Psychopathy and Antisocial Behaviour: The Moderating Effects of Maternal Neglect and Warmth

by

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Dedication

To Jon, whose support and encouragement have been vital throughout my degree. Thank you for pushing me to do what I love, and always being my biggest fan.

To my family, both those related and those who are my family by choice, for their support and encouragement throughout my education. Thank you for being there for me when I needed it (even bringing me late-night coffees to get me though it). I am so lucky to have you in my life.

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Abstract

Psychopathy researchers have long debated the role of antisocial behaviour and criminality as part of the construct of psychopathy. The current study examined the relationship between the interpersonal and affective traits (Factor 1) of psychopathy and antisocial behaviour (a facet of Factor 2), examining possible predictors of antisocial behaviour. It was hypothesized that early environment would moderate the relationship between Factor 1 traits and antisocial behaviour. Hierarchical multiple regression analyses were used in order to test for possible moderators. Sex differences were found, where men scored higher in Antisocial Behaviour. Childhood Abuse did not moderate the relationship between Factor 1 traits and Antisocial Behaviour, but predicted higher Antisocial Behaviour scores independently. Maternal Neglect was especially influential as a risk factor, significantly interacting with Factor 1 traits to predict higher Antisocial Behaviour scores. Maternal Warmth was also important, interacting with Factor 1 in a protective fashion, predicting lower Antisocial Behaviour Scores.

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List of Acronyms and Abbreviations

AB	Antisocial Behaviour
CA	Callous Affect
CTQ-SF	Childhood Trauma Questionnaire, Short-Form
EL	Erratic Lifestyle
IM	Interpersonal Manipulation
PARQ-F	Parental Rejection & Neglect Questionnaire – Father (Paternal Neglect)
PARQ-M	Parental Rejection & Neglect Questionnaire – Mother (Maternal Neglect)
SES	Socio-Economic Status
SRP III	Self-Report Psychopathy Scale: Version III

Introduction

Psychopathy

Psychopathy has traditionally been defined as a disorder (Cleckley, 1976; Hare, 1993, 1996). Cleckley (1976) claimed that while the psychopathic individual seemed outwardly sane, they were "dangerously disordered" (p. 14). He had observed a specific group of his clients that were most clearly distinguished by their complete lack of conscience. These individuals were unable to form meaningful attachments to other people, or to experience more than vague, fleeting, shallow semblances of emotion. He stated that these people lacked empathy and remorse, were dishonest and egocentric, and this facilitated them in conning and manipulating others, and made them prone to antisocial behavior. Cleckley (1976) argued that while they were deficient in feeling emotion, they seemed to have high intelligence. Hare (1980) developed a clinical scale to measure psychopathy, building from Cleckley's work, and based on the typical traits and behaviours exhibited by psychopathic inmates he had studied while working in a penitentiary. The Psychopathy Checklist (PCL-R) is now the common scale used to measure this personality disorder (Bishop & Hare, 2008; Hare 2006; Hare & Neumann, 2009). This scale measures the typical traits and behaviours observed in incarcerated psychopaths by using interview and case file information, and categorizes them into 2 factors (Hare, 2006; Hare & Neumann, 2009; Harpur, Hakstan & Hare, 1988). Factor 1 is related to the personality traits of the psychopath, such as the lack of remorse or empathy, glibness, manipulation and deceitfulness. Factor 2 is related to the antisocial and erratic behaviour often exhibited by the psychopath, such as irresponsibility, impulsivity, and criminal behaviour.

This measure has promoted much of the growth in research on psychopathy to date, and has been credited with the acceptance of psychopathy as a valid field of study (Newman, Brinkley,

Lorenz, Hiatt, & MacCoon, 2006). The two factors of psychopathy have also been further divided into 4 sub-factors in research: Factor 1 can be separated into the Interpersonal and the Affective sub-factors, and Factor 2 can be separated into the Lifestyle and Antisocial sub-factors (Hare & Neumann, 2006).

However, there is ongoing debate about the role of Antisocial Behaviour in psychopathy. Cleckley (1976) did not feel that criminality and aggression were a necessary part of the construct, more so as "the exception rather than as the rule" (p.262). He claimed that many psychopathic individuals are able to get by, fully convincing others that they are normal and genuine people (Cleckley, 1976). He even argued that some psychopaths are drawn to and successful in respectable careers, such as doctors and lawyers, and even psychiatrists (Cleckley, 1976). While Hare's two-factor definition has been the "gold standard" (Cooke & Michie, 2001; Hall & Benning, 2006; Hare & Neumann, 2010) used in assessing psychopathy, and includes several items pertaining to criminal activity, Hare also argues that not all psychopaths are criminal (Babiak & Hare, 2006; Babiak, Neumann & Hare, 2010; Hare, 1993). Hare (1993) asserts that there are over 2 million psychopaths in North America in the general public, which he says are "conservative estimates" (p. 2)[1]. Hare (1993) insists that many psychopaths will never end up in prison, "using their charm and chameleonlike abilities" to avoid getting caught (p. 2). Some research has even looked at how psychopathic traits can predict success in certain settings (Babiak 2007; Babiak & Hare, 2006; Babiak, Neumann & Hare, 2010; Hare, 1993). Hare (1996) argues that psychopaths are particularly suited for times of social or political chaos,

[1] Psychopathic traits are present in the population along a continuum (Edens, Marcus, Lilienfeld, & Poythress, 2006; Guay, Ruscio, Knight, & Hare, 2007; Walters, Duncan 7 Mitchell-Perez, 2007; Wright, 2009). The classification of a clinical "psychopath" is used when the psychopathy score on the PCL-R exceeds the cutoff of 25 for research purposes, and above 30 for clinical purposes (Hare, 1991).

often being seen as “patriots” and “saviours” in those settings (p.26). These findings have helped explain how psychopathic traits can be an advantage and promote success, especially in the corporate world. Other authors agree that psychopaths may have an evolutionary advantage (Book & Quinsey, 2004; Glenn, Kurzban, & Raine, 2011; Mealey, 1995; Krupp, Sewall, Lalumiere, Sheriff, & Harris, 2013; Smith, 1999). Mealey (1995) suggests that psychopathic traits can be adaptive, and can be used to cheat others and get ahead.

There seems to be a discrepancy between Hare’s insistence that both factors of psychopathy are necessary halves on one construct, and the fact that he also argues that psychopaths need not be criminal and antisocial. The very descriptors used in characterizing each of the factors of the psychopath seem contradictory: They are calculating (Factor 1) and yet impulsive (Factor 2). They are erratic (Factor 2), but conning and manipulative (Factor 1). There seems to be some flexibility in the definition, depending on the sample in which it was measured. MacDonald and Iacono (2006) argue that there is a lack of an “inclusive definition of psychopathy that is generally applicable outside prisons” (p.377). This seems to have limited the ability to determine how psychopathy is manifested in the general population.

Some researchers (Cooke & Michie, 2001; Cooke, Michie, Hart, & Clark, 2004) argue that the underlying disposition, such as described in Hare’s Factor 1, is what psychopathy really is, irrespective of any antisociality. Harpur, Hare, & Hakstian (1989) referred to Factor 1 as the personality traits “at the core of psychopathy” (p. 6). We agree with the need for determining the disposition, and propose separating Factor 1 as “who they are” (what makes a psychopath in terms of individual differences), and Factor 2 as “what they often, but not always, do” (more of a reaction to the environment interacting with that type of personality). Seeing the two factors as correlated, yet independent, may help to understand how there are such different outcomes for

those high in psychopathic personality traits. The two factors are correlated with each other at .5, and when isolated are differentially related to external variables (Hare, 1991, 1996; Harpur et al., 1989; Patrick, 2007). For example, Factor 1 is correlated with narcissism and low anxiety, whereas Factor 2 is correlated with antisocial personality disorder and substance abuse problems (Hare, 1996). It is also worth noting that the PCL-R (Hare, 1980, 1993) was specifically designed as a tool for use with prison samples, which differs slightly from the description Cleckley (1976) had given, being as he was not looking at incarcerated offenders (Patrick, 2006). While we do not advocate the exclusion of Antisociality in the definition totally, and recognize that many of the personality traits in Factor 1 measure antisociality indirectly (Hare & Neumann, 2006), it is expected that variability in the "overt" (Mahmut, Menticas, Stevenson, & Homewood, 2011) antisocial acts captured by the Antisocial Behaviour facet (within Factor 2) will reflect the differences between "successful" and "unsuccessful" psychopathy.

There are some theories that may help to explain these different outcomes, once the different factors of psychopathy are separated. First, it seems necessary to identify the underlying personality features (core interpersonal and affective traits). Some personality features seem to be universal across different samples of psychopathy research, such as lack of empathy or remorse, manipulation and shallow affect. These personality features are present in corporate psychopaths (Babiak 2007; Babiak & Hare, 2006; Babiak, Neumann & Hare, 2010) as well as highly criminal psychopaths (Hare, 1993). These underlying personality and affective traits are what distinguish psychopaths from antisocial personality disorders as per the DSM-IV (American Psychiatric Association, 1994). Hare (1996) claims that the core personality features of psychopathy have far greater utility in predicting treatment outcome and recidivism than the diagnosis of APD (which is related to the antisocial behaviour facet of psychopathy).

