynam has reported the total scale as being .83 over an 8-week period (Lynam et al., 1999). Additionally there appears to be no published studies reporting the test re-test reliability for the subscales of the LSRP.

Attachment

The Inventory of Parent and Peer Attachment (IPPA) was used to measure levels of attachment (Armsden & Greenberg, 1987). The IPPA is a self-report instrument that measures scores on a continuum, and was created for use with adolescents. The original IPPA consists of two subscales; one measuring attachment to parents with 28 items, and one measuring attachment to friends with 25 items. Examples of items on the parent scale are, “My parents respect my feelings”, and “My parents don’t understand what I’m going through these days”. Items on the peer scale include “My friends encourage me to talk about my difficulties”, and “I trust my friends”. Respondents indicated on a 5-point likert scale (1 = not at all true, 5 = very true), how true each statement was for them.

Each scale measures three domains; communication, trust and alienation. The current study used a shortened version of the IPPA in order to reduce the overall time

for participation in the study. The decision for which items to include was based on the highest factor loading items for each of the three domains with a total of 12 items chosen for the parent subscale and 12 items chosen for the peer subscale. This same methodology for producing a shorter scale has been used previously (Nada Raja, McGee & Stanton, 1992) and their internal reliability for the parent scale was .80, and .82 for the peer scale. Cronbach's alphas for both scales in the current study are reported in the results section. Although the current version of the IPPA is revised to separately assess attachment to mothers and fathers (see Armsden, 1986) the current study chose not to split them in order to simplify and shorten the questionnaire.

Delinquency

Delinquency was measured using a revised version of Jang and Thornberry's (1998) delinquency scale. Their questionnaire assessed three domains; property offenses, violent offenses and status offenses with a total of 23 items. An example of an item in each domain (respectively) is "Purposely damaged or destroyed property belonging to a school", "Been involved in gang fights", and "Run away from home". It was decided to omit the question "tried to steal or actually stolen money or things worth over \$100?" and alter the previous question from "tried to steal or actually stolen money or things between \$50-\$100" to "things worth more than \$50". Three items were deleted altogether due to confidentiality issues surrounding the sensitive nature of the questions. The remaining 19 items produced a cronbach's alpha of 0.82. Jang and Thornberry do not specify their response set for the scale although the questions indicate a yes or no response. This study chose to use a 3-point response set; "never", "decline to say" and "yes". It was felt that this middle category would assist in increasing honesty rates.

Chapter 4

University Results

Results: Time 1

Means and standard deviations for all scales are presented in table 1.

Table 1. Means, Standard Deviations and Cronbach's Alphas' for Primary and Secondary Psychopathy (LSRP), Attachment to Family and Friends (IPPA), and Delinquency (DS) over 3 time points.

	Time 1 (<i>n</i> = 758)			Time 2 (<i>n</i> = 647)			Time 3 (<i>n</i> = 65)		
	M	(S.D.)	α	M	(S.D.)	α	M	(S.D.)	α
LSRP: Pri	2.69	.95	.87	2.76	.91	.87	3.45	.60	.64
LSRP: Sec	3.29	.87	.68	3.23	.86	.68	3.40	.73	.55
Delinquency	1.64	.38	.82	1.64	.36	.80	1.64	.37	.81
IPPA Family	3.72	.81	.90	3.72	.81	.89	3.60	.84	.91
IPPA Friends	3.93	.67	.87	3.93	.67	.88	3.82	.65	.87

Reliabilities for the three scales, at each time point, including the sub scales are presented in table 1. All of the alpha's are above the recommended minimally acceptable value of .70 (as suggested by Nunnally, 1978; cited in Peterson, 1994),

except the primary subscale for the LRSP, which obtained the value of .68 at time 1. The secondary scale is often found to fall under this recommended value and so the decision to accept it was made. A more detailed discussion about the low alpha/s for this scale appears in chapter 5.

Endorsement rates on the psychopathy scale were fairly comparable to studies with similar samples, including endorsements rates reported by Levenson et al. (1995) in the initial scale development (refer to appendix C for endorsement rates for all scales). On the primary psychopathy scale (that measures callousness), the percentage of participants who responded between 5 and 7 (with 7 being 'very true' and 4 acting as the midpoint) ranged from 7.6% ("I let others worry about higher values; my main concern is with the bottom line") to 26.6% ("Looking out for myself is my top priority"). For the secondary psychopathy scale (that measures impulsiveness/poor behavioural control) the percentage of participants who responded between 5 and 7 ranged from 10.5% ("Love is overrated") to 38.4% ("I am often bored"). Endorsement rates for the second factor were higher ($M = 22.12\%$) than for the first factor ($M = 14.34\%$). Participants scored significantly higher ($t(725) = 15.72, p < 0.01.$) on the measure of secondary psychopathy ($M = 3.29, SD = .87$) than on the measure of primary psychopathy ($M = 2.69, SD = .95$), indicating a greater endorsement of the behavioural items than the interpersonal items.

On the parent sub-scale of the IPPA, the percentage of participants who responded with 5 (being 'almost always or always true') ranged from 11.1% ("I get upset alot more than my parents know about"), to 60.2% ("my parents accept me as I am"). For the friends sub-scale, the percentage of participants who responded with 5 ranged from 11.9% ("I get upset a lot more than my friends know about"), to 61.2% ("I feel my friends are good friends").

The delinquency scale was responded to on a scale between 1 and 3 (1 = Never, 2 = Decline to say, 3 = Yes). Participants responses for the yes category ranged from 2.4% for the item "Been involved in a gang fight?", to 70.7% for the item "Skipped classes without an excuse". Other notable responses included a 35% endorsement rate for "Damaged somebody else's property on purpose?", and a 46% endorsement rate for the item "Hit someone with the idea of hurting them?".

Table 2 (see appendix D) shows the correlations between primary and secondary psychopathy, attachment to friends and family and delinquency (for time one only). As expected, delinquency was significantly correlated with the overall scale score for the

LSRP scale. Similarly, delinquency was also significantly correlated with both primary psychopathy, and secondary psychopathy, indicating that participants who reported higher levels of delinquency also reported higher levels of primary and secondary psychopathy. It was hypothesised that a stronger relationship may occur between primary psychopathy and delinquency and this was found. Both correlations are moderate (according to guidelines by Cohen, 1988), but the relationship between primary psychopathy and delinquency is slightly stronger than with secondary psychopathy. However this result is tempered by the significant correlation between primary and secondary psychopathy (indicating measurement of similar concepts rather than the proposed separate concepts). Further investigation into the difference between associations found that the relationship between delinquency and primary psychopathy was not significantly different than the relationship between delinquency and secondary psychopathy, $z(657) = -1.23$, $p = 0.11$ (Lowry 2011).

As hypothesized, a significant negative relationship between delinquency and attachment to parents was found. Participants who reported more delinquency reported lower levels of attachment to both parents. It was thought that the increase in influence of peers, and decrease in influence of parents in the current sample may result in a positive relationship between delinquency and attachment to peers. This was not the case. A significant, but weak, negative relationship was found, indicating that the more attached an individual is to their peers the less likely they are to engage in delinquent acts. Again, the difference between associations was investigated and showed that the association between family attachment and delinquency was not significantly different than the association between peer attachment and delinquency, $z(657) = -1.31$, $p = 0.09$ (Lowry 2011)..

Significant negative correlations were found between psychopathy (both primary and secondary) and both measures of attachment. Results show participants who report higher attachment to peers or parents also report low levels of primary and secondary psychopathy. This was contrary to the non-significant relationship proposed between attachment to peers and psychopathy.

It was expected that although both primary and secondary psychopathy scores will significantly predict delinquency scores. While the findings about attachment to parents and peers in relation to delinquency is mixed, it is expected that at least peer attachment will significantly predict delinquency scores.

Prior to testing for mediation Baron and Kenny's (1986) preconditions were assessed. These are that all variables are significantly intercorrelated. This precondition was met and the correlations are reported in table 2.

Contrary to what was expected, scores for attachment to friends did not significantly predict scores on the delinquency scale when entered in regression analyses with primary and secondary psychopathy. The two variables produced a Multiple-R of .44 (adjusted $R^2 = .19$); $F(3,652) = 51.74$, $p < .01$) for the prediction of delinquency. Primary and secondary psychopathy were significant predictors of delinquency (see table – for betas). This precluded the inclusion of attachment to peer in any subsequent analyses.

Regression analysis was used to determine whether scores for primary psychopathy and attachment to family would predict a participant's score on the delinquent scale. The two variables produced a Multiple-R of .40 (adjusted $R^2 = .16$); $F(2,654) = 61.55$, $p < .01$) for the prediction of delinquency. Both primary psychopathy and attachment to family were significant predictors of delinquency and the beta weight decreased after attachment to family was included in the regression equation (see table 3 for beta's).

Table 3. Hierarchical regression of Delinquency against Primary Psychopathy and Attachment to Family

Block 1	B(SE)	B
Constant	1.50(.08)	
Primary Psychopathy	.14(.01)	.34
Attachment to Family	-.06(.01)	-.13

*= $p < 0.01$

Additionally, regression analysis was conducted to determine whether scores on the measure of secondary psychopathy and attachment to family would predict a participant's score on the delinquency scale. The two variables produced a Multiple-R of .33 (adjusted $R^2 = .11$; $F(2, 655) = 39.64$, $p < .001$) for the prediction of delinquency. Both secondary psychopathy and attachment to family were significant predictors of delinquency and the beta weight decreased after attachment to family was included in the regression equation (see table 4 for beta's).