It is logical that those high in certain personality (and psychopathic) traits might be more likely to end up in criminal settings, or to behave antisocially, based on their sensation seeking and lack of fear of consequences. One who lacked empathy would more easily be able to take advantage of or mistreat others, as is suggested by Hare (1993, 2006) and Hare and Neumann (2009). However, some individuals high in these traits seek out corporate settings, as Babiak and Hare (2006) suggest, due to their greed, manipulative nature, and lack of depth in interpersonal relationships. The idea is that both types (successful or unsuccessful/criminal) will con and manipulate others, but will seek out different ways to do so, some more adaptive than others.

Risk Factors

It is predicted that the individual differences within the psychopathic personality will interact with and be shaped by the psychopath's early environment, in predicting Antisocial Behaviour scores. More specifically, it is expected that early negative experiences will have a larger impact on antisocial behaviour in individuals with personality traits associated with psychopathy. Factor 1 traits (such as lack of empathy or remorse) may predispose a person to behave in an antisocial manner, but it is likely dependent on the quality of their early environment. Negative early environment could include any number of variables. This study will examine childhood abuse and parental neglect, as well as low SES and head injury.

Childhood Abuse/Neglect.

Past research has shed some light on the effects of aversive childhood in those with psychopathic traits. McCord and McCord (1964) insisted that the psychopath's antisociality was an environmentally influenced outcome. They argue that most criminal psychopaths had parents who were abusive or neglectful. They suggest that due to their lack of emotion, they learn to take what they want, and unlike other neglected children who show an increased need for love, the

psychopathic child learns aggression (McCord & McCord, 1964). This effect is expected to be steeper in psychopathic personalities (because of a predisposition caused by a lack of empathy or remorse, and lack of depth in interpersonal relationships). Farrington (2006) agrees that the psychopath's family history and social environment contribute to their antisocial behaviour. Problems in child-rearing (such as excessive or inconsistent discipline styles) as well as poor quality of parental relationship (such as parental "coldness" or physical and mental abuse) are associated with antisocial behaviour and aggression in those high in psychopathic traits (Farrington, 2006). Children high in Callous-Unemotional traits (similar to Factor 1 of adult psychopathy) who have experienced childhood abuse or neglect show an increase in antisocial behaviour and criminal acts (Brieman et al., 2011). This is thought to be due to childhood abuse and neglect leading to further emotion regulation problems, compounding the issues caused by those callous-unemotional traits (Brieman et al., 2011). Furthermore, experiencing violence in childhood is associated with increased likelihood of perpetrating violence in intimate relationships with those high in psychopathic traits (Swogger, Walsh, Kosson, Cashman-Brown & Caine, 2012). It is argued that violence and delinquency is a learned behaviour, generally, even in those without psychopathic traits (Anderson & Kras, 2005; Bandura, 1978; Simons & Burt, 2011). Furthermore, children who experience parental rejection or neglect are at an increased risk of violent and antisocial behaviour, and even developing personality disorders in adulthood (Rohner & Brothers, 1999; Rohner & Britner, 2002). Given the evidence above, abuse and neglect were expected to moderate the relationship between Factor 1 traits and the antisocial behaviour facet of psychopathy, such that these negative events would have a greater impact on individuals who score higher on Factor 1.

Socio-Economic Status.

Low socio-economic status has been associated with an increase in antisocial behaviour in individuals with psychopathic traits. Hare (1996) stated that Factor 2 (antisocial behaviour) specifically has been correlated with low socio-economic status. Smith (1999) argued that psychopathic personality traits can be manifested in an antisocial and criminal manner specifically when living in lower socio-economic status (particularly low income and limited opportunity). McCord and McCord (1964) also found that lower socio-economic status helped promote antisocial behaviour in psychopathic individuals. However, not all people who witness or experience violence will become violent themselves. Not all those with a low socio-economic status will become criminal. It is predicted that these social and environmental influences will be related to antisocial behaviour, and that this effect will be strongest in those high in Factor 1 traits.

Head Injury.

Some research indicates an increase in antisocial behaviour in those who have experienced head injury. Damasio (2000) argues that head injury obtained in adulthood shows an increase in violations of social norms and increased rule breaking, despite the fact that the individual's understanding of rules and social code remain intact. When the injury is obtained in childhood, there is some evidence to suggest that there is an increase in antisocial behaviour and even criminality, and that the individual has a deficit in understanding moral reasoning and social ethics (Anderson, Bechara, Damasio, Tranel & Damasio, 1999). Given this relationship, head injury was treated as a possible covariate in predicting antisocial behaviour.

Protective factors

The discussion above outlines possible risk factors for antisocial behaviour, but there may also be e protective factors that act as a buffer, reducing antisocial or violent behaviour in those who are high in the interpersonal and affective traits of psychopathy.

Parental Warmth.

McCord and McCord (1964) stressed the importance of parental relationship and support in intervening for children who were high in psychopathic traits. Recently, some research has looked at the effect of parental warmth on children high in callous-unemotional traits (similar to the interpersonal and affective traits of Factor 1 found in adults). In a review, Salekin and Lochman (2008) found that psychopathic traits in children do not show perfect stability into adulthood, and that the quality of parenting can show a decrease in antisocial behaviour in adulthood. They also explain that there is a paucity of research looking at possible protective factors such as parental warmth and its effect on adult psychopathy and antisocial behaviour (Salekin & Lochman, 2008). In children high in callous-unemotional traits, parental reports of closeness and positive relationships (warmth) regarding their children was related to lower reported behaviour problems (Kochanska, Kim, Boldt & Yoon, 2013). While high levels of callous-unemotional traits in children is associated with conduct problems and antisocial behaviour, the relationship is weaker in children who report their parental figure as being warm (Pardini, Lochman & Powell, 2007). This research hopes to further examine the effect of parental warmth in early environment for those high in Factor 1 traits, on adult antisocial behaviour, which is a facet of Factor 2 in psychopathy. More specifically, it was expected that the positive effect of parental warmth to have compensatory effect against Factor 1 traits, reducing Antisocial Behaviour.

Current Research Study

This study will test for possible moderators of the relationship between psychopathic traits and antisocial behaviour, in order to better understand the variability in "success" in individuals high in psychopathy. It is expected that there are personality features universal to all psychopathic individuals, generalizing across "successful" and incarcerated samples. It is predicted that early environment will moderate the relationship between Factor 1 and Antisocial Behaviour scores of psychopathy. More specifically, risk factors will have a larger negative impact on people scoring high on Factor 1. It is also expected that parental warmth will act in a protective fashion, reducing Antisocial Behaviour scores in those high in Factor 1 traits. Measures of SES and Head Injury were measured, as well, in order to control for any effect that they have on Antisocial Behavior. Sex was also included as a predictor, as some research has found sex differences in psychopathy scores (Levenson, Kiehl, & Fitzpatrick, 1995; Verona & Vitale, 2006; Williams, Paulhus & Hare, 2007; Zagon & Jackson, 1994)

Methods

Participants

Three hundred and sixty eight participants from a community sample were recruited from an online research recruitment site (MTURK), as well as from the social media website, Facebook. Of this sample, 207 were female and 160 were male (1 responded "other"). Participants from both sexes were included, as recent research has found that psychopathy is found in both sexes, and that women have been overlooked in a large amount of psychopathy research (Cale & Lilienfeld, 2002; Neumann, Schmitt, Carter, Embley, & Hare, 2012). Participants' ages ranged from 19 to 74 years of age (M= 36.01, SD = 55.55). Of this sample, 81.5% were American, and 18.5% was Canadian. For Nationality, 81.5% of the sample identified as "Caucasian", 7.06% "African American", 6.25% "Asian", 2.99% "Hispanic", .25% "Indian", .54% "Native American", and 1.63% as "other". For education level, 8.7% had completed some type of graduate degree (e.g., Doctoral, Master's, Law), 37.23% had completed a university degree, 11.14% indicated that they had a community college degree, 42.12% had completed high school, 0.54% had not completed high school, and .27% of the 368 participants chose the option "prefer not to say". Participants were offered a small financial compensation (2 dollars) for participation. All participants were given a link to the consent form and questionnaires on Qualtrics, an online questionnaire service.

Measures

Demographics.

Participants were given a demographics questionnaire to determine information about their age, sex, education level; nationality and race (see Appendix E). Particularly for this study, participants' sex was included in regression analyses for exploratory purposes, as sex differences

have been found in psychopathy scores in community samples (Levenson, Kiehl, & Fitzpatrick, 1995; Zagon & Jackson, 1994)

Socio Economic Status.

Participants completed the Family Affluence Scale (Currie et al., 2008), which asks indirect questions about their family income growing up (see Appendix H). Participants were also asked additional items to assess their family income indirectly (see Appendix I).

Psychopathy.