Table 4. Hierarchical regression of Delinquency against Secondary Psychopathy and Attachment to Family

Block 1	B(se)	B
Constant	1.46(10)	
Secondary Psychopathy	.11(.02)	.26
Attachment to Family	.05(.02)	-.12

*= $p < 0.01$

Mediation analysis were undertaken in order to ascertain whether attachment to family would serve as a significant mediator for the relationships between primary and secondary psychopathy and delinquency. MedGraph (Jose, 2003) results revealed that attachment to family was a significant mediator between both primary (sobel's $z = 3.27$, $p < 0.01$) and secondary psychopathy (sobel's $z = 2.81$, $p < 0.01$). This indicates that the positive relationship between both primary and secondary psychopathy, and delinquency is weakened by increased attachment to family. It is important to note that this was a significant *partial* mediation. This means that while the inclusion of attachment to family reduces the relationship between secondary psychopathy and delinquency, the relationship still remains significant. Attachment to family acts as a buffer against delinquency behaviour for those who score higher on the either psychopathy scale. See figures 1 and 2 for representation of these analyses. It should be noted that although the results were a significant partial mediation, the size of the mediation effect was small (3% for primary and 5% for secondary), and needs further evidence before definitive statements can be made about the relationships.

Figure 1. Mediation of Primary psychopathy and delinquency by attachment to family at Time 1

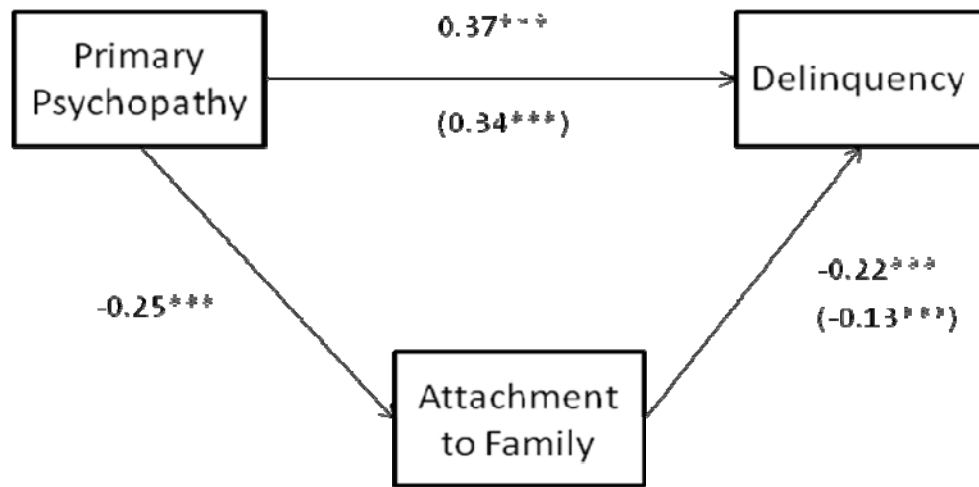
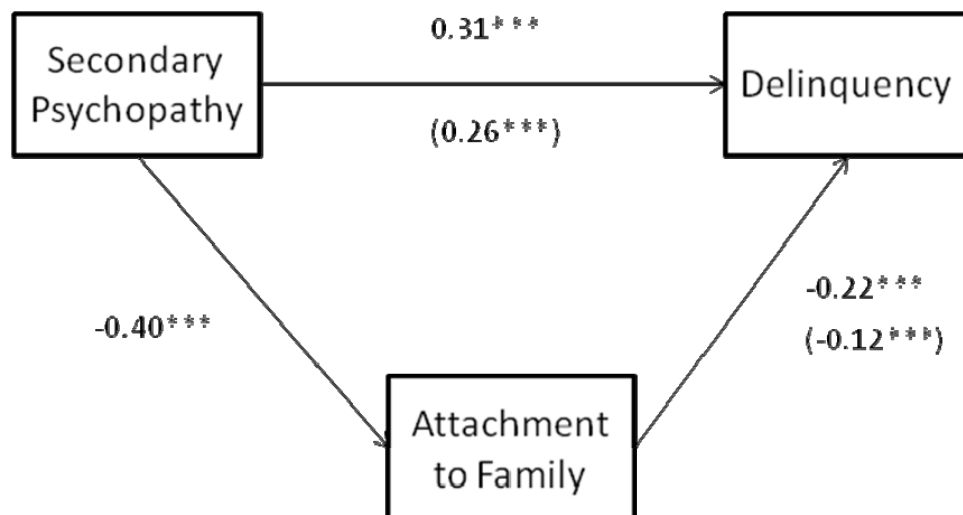


Figure 2. Mediation of Secondary psychopathy and delinquency by attachment to family at Time 1



Summary of results: Time 1

As expected, psychopathy traits in the current study were endorsed at similar levels to previous samples with comparable characteristics (e.g. Levenson, Kiehl, & Fitzpatrick, 1995). Likewise, the secondary component of the LSRP scale, reflecting the antisocial behavioural aspects of psychopathy, was endorsed to a greater extent than the primary scale, measuring the interpersonal aspects.

The majority of the correlations were as expected, with delinquency correlating positively with psychopathy and negatively with attachment. However it was anticipated that secondary psychopathy might correlate positively with attachment to peers and, though the difference between the two relationships approached significance ($p=.08$), this was not the case.

Results of the regression analyses partially confirmed the hypotheses. Primary and secondary psychopathy were predictors of delinquency, however it was predicted that the attachment to peers may also predict delinquency and this was not the case. One explanation for this could be that at time one, participants have fewer stable friendships (as a result of moving schools or their hometown), with less influence than previously (at high school) or later in year at university.

Mediation analyses tested the central hypothesis of the current study and revealed that a strong attachment to family is associated with the relationship between psychopathy (both primary and secondary) and delinquency. Contrary to the hypotheses, attachment to peers did not have the same mediating affect on the relationship between delinquency and psychopathy. This indicates that an adolescent's relationship to parents has a greater affect on delinquent outcomes than their relationship to their peers. It is possible that this result will change over time, as adolescents become more immersed in the demands of university, spending more time with their university peers and less time with their parents.

In order to test these findings are consistent over time, participants were surveyed again 19 weeks after the first data collection. The following section outlines the results of the second lot of data collection.

Results: Time 2

Internal reliabilities for time 2 were similar to time 1 (see table 1) and were considered acceptable according to Charter (1999).

Correlations were conducted between the scales and sub-scales between time one and time two to assess their test-retest reliability. Correlations for reliability coefficients, for test re-test reliability should generally be above .80 (Charter, 1999, Cozby, 2004). Although the correlations between both the primary ($r = .79$) and secondary ($r = .79$) LSRP scales and the friends (.75) scale of the IPPA did not quite meet this requirement at time 2 the discrepancy was small enough to be considered acceptable. Means and standard deviations are presented in table 1.

Endorsement rates on both of the psychopathy scales were similar to time 1 (refer to appendix C). Endorsement of Primary psychopathy traits were slightly lower than time 1 ($M = 13.1\%$) and endorsement of secondary psychopathy slightly higher ($M = 24.1\%$). Paired samples t-test found a significant change in time for primary psychopathy ($t(367) = -4.16, p < 0.01$) but not for secondary psychopathy. The item showing most change over time was item 23 “Before I do anything I carefully consider the consequences”. At time 2, 18.5% of students responded that this was somewhat or very true of them compared to time 1, where only 10.8% responded in this way. It appears that over time students may become less impulsive,

Endorsement of attachment to family increased significantly over time ($t(335) = -2.99, p < 0.01$), while the change over time for attachment to friends was non-significant ($t(335) = -1.01, p = .31$). Endorsement of delinquency decreased significantly over time ($t(310) = -4.94, p < 0.01$). Correlations for time 2 are shown in table 5 (see appendix D).

Multiple linear regression was used again at time 2 to determine whether scores on the primary psychopathy scale and the attachment to family scale would significantly predict scores on the delinquency scale. The two variables produced a Multiple-R of .37 (adjusted $R^2 = .14$; $F(2,571) = 45.14, p < .001$) for the prediction of delinquency. Both primary psychopathy and attachment to family were significant predictors and beta weights are recorded in table 6.

Table 6. Hierarchical regression of Delinquency against Primary Psychopathy & Attachment to Family

Block 1	B(se)	B
Constant	1.62(.10)	
Primary Psychopathy	.11(.02)	.29
Attachment to Family	-.08(.02)	-.16

*= $p < 0.01$

Regression analyses were conducted again to confirm whether scores on secondary psychopathy and attachment to family would predict scores on the delinquency scale. The two variables produced a multiple-R of .31 (adjusted $R^2 = .09$); ($F(2,571) = 30.58$, $p < 0.001$) for the prediction of delinquency. Both secondary psychopathy and attachment to family were significant predictors and beta weights are recorded in table 7.

Baron and Kenny's (1987) preconditions for mediation analyses were met again at time two. MedGraph (Jose, 2006) results revealed that, at time 2, attachment to family was a significant mediator between both primary (sobel's $z = 3.49$, $p < 0.01$) and secondary psychopathy (sobel's $z = 3.35$, $p < 0.01$). See figures 3 and 4 for representation of these analyses.