Participants completed The Self-report Psychopathy Scale: Version III (SRP III; Paulhus, Hemphill, & Hare, in press). This self-report scale (and its revisions) was developed based on Hare's PCL-R, and is used specifically to assess psychopathic traits in community and non - clinical samples (Lester, Salekin & Sellbom, 2012; Neal & Sellbom, 2012; Williams, Paulhus & Hare, 2007; Zagon & Jackson, 1994). This scale contains 64 items that participants rate on a five-point Likert scale from 1 "Strongly Disagree" to 5 "Strongly Agree", and scores are calculated for total psychopathy score, and 4 subscale scores. The four subscales (Interpersonal Manipulation, Callous Affect, Erratic Lifestyle, and Antisocial Behaviour) map on to the 4 subfactors of Hare's PCL-R (Hare, 2003; Mahmut, Menictas, Stevenson, & Homewood, 2011; Williams et al., 2007), and can also be grouped into the two factors of Hare's model of psychopathy (Interpersonal Manipulation and Callous Affect make up Factor 1, and Erratic Lifestyle make up Factor 2). Scores for each of the sub-factors were calculated for those who had completed more that 80% of the items for each sub-factor. For participants who had completed over 80% of items, missing items were replaced by their mean subscale scores (from participant's other items on that subscale) in order to minimize excluding participants from analyses due to missing data. Interpersonal Manipulation and Callous Affect were combined to

represent Factor 1 (as they map on to Hare's PCL-R factor 1, Mahmut et al., 2011; Neal & Sellbom, 2011; Williams et al., 2007; Zagon & Jackson, 1994). Antisocial Behaviour scores were used as the outcome variable. Psychopathy subscale scores were analyzed as continuous variables, as these scores are argued to be dimensional (Edens, Marcus, Lilienfeld, & Poythress Jr., 2006; Guay, Ruscio, Knight, & Hare, 2007; Walters, Duncan, & Mitchell-Perez, 2007; Wright, 2009; Zágon & Jackson, 1994). Past research has found the SRP III to have acceptable reliability, with Cronbach alpha levels ranging from .67-.90 for the 4 subscales, and above .85 for SRP III total score (Mahmut et al., 2011; Williams et al., 2007).

Head Injury.

For measuring head injury, items from a scale used by the Mild Head Injury lab at Brock University (Good, personal communication, 2013). This scale asked participants yes/no questions regarding if they had ever hit their head, and if so, had they lost consciousness, or experienced some of the symptoms associated with a head injury. This scale allowed us to account for possible head injury indirectly, in the case that participants had not had formal assessment of their injuries. Total head injury scores were calculated by assigning a score of "1" for all questions answered "yes", and "0" for all questions answered "no". For the purposed of this study, qualitative items and some follow-up questions were not included in the score. Final items included in the composite score were items 5, 6, 7, 11a, 11b, 11c, 11d, 12, 13, 14, & 18a (see Appendix H), to obtain a total possible score of 11.

Childhood Abuse/Trauma.

To measure childhood abuse, the abbreviated version of the Childhood Trauma Questionnaire (CTQ-SF) was used, which is a self-report scale that includes 26 items such as "parents wish I was never born" and "was hurt if I did not do something sexual" (Bernstein &

Fink, 1998; Bernstein et al., 2003). Participants rated each item on a 5 point Likert scale ranging from 1= "Never True" to 5 ="Very Often True". Scores for each of the 5 subscales are calculated (Emotional Abuse, Physical Abuse, Sexual Abuse, Emotional Neglect, Physical Neglect), as well as a total CTQ score for each participant. Past research has found the CTQ-SF to have excellent reliability, with the total scale Cronbach's alpha of .96 (Paivio & Kramer, 2004), and the alphas of the subscales ranging between .66 to .97 (Bernstein & Fink, 1998; Paivio & Kramer, 2004).

Parental Warmth and Neglect.

Parental Warmth and Rejection were measured with the Adult Parental Acceptance-Rejection Questionnaire (PARQ, Rohner & Khaleque, 2005), for each participant's mother and father. For each parent, the scale includes 60 items that measure warmth, (e.g. "my (father/mother) tried to make me feel better when I was sick" or "cared about what I thought, and liked me to talk about it"), as well as rejection (e.g. "my (father/mother) saw me as a big nuisance" and "paid no attention when I asked for help"). Participants were asked to retrospectively rate each parent on a four-point scale from 4="Almost Always True" to 1= "Almost Never True" for every item. As per the instructions for the scale, total scores are calculated for Parental Warmth and Acceptance, Hostility/Aggression, Indifference/ Neglect, and Undifferentiated Rejection subscales, replacing missing values for mean scores in those who completed 85% of the items for each scale. Total PARQ scores are calculated as a composite of the subscales, with the Warmth/Acceptance items reverse-scored. For the purposes of this study, the parental Warmth and Acceptance scale was used to measure warmth for each parent and parental neglect was measured by using total PARQ scores for each participant's mother and father, in order to include multiple types of neglect and rejection. Higher PARQ scores indicated higher parental neglect. Past research has found the PARQ to have high reliability cross-

culturally, with Cronbach alpha of .89, and the Warmth/Affection subscale to have a Cronbach's alpha of. 91 (Khaleque & Rohner, 2002; Khaleque, 2013).

Procedure

Participants were asked to read the consent form and informed that by continuing on to the link to the study, they were providing their consent (see Appendix D). The link directed them to the online survey on Qualtrics (a web-based survey program). The survey included Demographic items, the Self Report Psychopathy Scale, third edition (SRP-III, Paulhus, Hemphill & Hare, in press). Information regarding childhood abuse was collected using the abbreviated version of the Childhood Trauma Questionnaire (CTQ-SF, Bernstein & Fink,1998; Bernstein et al., 2003), as well as childhood experiences of parental acceptance/warmth, vs. parental neglect/rejection using the Adult Parental Acceptance/ Rejection Questionnaire (PARQ, Rohner & Khaleque, 2005), for both their mother and father. Lastly, information was collected about socio-economic status, as well as possible head injury, in order to control for their possible influence on antisocial behaviour. After participants completed the surveys, they were thanked for their participation and given written debriefing (payment was automatic through Mturk).

Results

Data Screening

Before beginning data analysis, data were screened for potential univariate and multivariate outliers that could be considered influential to our data. Of the 368 participants, cases were considered univarate outliers if they had z scores greater than the acceptable range of |3|. The variables of Factor 2, Erratic Lifestlye, Maternal Neglect and Paternal Neglect each had one case considered to be a univariate outlier. Two cases were considered to be univariate outliers for Head Injury, five cases for Antisocial Behaviour, and nine cases for Childhood Abuse. Although some of these cases had extreme scores on some of the clinical measures, they were kept in the analyses as they were considered to be representative of how these clinical constructs were distributed in the population. Also, as Cook's Distance values did not exceed a value of |1|, none of these cases were considered influential. Stevens (1984) argues that outliers identified by other means (e.g. Mahalanobis' distance) are not necessarily influential in affecting regressions, and instead recommends that Cook's Distance values be used to determine influential points in the data. Examination of pp-plots of standardized residuals indicated that the assumption of normality appeared to have been met. However, examination of scatter plots of the standardized residuals and predicted scores indicated slight heteroscedasticity. However, regression is relatively robust in the face of slight violations of assumptions (Tabachnick & Fiddell, 2007). Finally, all analyses met the assumption of independence of residuals, as the Durbin-Watson value was within the acceptable range between 1.5 and 2.5 (Cohen, Cohen, West, & Aiken, 2003). Descriptive statistics for all scales included in the analyses are presented in Table 1. Descriptive statistics for women and men separately are presented in Table 2 and

Table 3, respectively. While skewness and kurtosis values indicated a non-normal distribution, Psychopathy scores, as well as other clinical constructs (such as the measures of child abuse in this study) tend to be non-normal in the population (Neumann, Kosson, & Salekin, 2007). Hare (1993) claimed that only 1% of the general population could be considered psychopathic (having an extreme score on the PCL-R), and Babiak et al. (2010) also supported that psychopathy scores are skewed, especially in non-clinical samples. Furthermore, skewness values for psychopathy scores were greater in our sample than some prior research due to the inclusion of women in our study, as most psychopathy research focuses on male populations. When our sample was split by sex, Skewness values were much higher for women than men, and psychopathy scores were more varied in men than women, which is representative of past research (Zagon & Jackson, 1994). In addition, variables such as head injury and parental neglect are not expected to be normally distributed in the population, so these scores were deemed representative.

Table 1

Descriptive Statistics

Variable	*N*	*M*	*SD*	$Z_{Skewness}$	$Z_{Kurtosis}$	α
SRP III Factor 1 Score	368	75.61	16.66	1.53	-1.28	.90
SRP III Factor 2 Score	368	66.18	16.67	4.28	0.52	.87
SRP III Interpersonal Manipulation (IM)	368	39.08	9.62	2.23	-1.13	.86
SRP III Callous Affect (CA)	368	36.52	8.46	1.74	-1.31	.80
SRP III Erratic Lifestyle (ELS)	368	40.22	9.97	1.43	-0.26	.82
SRP III Antisocial Behaviour (AB)	368	25.95	8.88	9.86	5.61	.82
Childhood Trauma/Abuse (CTQ-SF)	367	64.53	10.53	15.28	31.61	.65
Neglectful Parental Care, Father (PARQ-F)	364	114.59	40.69	4.64	-1.81	.98
Neglectful Parental Care, Mother (PARQ-M)	365	102.88	41.73	7.81	-.12	.99
Parental Warmth, Father	364	57.40	18.62	-4.45	-3.24	.98
Parental Warmth, Mother	365	65.36	15.98	-8.38	1.09	.98
SES	363	21.43	4.37	.58	-2.12	

Note. Please see possible range of scores and calculation in measures section.

Table 2

Descriptive Statistics in Women

Variable	*N*	*M*	*SD*	$Z_{Skewness}$	$Z_{Kurtosis}$
SRP III Factor 1 Score	207	70.07	15.44	1.44	-1.34
SRP III Factor 2 Score	207	61.61	14.52	2.73	-.45
SRP III Interpersonal Manipulation (IM)	207	36.76	9.29	1.80	-1.29
SRP III Callous Affect (CA)	207	33.31	7.51	2.21	.17
SRP III Erratic Lifestyle (ELS)	207	38.16	9.72	1.28	-1.57
SRP III Antisocial Behaviour (AB)	207	23.45	6.85	8.46	7.27
Childhood Trauma/Abuse (CTQ-SF)	207	65.32	9.59	9.15	14.87
Neglectful Parental Care, Father (PARQ-F)	205	114.29	42.15	3.41	-1.80
Neglectful Parental Care, Mother (PARQ-M)	205	104.62	43.70	5.85	-.35
Parental Warmth, Father	205	57.28	19.34	-3.26	-2.70
Parental Warmth, Mother	205	64.97	16.43	-6.40	.78

Note. Please see possible range of scores and calculation in measures section.

Table 3

Descriptive Statistics in Men

Variable	*N*	*M*	*SD*	$Z_{Skewness}$	$Z_{Kurtosis}$
SRP III Factor 1 Score	160	82.82	15.47	1.03	-.60
SRP III Factor 2 Score	160	72.14	17.46	2.16	-.05
SRP III Interpersonal Manipulation (IM)	160	42.10	9.26	1.72	-0.53
SRP III Callous Affect (CA)	160	40.70	7.81	.13	-.74
SRP III Erratic Lifestyle (ELS)	160	42.91	9.70	.86	1.62
SRP III Antisocial Behaviour (AB)	160	29.22	10.11	4.41	.65
Childhood Trauma/Abuse (CTQ-SF)	159	63.53	11.60	12.10	26.48
Neglectful Parental Care, Father (PARQ-F)	158	114.75	38.87	3.31	-.50
Neglectful Parental Care, Mother (PARQ-M)	159	100.24	38.88	5.20	.17
Parental Warmth, Father	158	57.62	17.73	-3.12	-1.81
Parental Warmth, Mother	159	65.60	15.38	-5.58	.94

Note. Please see possible range of scores and calculation in measures section.

Correlations among variables measured in this study are presented below. As Socio Economic Status and Head injury variables were uncorrelated with the outcome variable (Antisocial Behaviour), these were not included in regression analyses in predicting Antisocial Behaviour (see Table 4).

Table 4

Correlations among variables of interest

Variable	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*
1. SRP III Factor 1 Score		.67**	.93**	.91**	.60**	.58**	.04	.21**	.25**	-.15**	-.20**	.08	.16*	.37**
2. SRP III Factor 2 Score		-	.58**	.66**	.90**	.87**	.18**	.20**	.27**	-.12*	-.19**	.01	.11*	.30**
3. SRP III (IM)			-	.70**	.54**	.49**	.04	.20**	.24**	-.12*	-.19**	.09	.16**	.27**
4. SRP III (CA)				-	.58**	.59**	.03	.20**	.23**	-.16**	-.19**	.05	.13	.42**
5. SRP III (ELS)					-	.57**	.14**	.13*	.19**	-.08	-.13*	.04	.16**	.23**
6. SRP III (AB)						-	.17**	.22**	.29**	-.13*	-.22**	-.03	.025	.31**
7. CTQ-SF							-	.04	.07	.07	.01	.05	.12*	-.09
8. Paternal Neglect (PARQ-F)								-	.57**	-.90**	-.53**	-.25**	.08	.01
9. Maternal Neglect(PARQ-M)									-	-.49**	-.93**	-.23**	.09	-.04
10. Paternal Warmth (W/A- F)										-	.51**	.30**	-.03	.00
11. Maternal Warmth (W/A-M)											-	.26**	-.02	.02
12. SES												-	-.00	.09
13. Head Injury													-	-.03
14. Sex														-

Note. *$p < .05$, **$p < .001$, two-tailed

Moderation Analyses

Hierarchical multiple regression analyses were conducted with each of the remaining predictors (child abuse, parental neglect for each parent, and parental warmth for each parent) in order to determine possible moderators of the relationship between Factor 1 (the personality traits) of psychopathy and the Antisocial Behaviour facet of Factor 2 (the behavioural component of psychopathy). Sex of participant was included in each regression in order to examine the possibility of sex differences and interaction in each case. If the Sex by Factor 1 by Moderator interaction was significant, further analyses were done for men and women separately.

Childhood Abuse

A hierarchical multiple regression analysis was used to investigate the hypothesis that Childhood Abuse would moderate the relationship between Factor 1 scores and Antisocial Behaviour, increasing overt antisociality. For the first step, F1 scores, sex of participant, and CTQ-SF scores were entered. On the second step, 2-way interactions were entered between sex and CTQ-SF, sex and F1, and CTQ-SF and F1 in order to examine the possibility of moderation. On the third step, a 3-way interaction between the variables was entered. Descriptive statistics and correlations between predictors in this analysis are presented in Table 5.

Table 5

Descriptive Statistics and Correlations between Sex, Factor 1 Psychopathy scores, Childhood Abuse and Antisocial Behaviour

Variable	*M*	*SD*	2	3	4
1. Antisocial Behaviour	25.89	8.82	.31**	.17**	.58**
2. Sex	.44	.50	___	-.09*	.37**
3. CTQ-SF	64.53	10.53		___	.04
4. SRP III Factor 1	75.56	16.66			___

Note. $N = 367$. Correlations from regression analysis: *$p < .05$, **$p < .001$, one-tailed.

The overall model was significant, predicting 38.4% of the variance in Antisocial Behaviour $R^2 = .38$, F (7, 359) = 31.94, $p < .001$. The first step was significant, accounting for 37.2% of the variance in Antisocial Behaviour scores, scores $R^2\Delta = .37$, $F\Delta$ (3, 363) = 71.79, $p < .001$. This step indicated that the 3 variables independently predicted Antisocial Behaviour scores. Men had significantly higher Antisocial Behaviour scores, and high Factor 1 psychopathy scores and increased Childhood Abuse predicted higher Antisocial Behaviour. Summary of results are presented in Table 6. No significant interaction was found on the second or third step.[2]

Table 6

Results of Hierarchical Regression: Childhood Abuse, Factor 1 scores, and Sex predicting Antisocial Behaviour scores

Predictors	Step 1		
	β	*t*	*sr²*
Sex	.13*	2.89*	.01
CTQ-SF	.17**	3.94**	.03
SRP III Factor 1	.52**	11.69**	.24

Note. $N = 367$. Correlation from regression analysis: *$p<.05$ **$p < .001$, one-tailed

Parental Neglect/Rejection.

Hierarchical multiple regression analyses were conducted in order to test the hypothesis that parental neglect and rejection would moderate the relationship between Factor 1 and

[2] Similar results were found using a 3-Factor psychopathy score (Table 22), Interpersonal Manipulation (Table 26) and Erratic Lifestyle (Table 28), with Childhood Abuse only having additive effects on Antisocial Behaviour. Sex remained a significant predictor after accounting for the interactions. Childhood Abuse did however moderate the relationship between Callous Affect subscale scores and Antisocial Behaviour (Table 24). Please see Appendix A for these results.

Antisocial Behaviour, predicting an increase in overt antisociality. Separate analyses were conducted for father and mother, in order to explore the effects from each parent.

Paternal Neglect/Rejection.

Descriptive statistics of all variables entered in this regression are presented in Table 7.

Table 7

Descriptive Statistics and Correlations between Sex, Factor 1 Psychopathy scores, Parental Neglect/Rejection (Father) and Antisocial Behaviour

Variable	*M*	*SD*	2	3	4
1. Antisocial Behaviour	25.94	8.90	.32**	.22**	.58**
2. Sex	.44	.50	___	.01	.37**
3. PARQ-Father	114.59	40.69		___	.21**
4. SRP III Factor 1	75.57	16.68			___

Note. N = 364. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

For the first step, F1 scores, sex of participant, and PARQ-F were entered. On the second step, 2-way interactions were entered between sex and PARQ-F, sex and F1, and F1 and PARQ-F. On the third step, a 3-way interaction between the predictors was entered.

The overall model was significant, accounting for 37.6 % of the variance in Antisocial Behaviour scores R^2 = .38, F (7, 356) = 30.64, p < .001. Step 1 was significant accounting for 36.3% of the variance in Antisocial Behaviour scores, $R^2\Delta$ = .36, $F\Delta$ (3, 360) = 68.45, p < .001. Results indicated that men had significantly higher Antisocial Behaviour scores, and also that higher Factor 1 scores and greater Paternal Rejection and Neglect significantly positively predicted Antisocial Behaviour scores. A summary of regression results is presented in Table 8. No interaction was found on the second or third step.