Figure 3. Mediation of Primary psychopathy and delinquency by attachment to family at Time 2

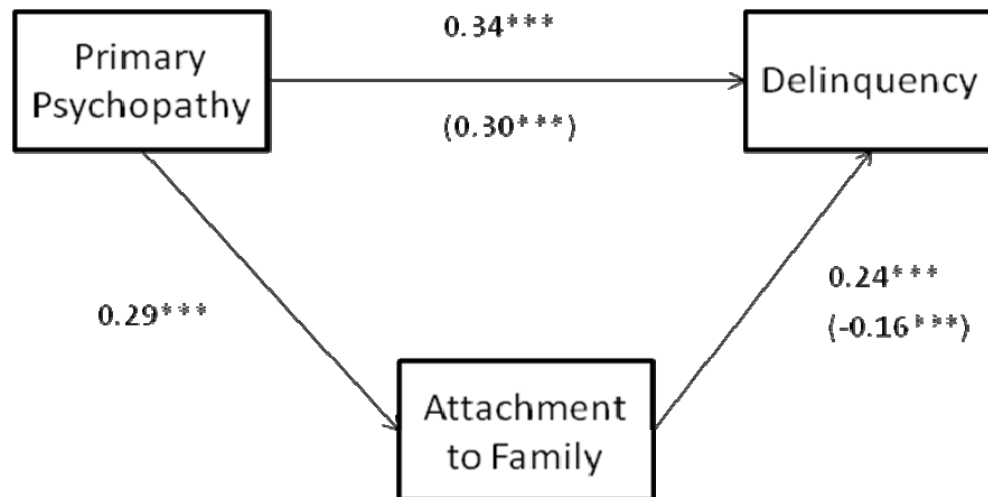
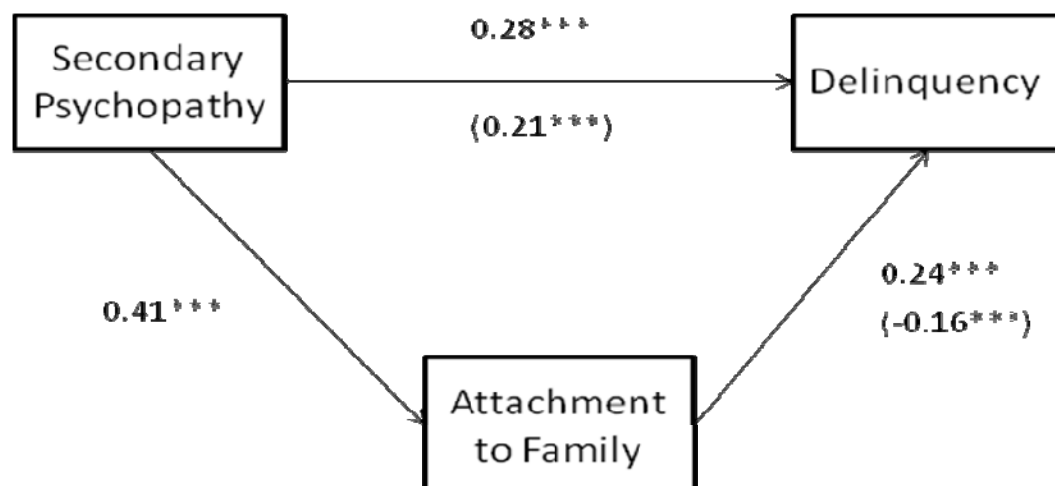


Figure 4. Mediation of Primary psychopathy and delinquency by attachment to family at Time 2



These results can be interpreted similarly to the mediation results of time 1, attachment to family serves as a buffer to decrease the relationship between primary and secondary psychopathy and delinquency. Significant mediation at time 2 also suggests that there may be evidence for the causal direction of the relationships between variables.

A regression analysis was conducted in order to test whether primary psychopathy at time 1 predicted delinquency at time 2 and was mediated by attachment to family at time 1. The two time 1 variables produced a Multiple-R of .41 (adjusted $R^2 = .16$; $F(2, 337) = 33.04$, $p < 0.01$) for the prediction of delinquency at time 2. Both time 1 variables were significantly predictive and beta weights are recorded in table 8.

Table 7. Hierarchical regression of Delinquency at T2 against Primary Psychopathy T1 and Attachment to Family T1.

Block 1	B(se)	B
Constant	1.55(.12)	
Primary Psychopathy	.13(.02)	.35
Attachment to Family	-.06(.02)	-.13

*= $p < 0.01$

A regression analysis was conducted in order to test whether secondary psychopathy at time 1 predicted delinquency at time 2 and was mediated by attachment to family at time 1. The two time 1 variables produced a Multiple-R of .31 (adjusted $R^2 = .09$; $F(2, 337) = 18.48$, $p < 0.01$) for the prediction of delinquency at time 2. Both time 1 variables were significantly predictive and beta weights are recorded in table 9.

Table 8. Hierarchical regression of Delinquency at T2 against Secondary Psychopathy T1 and Attachment to Family T1.

Block 1	B(se)	B
Constant	1.54(.15)	
Secondary Psychopathy	.10(.02)	.25
Attachment to Family	-.05(.03)	-.12

*= $p < 0.01$

All correlations between time 1 and time 2 variables were significant, meeting Baron and Kenny's pre-conditions for mediation testing. MedGraph (Jose, 2006)

results revealed that, attachment to family at time 1 significantly mediated the relationship between primary psychopathy at time 1 and delinquency at time 2 (sobel's- $z = 2.37$, $p < 0.05$). Attachment to family at time 1 also significantly mediated the relationship between secondary psychopathy at time 1 and delinquency at time 2 (sobel's- $z = 2.04$, $p < 0.05$). These mediations are represented in figures 5 and 6.

Figure 5. Mediation of Primary psychopathy at T1 and delinquency at T2 by attachment to family at Time 1

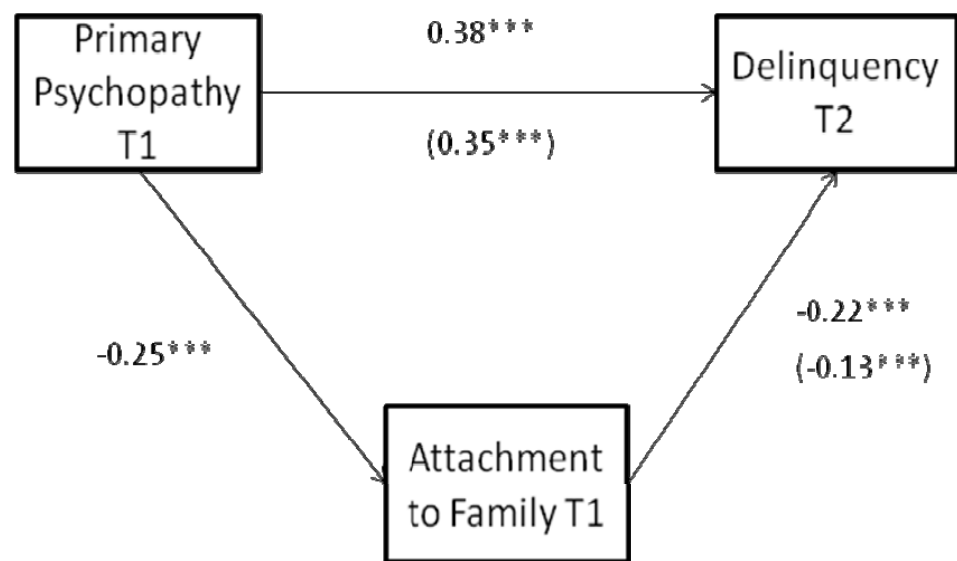
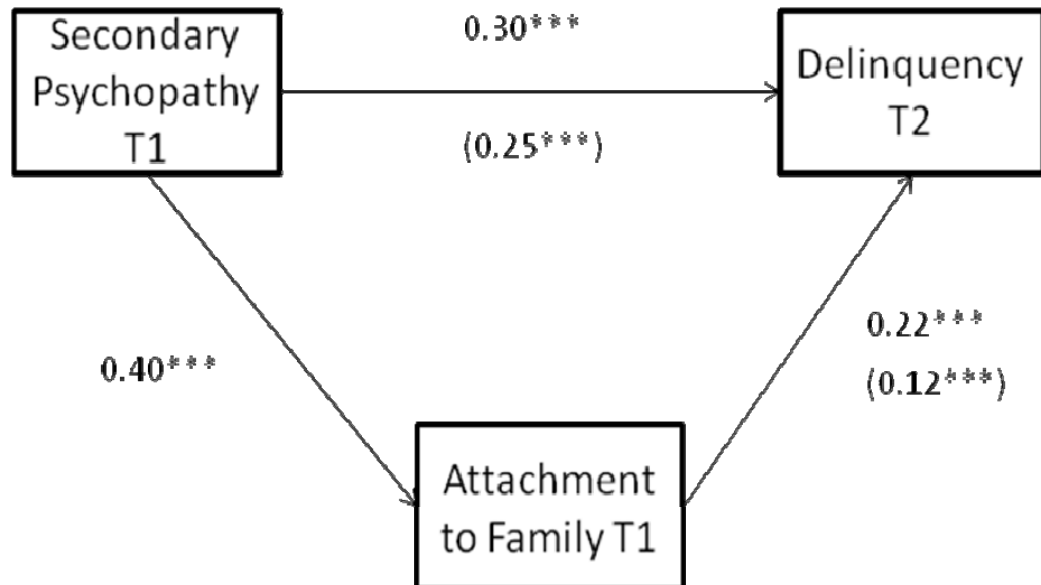


Figure 6. Mediation of Secondary psychopathy at T1 and delinquency at T2 by attachment to family at Time 1



Summary of Results: Time 2

Of note, endorsement of primary psychopathy decreased over time, as did endorsement of delinquency. These changes could be partially explained by an increased workload due to their new academic studies, resulting in decreased recreational time, and less opportunity to engage in delinquency behaviour.