Table 8

Results of Hierarchical Regression: Parental Rejection/Neglect for Father, Factor 1 scores, and Sex predicting Antisocial Behaviour scores

Predictors	Step 1		
	β	*t*	sr^2
Sex	.12*	2.70*	.01
PARQ Father	.11*	2.59*	.01
SRP III Factor 1	.51**	11.06**	.22

Note. N = 364. Correlation from regression analysis: *p<.05 **p < .001, one-tailed

Maternal Neglect/Rejection.

Descriptive statistics of all variables entered in this regression are presented in Table 9.

For the first step, F1 scores, sex of participant, and PARQ-M were entered. On the second step, 2-way interactions were entered between sex and PARQ-M, sex and F1, and Factor 1 and PARQ-M. On the third step, a 3-way interaction between the predictors was entered. Results of the regression are presented in Table 10.

Table 9

Descriptive Statistics and Correlations between Sex, Factor 1 Psychopathy scores, Parental Neglect/Rejection (Mother) and Antisocial Behaviour

Variable	*M*	*SD*	2	3	4
1. Antisocial Behaviour	25.97	8.90	.32**	.29**	.58**
2. Sex	.44	.50	___	-.04	.37**
3. PARQ-Mother	102.88	41.73		___	.25**
4. SRP III Factor 1	75.68	16.71			___

Note. N = 365. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

The overall model was significant, accounting for 44.1 % of the variance in Antisocial Behaviour scores, $R^2 = .44$, F (7,357) = 40.22, $p < .001$. Step 1 was significant, $R^2\Delta = .38$, $F\Delta$ (3, 361) = 73.58, $p < .001$. The second step (the 2 way interactions between the predictors) was also significant, $R^2\Delta = .04$, $F\Delta$ (3, 358) = 8.09, $p < .001$. The third step (indicating a 3-way interaction between the predictors was also significant, $R^2\Delta = .02$, $F\Delta$ (1,357) = 14.08, $p < .001$, therefore the sample was split by sex to investigate the relationship between the predictors separately for women and men.

Table 10

Results of Hierarchical Regression: Maternal Rejection/Neglect, Factor 1 scores, Sex, and interactions in predicting Antisocial Behaviour scores

Predictors	Step 1			Step 2			Step3		
	β	*t*	sr^2	*β*	*t*	sr^2	*β*	*t*	sr^2
Sex	.14*	3.16*	.02	.-.47*	-2.22*	.01	1.52*	2.66*	.01
SRP III Factor 1	.49**	10.41**	.19	.09	.64	.00	.43*	2.66*	.01
PARQ-Mother	.18**	4.04**	.03	-.49*	-2.42*	.01	.05	.20	.00
Sex by Factor 1				.43	1.80	.01	-1.74*	-2.80*	.01
Sex by PARQ-Mother				.27*	2.16*	.01	-1.97^{t}	-3.24^{t}	.02
Factor 1 by PARQ-Mother				.76*	2.86*	.01	.01	.04	.00
3 Way Interaction							2.45**	3.75**	.02

Note. N = 365. Correlation from regression analysis:* $p < .05$, **$p < .001$, ^{t} $p = .001$, one-tailed.

Women.

The overall model was significant, accounting for 31.5% of the variance in Antisocial Behaviour, $R^2 = .32$, F (3,202) = 30.81, $p < .001$. Descriptive statistics are presented in Table 11.

Table 11

Descriptive Statistics and Correlations between Factor 1 Psychopathy scores, Parental Rejection/Neglect (Mother) and Antisocial Behaviour, in Women

Variable	*M*	*SD*	2	3
1. Antisocial Behaviour	23.44	6.84	.24**	.56**
2. PARQ-Mother	104.62	43.70	___	.31**
3. SRP III Factor 1	70.11	15.51		___

Note. $N = 206$. Correlations from regression analysis: *$p < .05$, **$p < .001$, one-tailed.

The first step was significant, accounting for 31.5% of the variance in Antisocial Behaviour, $R^2\Delta = .32$, $F\Delta$ (2, 203) = 46.44, $p < .001$. Only Factor 1 scores were a significant predictor in Antisocial Behaviour scores ($\beta = .53$, $t = 8.71$, $p < .001$, $sr^2 = .26$). No significant interaction was found.

Men.

In men, the overall model was significant, accounting for 41.1% of the variance in Antisocial Behaviour, $R^2 = .41$, F (3, 155) = 36.08, $p < .001$. Descriptive statistics for the predictors are presented in Table 12.

Table 12

Descriptive Statistics and Correlations between Factor 1 Psychopathy scores, Parental Rejection/Neglect (Mother) and Antisocial Behaviour, in Men

Variable	*M*	*SD*	2	3
1. Antisocial Behaviour	29.27	10.12	.44**	.52**
2. PARQ-Mother	100.24	38.88	___	.29**
3. SRP III Factor 1	82.90	15.49		___

Note. N = 159. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

The first step was significant, accounting for 36.2% of the variance in Antisocial Behaviour scores in men, $R^2\Delta$ = .36, $F\Delta$ (2,156) = 44.16, p <.001. Both PARQ-Mother scores and Factor 1 psychopathy scores significantly predicted Antisocial Behaviour on this step. Step 2 was also significant, with the interaction accounting for an additional 5% of the variance in Antisocial Behaviour scores, $R^2\Delta$ = .05, $F\Delta$ (1, 155) = 13.07, p < .001. The main effect of Factor 1 was qualified by its interaction with mother's neglect/rejection, in that the relationship between Factor 1 and Antisocial Behaviour depends on Maternal Neglect/Rejection. Statistics for the regression are summarized in Table 13.

Table 13

Results of Hierarchical Regression: Parental Rejection/Neglect for Mother, Factor 1 scores, and Interaction in predicting Antisocial Behaviour scores (in Men)

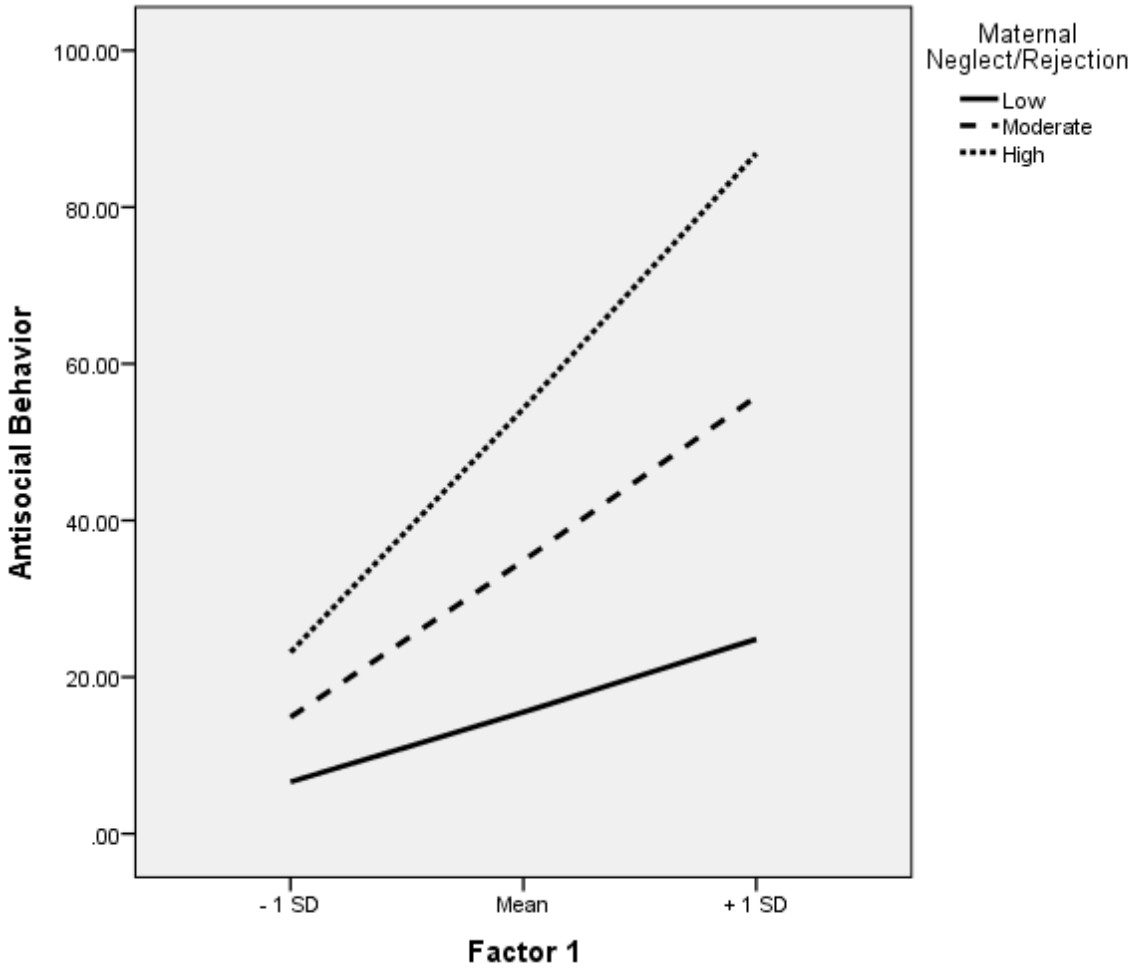
Predictors	Step 1			Step 2		
	β	*t*	sr^2	*β*	*t*	sr^2
SRP III Factor 1	.43**	6.37**	.09	-.17	-.96	.00
PARQ-Mother	.32**	4.81**	.17	-1.02*	-2.71*	.03
PARQ-Mother by Factor 1 Interaction				1.63**	3.62**	.05

Note. N = 160. Correlation from regression analysis*:* p< .05, **p < .001, one-tailed.