Endorsement of attachment to family increased over time, which is unexpected given the change in environment (moving from the family home to halls of residence or other student accommodation) that often occurs when adolescents attend university. It may be that in the current sample there are a large group whose families reside in Wellington, making it unnecessary for them to move away from parental figures. In addition to this, students may also find the pressures of university life lead them to rely on their parents to a greater deal, resulting in a feeling of greater attachment over time.

Results from mediational analyses incorporating time 1 and time 2 variables show tentative support for a causal relationship between psychopathic characteristics

and delinquency that which can be reduced by an increased attachment to parents. The results are provisional at best due to the short follow up between time 1 and time 2.

Results: Time 3

Descriptives are reported in table 1. The cronbach's alpha's for both primary and secondary psychopathy are below the recommended values. While this has been a continuing trend for the secondary subscale, this is the first time the primary subscale has failed to meet the criteria. Possible explanations for this are addressed below.

Correlations were conducted between the scales and sub-scales between time one and time two to assess their test-retest reliability. Correlations for reliability coefficients should generally be above .80 (Cozby, 2004). The correlation for attachment to family, and delinquency met these criteria, and the correlation for attachment to friends and primary psychopathy were close at 0.72, and 0.71, respectively. The correlation for secondary psychopathy was substantially lower than advised, at 0.65.

A repeated measures ANOVA with sex of participant (male, female) as a within subjects factor and attachment to family (T1, T2, T3) as a between subjects factor revealed no significant main effect, $F(2, 57) = .47, p = .62$, or significant interaction, $F(2, 57) = 1.50, p = .23$. This indicates that participant's scores on attachment to family did not change over time and did not differ by sex of the participant.

Similarly, a repeated measures ANOVA with sex of participant as a within subjects factor and attachment to friends (T1, T2, T3) as a between subjects factor revealed no significant main effect, $F(2, 55) = 1.60, p = .21$, or significant interaction, $F(2, 55) = .66, p = .52$. This indicates that participant's scores on attachment to friends did not change over time and did not differ by sex of the participant.

However, when delinquency (T1, T2, T3) was entered as a between subjects factor, with sex of participant as a within subjects factor, a significant main effect was found, $F(2, 50) = 5.70, p < 0.05$. Participants reported higher levels of delinquency at time 3 than at time 1 (see table 10 for means and standard deviations). There was no significant interaction between sex and delinquency, $F(2, 50) = 1.80, p = .17$.

A repeated measures ANOVA with sex of participant as a within subjects factor and primary psychopathy (T1, T2, T3) as a between subjects factor revealed a significant main effect, $F(2, 62) = 46.94, p < 0.01$. Participants reported significantly higher levels of primary psychopathy at time 3 than the first two time points. This

increase was driven by the gender of the participants. There was a significant interaction between primary psychopathy and sex, $F(2, 62) = 4.36, p < 0.05$. Females report a significant increase in levels of primary psychopathy over all three time points compared to males (refer to table 10).

A repeated measures ANOVA with sex of participant as a within subjects factor and secondary psychopathy (T1, T2, T3) as a between subjects factor was not significant $F(2, 62) = 2.63, p = 0.8$. Participant's scores on the secondary psychopathy scale did not change over time.

Table 10: Means and standard deviations for males and females for primary psychopathy and delinquency over time

	Time 1			Time 2			Time 3		
	N	M	(S.D.)	N	M	(S.D.)	N	M	(S.D.)
LSRP:Primary									
Male	15	3.10	1.10	15	3.24	.78	15	3.72	.59
Female	50	2.32	.76	50	2.48	.85	50	3.43	.55
Delinquency									
Male	12	1.65	.47	14	1.89	.41	15	1.85	.45
Female	46	1.49	.30	46	1.54	.30	50	1.53	.30

For the smaller sample that completed measures over all 3 time point's correlational analyses remained similar to the analyses of the large sample at time 1 (see table 11, appendix D for correlations). The main differences were that the relationship between delinquency and secondary psychopathy became non-significant at time 3. At time 2 and time 3 the relationship between delinquency and attachment to family became non-significant. At time 3 the relationship between delinquency and attachment to friends also became non-significant. Additionally the relationship between secondary psychopathy and delinquency became non-significant.

Therefore, for the subset of participants who responded at all three time points the relationships that remained significant over time were; the negative relationship between primary psychopathy and attachment to friends (indicating that the higher their attachment to friends was the lower their level of primary psychopathy); the negative relationship between secondary psychopathy and attachment to friends (indicating that the higher their attachment to friends was the lower their levels of secondary psychopathy); and the negative relationship between secondary psychopathy and attachment to family (indicating that the higher their attachment to family was the lower their levels of secondary psychopathy).

Multiple linear regression was used again at time 3 to determine whether scores on either of the attachment scales and either of the psychopathy scales would predict a participants score on the delinquent scale. The overall model was not significant.

Differences between correlation co-efficients were calculated for the across all three time points. At time 3 (for participants who have completed all three time points), the relationship between attachment to friends and psychopathy (total LSRP) was significantly different than time 1 and time 2 ($\chi^2 = 7.63$, $p < 0.01$). It increased over time.

At time 3 the relationship between attachment to family and psychopathy (total LSRP) was significantly different than time 1 and time 2 ($\chi^2 = 8.95$, $p < 0.01$). It increased over time.

At time 3 the relationship between attachment to family and secondary psychopathy was significantly stronger than at time 1 and 2 ($\chi^2 = 45.10$ $p = 0$).

At time 3 the relationship between attachment to friends and secondary psychopathy was significantly stronger than at time 1 and time 2 ($\chi^2 = 8.33$, $p < 0.01$).

Summary of Results

Internal reliability is considerably worse for several variables and suggestions for improvements for further research are made in chapter 8.

At time 3, participants reported higher levels of delinquency, primary and secondary psychopathy. Repeated measures ANOVA analyses showed a significant difference in the increase of the mean score of primary psychopathy by gender. Females scored significantly higher across time points than males did. This is an unusual finding given that the prevalence of psychopathy in females is generally lower than males and is

discussed further below. These results should be considered in light of the uneven gender split in the final sample (males = 27, females = 76).

Interestingly, regression results did not replicate in time 3. The overall model was not significant. This could be partially due to a reduced sample size at time 3 which reduces the ability to detect any significant relationships.

Chi-squared analyses revealed some significant changes in relationships over time; of interest are the increase in the relationship between attachment to family and secondary psychopathy between time 1 and 2 and time 3. The relationship went from moderate at time 1 ($r = -.40$) and time 2 ($r = -.41$), to strong ($r = -.80$) at time 3. Possible explanations for this are explored below.

Chapter 5

High School Results

Results

Cronbach's alpha's for study 2 are reported in table 12, and are similar to the first study with the exception of the alpha for the friends scale of the IPPA, which is well below the recommended 0.70. Issues with internal reliability will be addressed in the main discussion, along with suggestions on improvements for future study using this scale.

Means and standard deviations for all variables are presented in table 12. Endorsement rates for the Primary psychopathy scale are higher in this sample than in the sample of university students, and in many cases rates of endorsement doubled (refer to appendix C). For example, 19.2% of the current sample responded between 5 and 7 (with 7 being 'very true' and 4 acting as the midpoint) for the item "What's right is whatever I can get away with", compared with only 7.9% from the university sample. The mean endorsement rate in the current sample for the primary psychopathy scale ($M = 28.88$, $SD = 9.07$) was significantly different to the mean endorsement in the university sample at time 1 ($M = 14.34$, $SD = 5.52$; $F(1, 93) = 31.74$, $p < 0.01$). When gender is added as a covariate the interaction between gender and sample (university or high school) is significant, $F(1,93) = 7.06$, $p < 0.01$. There is a greater increase in the endorsement of primary psychopathy in females across samples than there is amongst males across sample. Females in the high school sample report significantly higher levels of primary psychopathy than their older university peers. The interaction is depicted in figure 7.

Figure 7: Interaction between gender and sample for primary psychopathy

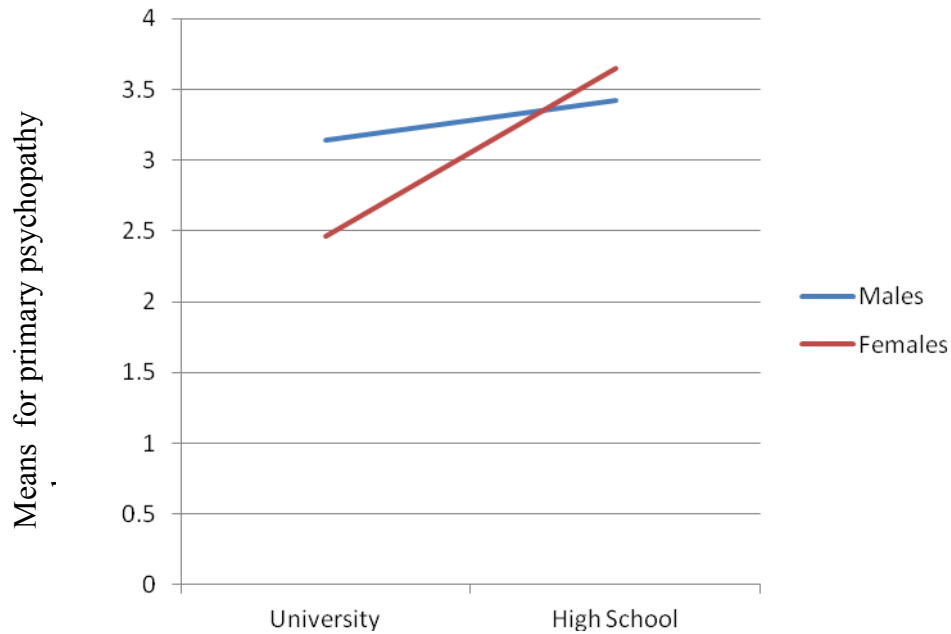


Table 12. Means, Standard Deviations and Cronbach's Alpha's for Primary and Secondary Psychopathy (LSRP), Attachment to Family and Friends (IPPA), and Delinquency (DS) in a High School Sample

	M	(S.D.)	α
LSRP: Pri	.60	.77	.87
LSRP: Sec	.47	.77	.69
Delinquency	.65	.37	.79
IPPA	.32	.51	.79
Family			
IPPA	.42	.54	.65
Friends			

Endorsement rates for the scale measuring secondary psychopathy were again higher in the current sample of high school aged participants compared to their older counterparts, however this difference was not significant, $F(1,93) = 1.63$, $p = .21$. While the differences overall were not as striking as with the primary psychopathy scale, endorsement rates for some items were still 10% or more for the current sample. For example, for the item "I don't plan anything very far in advance", 46.1% of the

current sample answered between 5 and 7, compared with only 35.1% of university students.

Correlational analyses of the current sample revealed a slightly different picture than the previous sample (see table 13, appendix D). Unlike the university sample, there was no significant correlation between either measure of attachment and delinquency. There were however significant negative correlations between primary psychopathy and both attachment to peers and parents, indicating that participants who reported more attachment to both parents and peers reported lower levels of primary psychopathy. Additionally there was also a significant correlation between secondary psychopathy and attachment to family, indicating that the participants who reported more attachment to their family also reported lower levels of secondary psychopathy. The significant correlation between secondary psychopathy and attachment to friends that was found in sample one was not replicated in this sample, however the non-significant correlation was in the same direction. Delinquency and primary psychopathy were significantly related in the current sample, as was delinquency and secondary psychopathy. This was consistent with the results from study one.

The four variables, primary and secondary psychopathy, and attachment to family and friends, produced an R^2 of .12 ($F(4,103) = 3.33$, $p = 0.13$) for the prediction of delinquency. None of the variables were significantly predictive of delinquency.

Mediation analyses were not warranted in the current sample due to the non-significant correlations between the variables (Baron & Kenny, 1986).

Differences between samples

Differences between correlation co-efficients were calculated for the high school sample (study 2) and the university sample (study 1) at time 1. There was only one significant difference between study 4 and study 1. The relationship between attachment to family and secondary psychopathy was weaker in study 4 than study 1 (chi squared = 59.40, $p = 0$). For the university aged sample, the correlation was a moderate negative one, indicating that as attachment to family increased, endorsement of secondary psychopathy traits decreased. However this relationship for the high school aged sample was significantly lower, indicating that when attachment to family increases, scores on secondary psychopathy scale do not decrease at a similar rate as with their older peers. This implies that for high school aged students, attachment to family does not act as effectively as a protective factor against the behavioural aspects of secondary

psychopathy. However this needs further investigation with longitudinal data and analyses.

A t-test was conducted to test the difference between the high school sample and university sample (time 1) for endorsement of attachment to parents. There was a significant difference ($t = -3.18, p < 0.05$). High school students reported being less attached to their parents than university students (see table 1 for means). This was contrary to what was hypothesised. It was also predicted that delinquency scores would be higher in the university sample than the high school sample however a t-test found no significant difference.

Due to the differences between gender that were found in the university sample (females report greater levels of psychopathy over time than males), some investigation of the differences between females across the two samples was conducted. Females in the high school sample scored significantly higher ($M = 3.65, SD = .78$) than females in the university sample (at time one; $M = 2.46, SD = .81$) on the measure of primary psychopathy, $t(64) = -7.83, p < 0.01$. This was an unexpected finding and possible explanations are discussed in the following chapter.

Summary of results

Differences between the current sample of high school students and the sample of university students (at time 1) were investigated using ANCOVA. Endorsement of primary psychopathy was significantly higher in the high school sample and this was driven by the gender of the participants. Female participants in the high school sample scored significantly higher than the female university students on the measure of primary psychopathy. Reasons for this are unclear, however the very small sample of female high school students in the current study make any conclusions difficult, and warrant replication and further exploration of this trend.

The relationship between attachment to family and secondary psychopathy was significantly weaker in the current sample than in study 1. It suggests that for high school students attachment to family did not buffer against the characteristics of secondary psychopathy as it does at an older age. This could be partly due to the relative immaturity of the high school student compared to the university student. Willingness to accept parental advice, which would in most cases be contrary to behavioural aspects of psychopathy, may increase with age.

Chapter 6

Summary

There is growing momentum in psychopathy research for a focus on the developmental trajectory of the psychopathic personality (Salekin, et al., 2010). Researchers have found that psychopathy measured as young as 13 is predictive of psychopathy measured up to a decade later (Lynam et al., 2007). In adolescence, psychopathic characteristics are predictive of external behavioural outcomes, such as delinquency and antisocial behaviour (Asscher et al., 2011). The relationship between psychopathy and delinquency as an outcome of such a personality is not a straightforward one, and learning more about what may mediate this relationship is important in planning interventions for youth who are portraying antisocial characteristics. Attachment has been identified as a potentially important protective factor for the development of antisocial behaviour (Fonergy et al., 1997). This indicates the importance of education for parents that will encourage and foster positive attachment with their children.

The goal of the current research was to investigate the prevalence of sub-clinical psychopathy in a sample of adolescents (high school sample) and young adults (university sample), and to understand the role that attachment to family and friends may play in the development of psychopathic personality. Two separate studies were conducted; the first was a longitudinal design, surveying university students over three time points, the second, surveyed a group of high school students. This research extends previous investigations (Frodi et al., 2001; Flight & Forth, 2007; Kossen et al., 2002; Van Ijzendoorn et al., 1997) by using a longitudinal design, and is the first of its kind to be conducted in New Zealand. The central hypothesis was that attachment would act as a mediator and reduce the strength of the relationship between psychopathy and delinquency. Alongside this, the psychometric properties of the three measures

employed in the study were tested, furthering the knowledge base surrounding their reliability.

Reliability findings

The current study assessed the psychometric properties of the IPPA, the SRD scale and the LSRP scale using a New Zealand population. At the third time point, factor two of the LSRP scale performed poorly on both measures of internal validity and test re-test reliability. Previous research using the LSRP scale has found mixed results regarding internal validity. Cronbach's alphas for the primary scale are usually found in the acceptable range (e.g. Miller, Gaughan & Pryor, 2008). However, the secondary scale is often found to be under the acceptable value of .70. For example, Czar, Dahlan, Bullock, and Nicholson (2011) reported an alpha of .67 in their sample of college students. The majority of research tends to report similar findings and state that further investigation on the construct of the scale is needed to address which items may be causing scale inconsistency. Confirmatory factor analysis often identifies the item "Love is over-rated" as problematic and if this item is allowed to load on both factors, model fit is usually improved (for example, see Brinkely et al., 2001). This item may not be useful at all with young adults or adolescence whose perceptions and conceptualisations of love are not consolidated and in younger adolescents may be complicated by hormonal changes.

The poor alpha at time three (.55) is likely the result of the small sample size (Charter, 1999). Participant numbers at the first time point were sufficient for this alpha to be taken as an acceptable measure of the reliability. Likewise, the lower test re-test coefficients at time three were regarded to be due to sample size and therefore values from time two are considered sufficient for this measurement of reliability. However, data collection at time three used a different methodology from that at times one and two, and may have contributed to such an anomaly.

Main Findings

Mean levels of psychopathy in the current sample are consistent with previous research using the LSRP scale. This is an important finding in the context of cross-

cultural generalisability for the construct. Cooke and colleagues have argued that the deficient affective characteristics of psychopathy are stable across cultures (Cooke et al., 2005). Their research utilised the PCL-R to measure psychopathy. The current study provides further support for the generalisability of the construct across cultures by using a different measure of psychopathy.

The current study found further evidence for the relationship between delinquency and psychopathy. This supports Asscher et al.'s (2011) meta-analysis that found a moderate effect size ($r = .25$) for the relationship between psychopathy and delinquency across 53 studies. Across all studies, higher levels of psychopathy were moderately related to higher levels of delinquency. This study is an important piece of literature in the context of the current study due to the focus on the relationship between psychopathy and delinquency. None of the studies included in their analyses involved New Zealand samples, highlighting the value of this research. Several moderators relevant to the above findings were included in the analyses reported by Asscher et al. (2011), for example, informant (on psychopathy and delinquency) and sample type (age and gender). Interestingly, the effect sizes were reduced if psychopathy was measured via self-report rather than clinical judgement or parent/teacher report. This suggests that psychopathy rates may have increased if other informants were used to rate participants. This would be difficult in a university sample but would provide a stronger case for accurate prevalence of such characteristics. Future research could look at parental involvement in surveys for university-aged participants. For younger adolescents still at high school, teacher reports could be utilised.