When men in the sample were split into 3 levels of Maternal Neglect (at mean level of Maternal Neglect for Moderate, 1 SD above the mean for the High level, and 1 SD below the mean for the Low level), simple slopes analysis revealed that the relationship between Factor 1 scores and Antisocial Behaviour depended on Maternal Neglect (see Figure 1 below). Results indicated that the relationship between Factor 1 and Antisocial Behaviour was stronger at high levels of Maternal Neglect (β = .72, t = 6.92, p < .001) than at moderate (β= .47, t = 7.23, p < .001), or low levels of Maternal Neglect (β = .21, t = 2.35, p = .020). Furthermore, for men who had high levels of Maternal Neglect, there was significantly greater variance in Antisocial Behaviour scores (σ^2 = 129.28) than in men who had low levels of Maternal Neglect (σ^2 = 46.24), as indicated by the Levene's test (F = 10.41, p = .002). Maternal Neglect added risk with Factor 1 scores, increasing Antisocial Behaviour.

Figure 1.

Simple Slopes for 3 levels of Maternal Neglect interacting with Factor 1, predicting Antisocial Behaviour.



Furthermore, since Parental Rejection/Neglect had a significant effect in men from both parents, an additional hierarchical regression was run in men to explore the unique effects of Maternal Warmth after accounting for Paternal Warmth. On Step 1, Factor 1 scores, PARQ-Father scores, and the interaction between Factor 1 and PARQ-Father were entered. On the second step, PARQ-Mother scores and the interaction between PARQ-Mother and Factor 1 were added. The overall model was significant, predicting 42% of the variance in Antisocial Behaviour in men, $R^2 = .42$, F (5,152) = 22.01, $p < .001$.

The first step was significant, accounting for 29.3% of the variance in Antisocial Behaviour scores in men, $R^2\Delta = .29$, F (3,154) = 21.26, $p < .001$. However, none of the predictors on their own were significant in predicting Antisocial Behaviour scores on this step (please see Table 14). Step 2 was also significant, with the interaction accounting for an additional 12.7% of the variance in Antisocial Behaviour scores, $R^2\Delta = .13$, $F\Delta$ (2, 152) = 16.66, $p < .001$. Statistics for the regression are summarized in Table 14.[3]

Table 14

Results of Hierarchical Regression: Examining the effects of Parental Rejection/Neglect from Mother, over and above effects of Parental Rejection/Neglect from Father (in Men)

Predictors	Step 1			Step 2		
	β	*t*	sr^2	*β*	*t*	sr^2
PARQ-Father	-.24	-.66	.00	.49	1.21	.01
SRP III Factor 1	.81*	2.60*	.03	1.59**	4.34**	.07
PARQ-Father by Factor 1 Interaction	-.45	-1.11	.01	.60	1.32	.01
PARQ-Mother				-1.37*	-2.93*	.03
PARQ-Mother by Factor 1 Interaction				-2.02**	-3.73**	.05

Note. N = 158. Correlation from regression analysis: *$p < .05$, **$p < .001$, one-tailed.

Parental Warmth.

Hierarchical Multiple regression analyses were conducted in order to test the hypothesis that Parental Warmth would moderate the relationship between Factor 1 and Antisocial Behaviour scores, such that Parental Warmth would decrease overt antisocial behaviour. Separate analyses were conducted for Mother and Father, in order to investigate the influences from each parent.

[3] These results were replicated using a 3 Factor composite psychopathy score, as well as using the Callous Affect , Interpersonal Manipulation, and Erratic Lifestyle subscale scores. Please see Appendix A for these analyses and results.

Paternal Warmth.

Descriptive statistics of all variables entered in this regression are presented in Table 15.

Table 15

Descriptive Statistics and Correlations between Sex, Factor 1 Psychopathy scores, Paternal Warmth/Acceptance and Antisocial Behaviour

Variable	*M*	*SD*	2	3	4
1. Antisocial Behaviour	25.94	8.90	.32**	-.13*	.58**
2. Sex	.44	.50	___	.003	.37**
3. Paternal Warmth	57.40	18.62		___	-.15*
4. SRP III Factor 1	75.57	16.68			___

Note. $N = 364$. Correlations from regression analysis: *$p < .05$, **$p < .001$, one-tailed.

For the first step, F1 scores, sex of participant, and Parental Warmth/Acceptance scores for participants' father were entered. On the second step, 2-way interactions were entered between sex and Paternal Warmth/Acceptance, sex and F1, and F1 and Paternal Warmth/Acceptance. On the third step, a 3-way interaction between the predictors was entered.

The overall model was significant, accounting for 36.6 % of the variance in Antisocial Behaviour scores $R^2 = .37$, F (7, 356) = 29.31, $p < .001$. Step 1 was significant accounting for 35.4% of the variance in Antisocial Behaviour scores, $R^2\Delta = .35$, $F\Delta$ (3, 360) = 65.77, $p < .001$. On this step, only Factor 1 scores and participants' sex were significant predictors of Antisocial Behaviour scores, where men scored higher in Antisocial Behaviour than women, and higher Factor 1 scores predicted higher Antisocial Behaviour. Paternal Warmth had no effect on

Antisocial Behaviour, and no significant interaction was found between the variables. Summary of regression results are presented in Table 16.

Table 16

Results of Hierarchical Regression: Parental Warmth/Acceptance (Father), Factor 1 scores, and Sex predicting Antisocial Behaviour scores

Predictors	Step 1		
	β	t	sr^2
Sex	.12*	2.57*	.01
Paternal Warmth	-.05	-1.21	.00
SRP III Factor 1	.53**	11.50**	.24

Note. N = 364. Correlation from regression analysis: *p<.05 **p < .001, one-tailed

Maternal Warmth.

Descriptive statistics of all variables entered in this regression are presented in Table 17. For the first step, F1 scores, sex of participant, and Parental Warmth/Acceptance scores for participant's mother were entered. On the second step, 2-way interactions were entered between sex and Maternal Warmth/Acceptance, sex and Factor 1, as well as Factor 1 and Maternal Warmth/Acceptance. On the third step, a 3-way interaction between the 3 predictors was entered.

Table 17

Descriptive Statistics and Correlations between Sex, Factor 1 Psychopathy scores, Maternal Warmth/Acceptance and Antisocial Behaviour

Variable	*M*	*SD*	2	3	4
1. Antisocial Behaviour	25.97	8.89	.32**	-.22**	.58**
2. Sex	.44	.50	___	.02	.37**
3. Maternal Warmth	65.36	15.98		___	-.20**
4. SRP III Factor 1	75.68	16.71			___

Note. N = 365. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

The overall model was significant, accounting for 42.0 % of the variance in Antisocial Behaviour scores of the variance in Antisocial Behaviour, R^2= .42, F (7, 357) = 36.90, p < .001. Step 1 was significant $R^2\Delta$ = .36, $F\Delta$ (3, 361) = 68.87, p < .001. On this step, men had significantly higher Antisocial Behaviour scores than women. Higher Factor 1 scores also significantly predicted higher Antisocial Behaviour scores. Conversely, higher Maternal Warmth predicted significantly lower Antisocial Behaviour. The second step was also significant (2 way interactions between the predictors), $R^2\Delta$ = .03, $F\Delta$ (3, 358) = 6.03, p = .001, as was the third step (3-way interaction between the predictors), $R^2\Delta$ = .03, $F\Delta$ (1,157) = 15.51, p < .001. As such, the sample was split by sex in order to examine the relationship separately in women and men. Summary of regression statistics for this analysis are presented in Table 18.

Table 18

Results of Hierarchical Regression: Maternal Warmth, Factor 1 scores, Sex, and interactions in predicting Antisocial Behaviour scores

Predictors	Step 1			Step 2			Step3		
	β	*t*	sr^2	β	*t*	sr^2	β	*t*	sr^2
Sex	.13*	2.83*	.01	.10	.33	.00	-3.17**	-3.58**	.02
SRP III Factor 1	.51**	11.03**	.21	.84**	4.64**	.04	.31	1.38	.00
Maternal Warmth	-.12*	-2.67*	.01	.41*	2.07*	.01	-.18	-.75	.00
Sex by Factor 1				.44	1.87	.01	3.97**	4.29**	.03
Sex by Maternal Warmth				-.38*	-2.03*	.01	3.08^t	3.43^t	.02
Factor 1 by Maternal Warmth				-.55*	-2.25*	.01	.22	.70	.01
3 Way Interaction							-3.72**	-3.94	.03

Note. N = 365. Correlation from regression analysis:* $p < .05$, $^t p = .001$, ** $p < .001$, one-tailed.

Women.

The overall model was significant, accounting for 31.2% of the variance in Antisocial Behaviour, R^2= .31, F (3, 201) = 30.42 Descriptive statistics are presented in Table 19.