Asscher et al (2011) also identified age as a significant moderator, with larger effects sizes found for younger participants. Participant's mean age in the analysis was 15.43 years, with ages ranging from 9.3 to 18.4 years. The current study calculated differences in correlations between the younger group of high school participants and the older group of university students (using the Fisher r to z transformation which calculates whether there is a significant difference between the sizes of two correlations). There was no significant difference between samples, university and high school, for the relationship between psychopathy and delinquency. This means that in the current study, the relationship between psychopathy and delinquency was of a similar strength in both samples. Age did not increase or decrease the relationship.

Asscher et al's (2011) meta-analysis found a trend for stronger relationships between psychopathy and delinquency in studies that either included females ($n = 17$) or

were females only ($n = 3$). This is interesting in relation to the current study. Males reported higher levels of psychopathy than female's at all three time points, though females reported significantly increased levels of primary psychopathy over time. While their rates of self reported delinquency did increase significantly over time this is unlikely in a non offender sample.

Females in the high school sample also scored significantly higher on the measure of primary psychopathy than females in the university sample. It is unclear why this may have occurred, particularly as primary psychopathy traits (the interpersonal and affective traits), are relatively stable over time (Gretton et al., 2004). This may be a product of self reporting and the fact that younger adolescents are still figuring out who they are and therefore their perceptions of themselves are not yet established (Shapka & Keating, 2005). Additionally, as the university sample is narrower than the secondary sample (all of the university sample would have attended secondary school, but not all of the secondary sample will go on to university) this may be a more accurate reflection of the 'levels' of psychopathy among adolescents.

Researchers have referred to the 'gender paradox' to explain the lower incidence of psychopathy in females (Hipwell & Loeber, 2006). They state that there are in fact fewer female psychopaths, but that those that do have these characteristics are much more likely to be involved in serious delinquent behaviour and be more seriously disturbed in general. For example, Strachan (1993) found that the base rate of psychopathy among an offender population (using the PCL-R) was 31% but attributed this to the large portion of women in her sample being in maximum security prisons. The current research did not analyse the relationship between psychopathy and delinquency separately for males and females but this would be an important and informing analysis for future research.

The current study found that the relationship between delinquency and psychopathy was driven by primary scale of the LSRP, which had a stronger relationship with delinquency than the secondary scale. In addition, only the primary scale was found to be predictive of delinquency in a regression model. This supports the findings of Kimonis, Frick and Barry (2004), employed a stratified random sampling procedure to select participants who were then screened for the presence of conduct problems, reporting that callous-unemotional traits (the equivalent of the primary scale on the LSRP) were the most important predictors of delinquency. The current study therefore extends this by providing evidence for the link between delinquency and

psychopathy in non-clinical university and high school samples. This is an important finding as it strengthens the argument for the link between personality (psychopathic traits) and measureable behaviour (delinquency) in the general population.

While Asscher et al.'s (2011) study found that the impulsiveness trait (equivalent to a personality characteristic consistent with the secondary scale) was as strongly associated with delinquency as the callous-unemotional traits (equivalent to the primary scale), they state that this could purely be a result of content-overlap between the behavioural constructs of psychopathy and delinquency. Additionally they advise caution about drawing any conclusions around these findings as there were too few studies that linked the separate psychopathic traits to behavioural outcomes.

The major finding and contribution from the current study is the significant mediation of the relationship between psychopathy and delinquency by attachment to parents but not peers. Mediation provides a mechanism to examine seeks the relationship between an independent and dependant variable via a third variable, the mediational variable. Statistically, mediation occurs when the correlation between two variables is reduced by the inclusion of a third variable (Baron & Kenny, 1986).

For the university students in the current study, higher levels of attachment to their parents served as a protective factor by reducing the strength of the relationship between psychopathy (both primary and secondary) and delinquency. This mediation held over time; attachment to parents at time 1 mediated the relationship between primary and secondary psychopathy at time 1 and delinquency at time 2. This provides a strong indication that attachment to parental figures may be a crucial variable for reducing the relationship between psychopathic characteristics and delinquent behaviour.

Wallis and Steele (2005) reported that institutionalised adolescents with behavioural problems had attachment difficulties. In adult samples, offenders are more likely to have unresolved or disorganised attachment categorisation (Van Ijzendoorn et al., 1997). Using the PCL-R, Frodi et al. (2001) found more dismissive attachment styles in their small offender sample. They also found that higher scores on the PCL-R were associated with more foster family placements and a higher incidence of physical abuse. Their research gives further support to the theory that early separation (or absence of) from attachment figures can predispose a person to develop emotional coldness (Bowlby, 1944).

In the closest representation of the current research, Kossen and colleagues (2002) used an adolescent delinquent sample and found scores on the IPPA parent scale correlated negatively with scores on the PCL-YV. While the current study replicates these findings it also indicated a significant negative relationship between the measure of psychopathy and the peer scale, which Kossen et al. did not. The sample size in Kossen et al.'s study is large enough for the detection of any potential relationships, therefore statistical power issues do not appear to account for the difference. The major difference between studies is the fact that Kossen and colleagues used male adolescents who were all on probation while the current study's participants were university students who were predominantly female (66.5%). It is interesting to note that Kossen et al did not find a relationship between peer attachment and psychopathy in their sample. It seems logical that at this age, offending would be more likely to occur in the presence of peers, which would correspond to higher attachment to peers and a significant relationship between that and their offending.

One explanation could be the gender composition of the samples. Attachment to peers differs by gender, with females tending to report greater peer attachments (Ma & Huebner, 2008). Males may not place as much value (or attribute the same meaning to) their friendships as females do, and this may make any relationship between attachments to peers and behavioural and personality traits difficult to find. Additionally the adolescents in Kossen et al's sample were aged between 12 and 16 (mean = 14.5 years), while the average age in the current study was 18. However, research has suggested that the influence of deviant peers is more powerful at younger ages which would suggest that Kossens findings are not the necessarily the norm (Warr, 1993).

Kossen et al used a pre-defined delinquent sample (on court referred detention), whereas the current research used a university sample. University students are a select group of individuals who are likely to be different from a group of delinquent adolescents on many levels. The current study extends the findings of Kossen et al's (2002) research in several ways. Firstly, by using a different measure of psychopathy (LSRP), it strengthens the argument for the relationship between attachment and psychopathy by providing evidence of convergent validity. More importantly, the current study utilised a university sample, which allows the results to be generalised further than the delinquent or offender populations which are generally sampled in this area of research.

Although the current study found negative correlations between attachment to peers and psychopathy, attachment to peers was not a significant predictor of either the primary or secondary subscale of the LSRP scale. Nor did it act as a significant moderator in the relationship between delinquency and psychopathy. This indicates that, for this sample at least, attachment to peers was not a significant influence in increasing delinquent behaviour as has been shown in other previous studies (e.g. Elliott, & Menard, 1996).

This inconsistency may be explained by the age of the participants in the current study. Research suggests that younger adolescents are more likely to be influenced by their peers to the degree that they may follow their peer's delinquency examples (Elliott, & Menard, 1996). Alternatively, the majority of the research that does show a strong link between peer attachment and increased levels of delinquency are those whose participants are in either incarcerated or institutionalised (e.g. Asscher et al., 2011). This suggests that the link may only be present in samples with more frequent and more serious behaviours. The university sample in this research contains functional individuals who have gained university entrance, indicating a certain amount of intelligence. This fact may preclude them from associating with delinquent peers in the first place, or may enable them to avoid succumbing to the influence of these delinquent peers (Warr, 1993).

Perhaps the largest contribution this study makes to the field is the evidence it provides for attachment being a protective factor against the development of antisocial or delinquent behaviour (Blackburn, 2008). It is crucial to understand more about protective factors that may prevent or ameliorate persistent psychopathic characteristics that result in serious offending. Part of this is understanding the mechanism by which protective factors work in relation to the independent variable and the outcome variable.

What is unclear is exactly how attachment to parents may act to reduce the relationship between psychopathy and delinquent behaviour. There are several suggestions for this underlying mechanism. Firstly, parental attachment with adolescents is generated in part by the amount of quality time parents spend with them (Warr, 1993). Within the concept of increased time, there are three specific mechanisms that may be at work to prevent delinquent outcomes. The first is that the increased time spent with parents and family decreases the amount of time available to spend with delinquent friends (Hirschi, 1969). The second mechanism that may operate is around choice of friends. Adolescents may unwittingly seek out non-delinquent friends in order

to seek approval from their parents, for whom they have respect (Warr, 1993). Lastly, adolescents who spend more time with their parents may internalise parental values, which are often socially acceptable and do not include delinquent behaviour (Warr, 1993). Adolescents whose parent's role model positive behaviour are less likely to develop delinquent behaviour. However, when families do not provide a 'moral compass', and are themselves involved in delinquent or criminal behaviour this can act as an exacerbating effect for children and adolescents who already have psychopathy characteristics.

The clinical relevance for this is significant, and implies that family therapy to encourage attachment relationships may be a successful intervention in reducing future antisocial behaviour. One such intervention, Attachment-Based Family Therapy (ABFT) has had positive outcomes in reducing suicidal ideation and depression in adolescents (Diamond, Wintersteen & Brown, 2011). A meta-analysis of the research on early parent training programs for delinquency and behaviour problems found them effective for reducing delinquency both in adolescence and adulthood (Piquero, Farrington, Welsh, Tremblay, & Jennings, 2009). Parent training usually consists of individual or group-based training sessions that aim to strengthen parent's ability to manage their children's behaviours appropriately and encourage parental involvement in the different areas of their life (Piquero et al., 2009). Other interventions assessed were home-based visitation programs, where health professionals visit the family home and give parents advice. A New Zealand example of this type of program is Plunket, a community organisation who support the development of healthy families. Both types of interventions are most effective when delivered prior to childbirth or in the very early childhood years (Plunket, 2011). Unfortunately, these interventions by Plunket are dependent on the availability of resources.