Table 19

Descriptive Statistics and Correlations between Factor 1 Psychopathy scores, Maternal Warmth and Antisocial Behaviour, in Women

Variable	*M*	*SD*	2	3
1. Antisocial Behaviour	23.44	6.84	-.17*	.56**
2. Maternal Warmth	64.97	16.43	___	-.27**
3. SRP III Factor 1	70.11	15.51		___

Note. N = 205. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

The first step of the model was significant, accounting for 31.0% of the variance in Antisocial Behaviour, R^2= .31, $F\Delta$ (2, 202) = 45.37, p <.001. Only Factor 1 scores were a significant predictor in Antisocial Behaviour scores (β = .55, t = 9.10, p < .001, sr^2 = .28) in this step. No significant interaction was found.

Men.

In men, the overall model was significant, accounting for 37.5% of the variance in Antisocial Behaviour, R^2= .38, F (3, 155) = 31.02, p < .001. Descriptive statistics for the predictors are presented in Table 20.

Table 20

Descriptive Statistics and Correlations between Factor 1 Psychopathy scores, Maternal Warmth/Acceptance and Antisocial Behaviour, in Men

Variable	*M*	*SD*	2	3
1. Antisocial Behaviour	29.27	10.12	-.33**	.52**
2. Maternal Warmth	66.0	15.38	___	-.18*
3. SRP III Factor 1	82.90	15.49		___

Note. $N = 159$. Correlations from regression analysis: *$p < .05$, **$p < .001$, one-tailed.

The first step of the model was significant, accounting for 32.4% of the variance in Antisocial Behaviour scores in men, $R^2\Delta = .32$, $F\Delta\ (2,156) = 37.33$, $p < .001$. Both Maternal Warmth and Factor 1 psychopathy scores significantly predicted Antisocial Behaviour, in that higher Maternal Warmth predicted lower Antisocial Behaviour, while higher Factor 1 scores predicted higher Antisocial Behaviour. Step 2 was also significant, with the interaction accounting for an additional 5.2% of the variance in Antisocial Behaviour scores, $R^2\Delta = .05$, $F\Delta\ (1, 155) = 12.78$, $p < .001$. The significant interaction between Maternal Warmth and Factor 1 scores indicated that the relationship between Factor 1 and Antisocial Behaviour is moderated by Maternal Warmth in men. Statistics for the regression are summarized in Table 21.

Table 21

Results of Hierarchical Regression: Maternal Warmth, Factor 1 scores, and Interaction in predicting Antisocial Behaviour scores (in Men)

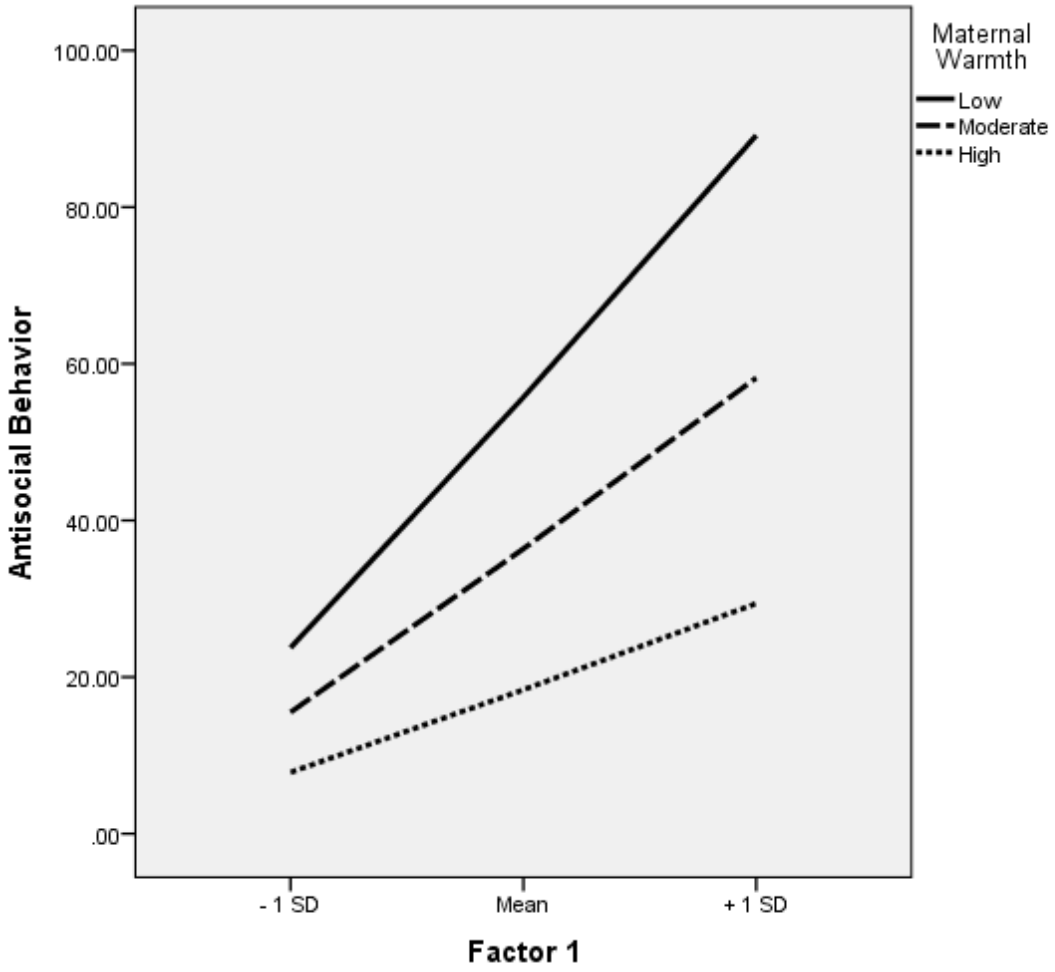
Predictors	Step 1			Step 2		
	B	*t*	sr^2	*β*	*t*	sr^2
SRP III Factor 1	.47**	7.06**	.22	1.46**	5.14**	.11
Maternal Warmth	-.24**	-3.62**	.06	.99*	2.82*	.03
Maternal Warmth by Factor 1				-1.45**	-3.57**	.05

Note. N = 159. Correlation from regression analysis*:* $p < .05$, ** $p < .001$, one-tailed.

When men in the sample were split into 3 levels of Maternal Warmth (at mean level of Maternal Warmth for moderate, 1 SD above the mean for the High group, and 1 SD below the mean for the Low level), simple slopes analysis revealed that the relationship between Factor 1 scores and Antisocial Behaviour depended on Maternal Warmth. Results indicated a significant positive relationship between Factor 1 and Antisocial Behaviour, but that the relationship was stronger at lower levels of Maternal Warmth (β = .72, t = 7.58, $p < .001$) than at moderate (β= .49, t = 7.50, $p < .001$), or high levels of Maternal Warmth (β = .25, t = 2.71, p = .008). For men who had high levels of Maternal Warmth, there was significantly less variance in Antisocial Behaviour scores (σ^2 = 46.79) than in men who had low levels of Maternal Warmth (σ^2 = 141.37), as indicated by the Levene's test (F = 14.98, $p < .001$). Maternal Warmth acted in a compensatory manner against Factor 1 scores, lowering Antisocial Behaviour.

Figure 2.

Simple Slopes for 3 levels of Maternal Warmth interacting with Factor 1, predicting Antisocial Behaviour.



Furthermore, an additional hierarchical regression was run in men to explore the effects of Maternal Warmth, over and above the effects of Paternal Warmth. On Step 1, Factor 1 scores, Paternal Warmth scores, and the interaction between Factor 1 and Paternal Warmth were entered. On the second step, Maternal Warmth and Maternal Warmth interacting with Factor 1 scores were added.

The overall model was significant, predicting 38.0% of the variance in Antisocial Behaviour in men, $R^2 = .38$, F (5,152) = 18.66, $p < .001$. The first step was significant, accounting for 27.7% of the variance in Antisocial Behaviour scores in men, $R^2\Delta = .28$, $F\Delta$ (3,154) = 19.67, $p < .001$. However, only Factor 1 was a significant predictor of Antisocial Behaviour on this step (please see Table 22). Step 2 was also significant, with the interaction accounting for an additional 10.3% of the variance in Antisocial Behaviour scores, $R\Delta^2 = .10$ $F\Delta$ (2, 152) = 12.67, $p < .001$. Once the effects of Mother's Rejection/Neglect were added (and the interaction between Factor 1 scores and Maternal Warmth as well), only Factor 1 remained significant in addition to these effects. Statistics for the regression are summarized in Table 22 below.