Limitations of the current research are that it only measured one outcome variable. Delinquency and criminal behaviours are common outcome measures in this area of research due to the obvious and measurable impact they have on society. There are other negative consequences of psychopathy that could be included as outcome measures to further understand the potential protective elements of attachment. Further research into adolescent psychopathy could investigate outcomes such as cheating at school or relationship problems. Identifying victims of adolescents with psychopathic characteristics and understanding their experiences would also assist in clarifying other outcomes that are worthy of researching. Additionally, because psychopathic traits are

generally stable across the lifespan it is unlikely that a person stops displaying such traits, rather that they are evident through an outlet other than criminal behaviour (Lebreton et al., 2006).

Conclusion

Despite the limitations of this research there are some strengths of the current study that add value to the literature on adolescent psychopathy. The current research is unique in the New Zealand context, providing the first investigation of adolescent self-reported psychopathy, and supporting the mediational role of attachment to family and friends between delinquency and psychopathy. Additionally, previous research of a similar nature (e.g. Kossen et al., 2002) has not measured the constructs over time. Longitudinal data is crucial in providing evidence for any causal arguments.

Research into psychopathy in adolescence is still a growing body of literature. More high quality, longitudinal studies are needed in order to understand the proposed protective mechanism of attachment. It is evident from this research and other similar studies that adolescents displaying psychopathic characteristics are not destined to have delinquent or criminal outcomes. A positive attachment to parents or caregivers can alter the trajectory of a young person's life.

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Appendices

Appendix A: Information Sheet, Survey and Debriefing Sheet for University Study



Personality and relationships

Emma Scheib
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Marc Wilson, PhD
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463-5225

What is the purpose of this research?

- This research will allow us to examine personality traits and your relationships with significant people in your life.

Who is conducting the research?

- Emma Scheib is a Masters student. Dr. Wilson is supervising this project. This research has been approved by the University ethics committee.

What is involved if you agree to participate?

- If you agree to participate in this study you will be asked to fill in a series of questions relating to personality style, behaviour, and your relationships with important people in your life.
- Most people complete these questions in around 10 minutes.
- During the research you are free to withdraw, without any penalty, at any point before your data have been collected. Completion of the questions indicates that you're happy for us to add your confidential data to those of other participants for subsequent analysis.

Privacy and Confidentiality

- We will keep your consent forms and data for at least five years after publication.
- You will never be identified in my research project or in any other presentation or publication. The information you provide will be coded by number only.
- In accordance with the requirements of some scientific journals and organisations, your coded data may be shared with other competent researchers.
- Your coded data may be used in other, related studies.
- A copy of the coded data will remain in the custody of Dr. Marc Wilson.

What happens to the information that you provide?

- The data you provide may be used for one or more of the following purposes:
- The overall findings may be submitted for publication in a scientific journal, or presented at scientific conferences.

- The overall findings may form part of a PhD thesis, Masters thesis, or Honours research project that will be submitted for assessment.
- If you would like to know the results of this study, please provide an email address on the consent form. Summarized results will be available approximately 2-3 months from now.
- If you have any further questions regarding this study please contact either Emma or Marc.
- In case you participate in this study for us more than once (which allows us to look at how people's answers change over time) we need to be able to match your responses to this survey against responses to future ones. Rather than use your name (which can identify you) please answer the following simple questions – in combination, they will be your unique identifier:

Last two NUMBERS of your HOME land line phone number: _____

Last two LETTERS of your mother's (unmarried) name: _____

MONTH in which you were born:

COLOUR of your EYES:

Thanks. If you're happy to start, please do so.

Part 1

Some of the following statements asks about your feelings about your parents or the people who have acted as your parents. If you have more than one person acting as either your mother or father (e.g. stepmother/father) please answer the questions for the one you feel has most influenced you.

Please read each statement and select the response that tells how true the statement is for you.

	Not at all true					Very true
1. My parents respect my feelings.	1	2	3	4	5	
2. My parents accept me as I am.	1	2	3	4	5	
3. I get upset a lot more than my parents know about.	1	2	3	4	5	
4. When we discuss things, my parents consider my point of view.	1	2	3	4	5	
5. My parents trust my judgement.	1	2	3	4	5	
6. I tell my parents about my problems and troubles.	1	2	3	4	5	
7. My parents encourage me to talk about my difficulties.	1	2	3	4	5	
8. I don't know whom I can depend on these days.	1	2	3	4	5	
9. My parents don't understand what I'm going through these days.	1	2	3	4	5	
10. I can count on my parents when I need to get something off my chest.	1	2	3	4	5	
11. I feel that no one understands me.	1	2	3	4	5	
12. If my parents know something is bothering me, they ask me about it.	1	2	3	4	5	

Part 2

This part asks about your feelings about your relationships with your close friends.

Please read each statement and select the option that tells how true the statement is for you now.

	Not at all true					Very true
1. My friends sense when I'm upset about something.	1	2	3	4	5	
2. Talking over my problems with my friends makes me feel ashamed or foolish.	1	2	3	4	5	
3. My friends encourage me to talk about my difficulties.	1	2	3	4	5	
4. My friends don't understand what I'm going through these days.	1	2	3	4	5	
5. My friends listen to what I have to say.	1	2	3	4	5	
6. I feel my friends are good friends.	1	2	3	4	5	
7. I trust my friends.	1	2	3	4	5	
8. My friends respect my feelings.	1	2	3	4	5	
9. I get upset a lot more than my friends know about.	1	2	3	4	5	

10. It seems as if my friends are irritated with me for no reason.	1	2	3	4	5
11. I tell my friends about my problems and troubles.	1	2	3	4	5
12. If my friends know something is bothering me, they ask me about it.	1	2	3	4	5

Below is a list of behaviours that research shows pretty much everybody has done at least one of. Please read through and indicate whether or not you've done each one. Remember, your participation is confidential and nobody can identify you from your responses.

Have you ever...

	Never	Decline to say	Yes
1. Taken a car or motorcycle for a ride without the owner's permission?	1	2	3
2. Damaged somebody else's property on purpose?	1	2	3
3. Avoided paying for things, like a movie, taking bus rides, using a computer, or anything else (including video games)?	1	2	3
4. Forged a cheque or used fake money to pay for something?	1	2	3
5. Used, or tried to use a credit card or other bank card without permission?	1	2	3
6. Trying to cheat someone by selling them something that was not what you said it was or that was worthless?	1	2	3
7. Run away from home?	1	2	3
8. Tried to buy or sell things that were stolen?	1	2	3
9. Tried to take, or actually taken something, worth \$5 or less that wasn't yours?	1	2	3
10. Tried to take, or actually taken something, worth between \$5 and \$50 that wasn't yours?	1	2	3
11. Tried to take, or actually taken something, worth more than \$50 that wasn't yours?	1	2	3
12. Gone into, or tried to go into, a building or property that you weren't allowed into?	1	2	3
13. Skipped classes without an excuse	1	2	3
14. Set fire, or tried to set a fire, to property that didn't belong to you?	1	2	3
15. Hit someone with the idea of hurting them?	1	2	3
16. Thrown objects such as rocks or bottles at someone else?	1	2	3
17. Used a weapon with the idea of hurting someone?	1	2	3
18. Been involved in a gang fight?	1	2	3
19. Lied about your age to get somewhere or something that you otherwise shouldn't have?	1	2	3

Below is a set of statements that could be used to describe you.

- Please read each one carefully, and select the option which represents the extent to which these statements are true for you.
- Like opinions, some of these statements may seem contradictory - this is not a trick - it's the way the world is.
- There are no trick questions or right or wrong answers - just give your opinion.

	Not true		Somewhat true			Very true	
Success is based on survival of the fittest; I am not concerned about the losers	1	2	3	4	5	6	7
For me, what's right is whatever I can get away with	1	2	3	4	5	6	7
In today's world I feel justified in doing anything I can get away with to succeed	1	2	3	4	5	6	7
My main purpose in life is getting as many goodies as I can	1	2	3	4	5	6	7
Making a lot of money is my most important goal	1	2	3	4	5	6	7
I let others worry about higher values; my main concern is with the bottom line	1	2	3	4	5	6	7
People who are stupid enough to get ripped off usually deserve it	1	2	3	4	5	6	7
Looking out for myself is my top priority	1	2	3	4	5	6	7
I tell other people what they want to hear so that they will do what I want them to do	1	2	3	4	5	6	7
I would be upset if my success came at someone else's expense	1	2	3	4	5	6	7
I often admire a really good scam	1	2	3	4	5	6	7
I make a point of trying not to hurt others in pursuit of my goals	1	2	3	4	5	6	7
I enjoy manipulating other people's feelings	1	2	3	4	5	6	7
I feel bad if my words or actions cause someone else to feel emotional pain	1	2	3	4	5	6	7
Even if I were trying very hard to sell something, I wouldn't lie about it	1	2	3	4	5	6	7
Cheating is not justified because it is unfair to others	1	2	3	4	5	6	7
I find myself in the same kinds of trouble, time after time	1	2	3	4	5	6	7
I am often bored	1	2	3	4	5	6	7
I find that I am able to pursue one goal for a long time	1	2	3	4	5	6	7
I don't plan anything very far in advance	1	2	3	4	5	6	7
I quickly lose interest in tasks I start	1	2	3	4	5	6	7
Most of my problems are due to the fact that other people just don't understand me	1	2	3	4	5	6	7

Before I do anything, I carefully consider the possible consequences	1	2	3	4	5	6	7
I have been in a lot of shouting matches with other people	1	2	3	4	5	6	7
When I get frustrated I often "let off steam" by blowing my top	1	2	3	4	5	6	7
Love is overrated	1	2	3	4	5	6	7



Personality, Delinquency & Attachment

Thank you for participating in this research!

This study examined personality characteristics, delinquency and relationships to others. Research has shown that people who are more narcissistic and aggressive are more likely to have/form negative attachments with the significant people in their lives (Flight & Forth, 2007). This suggests that certain factors, such as a secure attachment to parental figures and/or friends, may act as a protective factor against future aggressive behavior and criminal offending.

The current research will collect responses over two time points allowing us to gain a deeper understanding about the relationships between personality and attachment. It may also be used in a comparative study with similar aged young people who are in a youth correctional facility.

Understanding more about pathways to aggression and offending will help those working in the community with young people who may be on this pathway. Knowledge about what kinds of things may protect a young person from offending or re-offending is vital to the planning of interventions for at risk youth.

Thank you again for participating in this research.

Appendix B: Information and Debriefing Sheet for High School Sample



Personality and relationships

Emma Scheib
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Marc Wilson, PhD
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463-5225

What is the purpose of this research?

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Who is conducting the research?

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What is involved if you agree to participate?

- If you agree to participate in this study you will be asked to fill in a series of questions relating to personality style, aggression, and your relationships with important people in your life.
- Most people complete these questions in around 10 minutes.
- During the research you are free to withdraw, without any penalty, at any point before your data have been collected. Completion of the questions indicates that you're happy for us to add your confidential data to those of other participants for subsequent analysis.

Privacy and Confidentiality

- We will keep your consent forms and data for at least five years after publication.
- You will never be identified in my research project or in any other presentation or publication. The information you provide will be coded by number only.
- In accordance with the requirements of some scientific journals and organisations, your coded data may be shared with other competent researchers.
- Your coded data may be used in other, related studies.
- A copy of the coded data will remain in the custody of Dr. Marc Wilson.

What happens to the information that you provide?

- The data you provide may be used for one or more of the following purposes:
- The overall findings may be submitted for publication in a scientific journal, or presented at scientific conferences.
- The overall findings may form part of a PhD thesis, Masters thesis, or Honours research project that will be submitted for assessment.

If you would like to know the results of this study, please provide an email address on the consent form. Summarized results will be available approximately 2-3 months from now.

If you have any further questions regarding this study please contact either Emma or Marc.



Personality, Delinquency & Attachment

Thank you for participating in this research!

This study examined personality characteristics, delinquency and relationships to others. Research has shown that people who are more narcissistic and aggressive are more likely to have/form negative attachments with the significant people in their lives (Flight & Forth, 2007). This suggests that certain factors, such as a secure attachment to parental figures and/or friends, may act as a protective factor against future aggressive behavior and criminal offending.

The current research will collect responses over two time points allowing us to gain a deeper understanding about the relationships between personality and attachment. It may also be used in a comparative study with similar aged young people who are in a youth correctional facility.

Understanding more about pathways to aggression and offending will help those working in the community with young people who may be on this pathway. Knowledge about what kinds of things may protect a young person from offending or re-offending is vital to the planning of interventions for at risk youth.

Thank you again for participating in this research.

Appendix C: Tables 13 to 15: Endorsement rates for all participants on the LSRP, IPPA, and Delinquency Scales.

Table 13. Percentage of participants selecting strongly agree (6 and 7) on the LSRP Scale

Item	Study 1:T1 (n=758)	Study 1:T2	Study 1:T3	Study 2
1	8.6	6.0	3.0	16.4
2	3.9	3.1	3.0	9.6
3	5.8	3.5	4.6	12.5
4	6.0	3.5	9.3	14.5
5	7.3	8.4	10.7	17.4
6	2.9	2.6	20.0	4.8
7	6.7	4.7	24.9	14.4
8	13.5	10.3	29.2	17.3
9	5.9	6.2	7.7	15.4
10	9.3	6.7	49.2	24.0
11	13.1	12.2	15.4	25.9
12	6.7	5.6	52.3	21.2
13	5.3	4.1	15.4	5.7
14	6.0	7.6	67.7	26.9
15	12.9	7.6	41.6	25.0
16	8.0	6.5	58.4	21.3
17	14.5	13.2	12.4	16.3
18	23.1	18.8	17.0	31.7
19	12.5	12.7	24.6	19.5
20	21.2	17.2	12.3	29.8
21	10.3	9.4	12.3	12.5
22	7.2	8.3	9.3	11.6
23	14.4	7.5	30.8	21.2
24	11.2	8.6	4.6	14.5
25	12.1	11	10.8	12.5
26	6.3	7.6	6.2	8.7

Table 14. Percentage of participants selecting 'yes' on the Delinquency Scale

	Study 1:T1 (n=758)	Study 1:T2	Study 1:T3	Study 2
1	25.5	20.5	16.9	26.0
2	35.6	36.5	40.0	52.9
3	45.5	44.9	53.8	49.0
4	2.8	3.7	1.5	1.9
5	7.5	8.1	9.2	8.7
6	7.4	7.5	7.7	13.5
7	26.4	26.3	29.2	16.3
8	10.4	10.0	13.8	21.2
9	51.3	58.9	64.6	59.6
10	26.8	29.8	27.7	27.9
11	9.4	9.1	3.1	9.6
12	52.0	54.5	64.6	55.8
13	70.7	75.6	76.9	58.7
14	6.1	5.2	10.8	5.8
15	46.4	50.4	53.8	55.8
16	20.8	21.8	7.7	41.3
17	6.2	6.4	4.6	6.7
18	2.4	2.4	0.0	5.8
19	57.5	57.4	63.1	61.5

Table 15. Percentage of participants selecting 'very true' on the IPPA Scale

Item	Study 1:T1 (n=758)	Study 1:T2	Study 1:T3	Study 2
1	49.0	48.2	38.5	38.5
2	60.2	52.7	55.4	59.6
3	11.1	8.2	10.8	12.5
4	30.2	32.1	23.1	19.2
5	33.1	32.9	30.8	24.0
6	16.4	16.9	12.3	3.8
7	29.4	25.7	21.5	18.3
8	48.2	45.2	36.9	35.6
9	29.4	23.7	20.0	15.4
10	28.0	29.4	23.1	19.2
11	51.2	42.2	36.9	43.3
12	39.2	37.1	24.6	30.8
13	31.0	26.6	21.5	25.0
14	31.4	23.4	16.9	13.5
15	23.6	20.4	9.2	4.8
16	32.2	25.0	23.1	24.0
17	43.7	41.4	35.4	34.6
18	61.2	54.2	61.5	61.5
19	51.2	46.9	52.3	56.7
20	46.0	44.4	46.2	32.7
21	11.9	12.3	4.6	21.2
22	44.9	38.5	32.3	38.8
23	23.0	19.6	10.8	8.7
24	34.8	31.5	26.2	15.4

Appendix D: Tables 2, 5, 9 and 11

Table 2. Correlations between Psychopathy, Attachment and Delinquency at Time 1¹

	SecPsys	PriPsys	Delinquent	Friends	Family	Total LSRP
Total LSRP Score	.78*	.82*	.43*	-.38*	-.40*	-
IPPA Family	-.40*	-.25*	-.22*	.47*	-	
IPPA Friends	-.33*	-.28*	-.15*	-		
Delinquency	.31*	.37*	-			
Primary Psychopathy	.27*	-				
Secondary Psychopathy	-					

¹All *N*'s between 657 and 726

*= $p < 0.01$

Table 5. Correlations between Psychopathy, Attachment and Delinquency at Time 2¹

	SecondPsy	PriPsyc	Delinquent	Friends	Family	Total
	c					LSRP
Total LSRP Score	.81*	.83*	.37*	-.40*	-.42*	-
IPPA Family	-.41*	-.29*	-.24*	.42*	-	
IPPA Friends	-.35*	-.32*	-.15*	-		
Delinquency	.28*	.34*	-			
Primary Psychopathy	.35*	-				
Secondary Psychopathy	-					

¹All *N*'s between 569 and 658*= $p < 0.01$

Table 9. Correlations between Psychopathy, Attachment and Delinquency: Study 1: Time 3, Individuals who participated in all 3 time points¹

	SecondPsysc	PriPsysc	Delinquent	Friends	Family	Total LSRP
Total LSRP Score	.74**	.82**	.37	-.59**	-.59	-
IPPA Family	-.80**	-.19	-.31	.65**	-	
IPPA Friends	-.56**	-.32	-.20	-		
Delinquency	.34	.23	-			
Primary Psychopathy	.28					
Secondary psychopathy	-					

¹ N = 123

*=p<0.05

**=p<0.01

Table 11. Correlations between Psychopathy, Attachment and Delinquency: Study 2¹

	SecondPsy	PriPsyc	Delinquent	Friends	Family	Total
c						LSRP
Total LSRP Score	.83**	.83**	.29**	-.36**	-.44**	-
IPPA Family	-.26**	-.47**	-.16	.45**	-	
IPPA Friends	-.09	-.51**	.04	-		
Delinquency	.26**	.22*	-			
Primary Psychopathy	.37**	-				
Secondary Psychopathy	-					

¹ N = 104*= $p < 0.05$ **= $p < 0.01$