Table 22

Results of Hierarchical Regression: Examining the effects of Parental Warmth from Mother, over and above effects of Parental Warmth from Father (in Men)

Predictors	Step 1			Step 2		
	B	*t*	sr^2	β	*t*	sr^2
Paternal Warmth	.27	.73	.00	-.23	-.56	.00
SRP III Factor 1	.72*	3.12*	.05	1.45**	4.90**	.10
Paternal Warmth by Factor 1	-.39	-.99	.00	.29	.65	.00
Maternal Warmth				1.14*	2.63*	.03
Maternal Warmth by Factor 1				-1.66*	-3.36*	.05

Note. N = 159. Correlation from regression analysis: *$p < .05$, **$p < .001$ [t] $p = .001$, one-tailed.[4]

[4] The above analyses were repeated using the 3-Factor Model of Psychopathy (for example, as argued by Cooke & Michie, 2001) as a predictor. This would help determine if the addition of the Erratic Lifestyle scores may help in predicting antisocial behaviour differently than just Factor 1 scores on their own. A 3 Factor Psychopathy composite score was calculated from the Callous Affect, Interpersonal Manipulation, and Erratic Lifestyle subscale scores. In addition, analyses with the moderators were repeated using each of the other 3 facets of psychopathy, in predicting Antisocial Behaviour. Please see Appendix A for these analyses and results

Discussion

Psychopathy has been most often conceptualized using Hare's 2-Factor model, which includes interpersonal and affective traits (Factor 1), and also a behaviour component relating to erratic and antisocial tendencies (Factor 2; Hare, 2006; Hare & Neumann, 2009; Harpur, Hakstan & Hare, 1988). This model has also been further divided into 4 Factors, which separates Factor 1 into the Interpersonal Manipulation and Callous Affect traits, and Factor 2 into Erratic Lifestyle behavioural facets (Hare & Neumann, 2006). There is ongoing debate about the role of antisociality in psychopathy, and several areas of research that identify non-criminal psychopathy, or "successful" psychopathy (e.g., Babiak 2007; Babiak & Hare, 2006; Babiak, Neumann & Hare, 2010; Hare, 1993). In order to determine the role of antisocial behaviour in psychopathy, it is important to study community populations, as most psychopathy research only focuses on offender populations (Falkenbach, Stern & Creevy, 2014; Lilienfeld, 1998), where antisocial behaviour is over-represented. The current study investigated the relationship between the interpersonal and affective traits of psychopathy (Factor 1) and antisocial behaviour in a community sample. Of particular interest was the possible reasons why some individuals high in psychopathic traits are low in overt antisociality or criminality ("successful" psychopaths), while others are highly antisocial or criminal ("unsuccessful" psychopaths). Some research has linked risk factors which seem to make psychopathic people prone to criminal or violent behaviour (e.g., Brieman et al., 2011; Farrington, 2006; Hare, 1996; McCord & McCord, 1964; Smith, 1999; Swogger et al., 2012). These risk factors may help explain some of the variability in "success" for those with psychopathic personality traits. Of particular interest to this study, low SES, Childhood Abuse, and Parental Neglect have been associated with increased antisocial behaviour and aggression for those high in psychopathic personality traits (Brieman et al., 2011; Farrington, 2006; Hare, 1996; McCord & McCord, 1964; Smith, 1999; Swogger et al., 2012).

Head injury has been associated with an increase in aggression and antisociality (Anderson et al., 1999; Damasio, 2000).

Research has also looked at some possible protective factors to help reduce antisocial behaviour or conduct problems in antisocial behaviour (McCord & McCord, 1964; Kochanska et al., 2013; Pardini et al., 2007; Salekin & Lochman, 2008). Parental Warmth is gaining interest in recent psychopathy research, as it is associated with lower levels of antisocial behaviour and aggression with those high in psychopathic personality traits (McCord & McCord, 1964; Kochanska et al., 2013; Pardini et al., 2007; Salekin & Lochman, 2008). Taken together, it was hypothesised that certain factors would moderate the relationship between psychopathic personality traits and overt antisocial behaviours.

In this study, three possible moderators were tested using hierarchical multiple regression, for the relationship between psychopathic traits (Factor 1) and Antisocial Behaviour facet of psychopathy (which measures overt antisociality). Two of the moderators were risk factors: Child Abuse and Parental Neglect. The effects of Parental Neglect were analysed separately for each parent to examine their unique impacts on Antisocial Behaviour. The third moderator was a protective factor: Parental Warmth, as it has been gaining attention in psychopathy literature recently (Kochanska et al., 2013; Pardini et al., 2007). These were also analysed separately for each parent. Sex was also included as a predictor, as sex differences have been found in research looking at psychopathic traits (Jackson & Richards, 2007; Levenson et al., 1995; Verona & Vitale, 2006; Williams et al., 2007; Zagon & Jackson, 1994), including psychopathy research using community samples (Williams et al., 2007). Head Injury and SES were also measured, but as these did not correlate with Antisocial Behaviour, were excluded from the analyses. Finally, supplementary analyses tested these possible moderators using a 3

Factor psychopathy score as the independent variable, and again for each of the facets of psychopathy.

Childhood Abuse

For Childhood Abuse, it was hypothesized that Childhood Abuse would moderate the relationship between Factor 1 traits and Antisocial Behaviour. Factor 1 (interpersonal and affective) scores were used the independent variable, with Sex and Child Abuse also included as predictors. In this analysis, our hypothesis was not supported. Factor 1 scores, Childhood Abuse, and Sex each independently predicted Antisocial Behaviour: men had higher Antisocial Behaviour scores, and higher Factor 1 scores and higher Childhood Abuse predicted higher Antisocial Behaviour scores. These effects were additive, as no significant interaction between the predictors was found. These results were replicated using the 3-Factor composite score, as well as the Interpersonal Manipulation subscale score as a predictor of psychopathy. Childhood Abuse did not moderate the relationship with Antisocial Behaviour. Conversely, Childhood Abuse did moderate the relationship between Callous Affect and Antisocial Behaviour, and between Erratic Lifestyle and Antisocial Behaviour. Results of these supplementary analyses are presented in Appendix A.

Parental Neglect/Rejection

For Parental Neglect/Rejection, it was hypothesized that Parental Neglect and Rejection would moderate the relationship between Factor 1 traits and Antisocial Behaviour. Separate analyses were conducted for each parent.

Paternal Neglect/Rejection

Our hypothesis was not supported for the Rejection and Neglect from Father. Factor 1 scores, Paternal Neglect/Rejection and Sex were each significant positive predictors of

Antisocial Behaviour, but only independently. No moderating effect was found using Paternal Neglect. These results were replicated using the Callous Affect and Interpersonal Manipulation subscale scores as the predictor of psychopathy. However, using a 3-Factor psychopathy score or Erratic Lifestyle, the hypothesis that Paternal Neglect would moderate the relationship between psychopathic traits and Antisocial Behaviour was supported. The results of these supplementary analyses are presented in Appendix A.

Maternal Neglect/Rejection

Our hypothesis that Maternal Neglect would moderate the relationship between Factor 1 and Antisocial Behaviour was fully supported. Furthermore, since the three-way interaction between Factor 1, sex, and Maternal Neglect was significant, the sample was split by sex and the analyses were conducted separately for men and women. In women, there was no significant effect of Maternal Neglect, and only Factor 1 scores significantly predicted increased Antisocial Behaviour scores. In men, Maternal Neglect significantly moderated the relationship between Factor 1 scores and Antisocial Behaviour. Once the interaction between Factor 1 and Maternal Neglect was entered, the effect of Factor 1 was no longer a significant predictor on its own. The effect of Mother's neglect held even after controlling for the effects of Father's neglect. These results were replicated using a 3-Factor composite psychopathy score as the psychopathy predictor, as well as when using each of the Callous Affect, Interpersonal Manipulation, and Erratic Lifestyle subscale scores. Please see Appendix A for these supplementary analyses and results

Parental Warmth

For Paternal Warmth, it was hypothesized that Parental Warmth would moderate the relationship between Factor 1 traits and Antisocial Behaviour in a protective fashion, reducing overt antisociality. Separate analyses were conducted for each parent.

Paternal Warmth

Our hypothesis was not supported for Paternal Warmth. Only Sex and Factor 1 scores were significant, where men had higher Antisocial Behaviour scores, and higher Factor 1 scores predicted higher Antisocial Behaviour scores. Paternal Neglect had no effect on Antisocial Behavior scores. These results were replicated using a 3 Factor composite psychopathy score as the psychopathy predictor, as well as when using each of the Callous Affect, Interpersonal Manipulation, and Erratic Lifestyle subscale scores. However, for the analysis with Erratic Lifestyle, Parental Warmth was a significant independent predictor of Antisocial Behaviour, in addition to sex and EL, but these effects were only additive.

Please see Appendix A for these supplementary analyses and results

Maternal Warmth

Our hypothesis that Maternal Warmth would moderate the relationship between Factor 1 and Antisocial Behaviour was fully supported. Furthermore, since the three-way interaction between Factor 1, sex, and Maternal Warmth was significant, the sample was split by sex and the analyses were conducted separately for men and women. In women, there was no significant effect of Maternal Warmth, and only Factor 1 scores significantly predicted increased Antisocial Behaviour scores. In men, Maternal Warmth significantly moderated the relationship between Factor 1 scores and Antisocial Behaviour. However Factor 1 scores and Maternal Warmth scores remained significant independent predictors of Antisocial Behaviour even after accounting for

the interaction effects. The effect of Mother's Warmth held even after controlling for the effects of Father's Warmth. These results were replicated using a 3-Factor composite psychopathy score as the psychopathy predictor, as well as when using each of the Callous Affect, Interpersonal Manipulation, and Erratic Lifestyle subscale scores. Please see Appendix A for these supplementary analyses and results

Interpretation and Conclusions

In the current study, sex was a significant predictor of antisocial behaviour in all cases, with men having higher Antisocial Behaviour scores across all of our analyses. It is important to study sex differences in psychopathy, as these are not fully understood, and women are often overlooked in psychopathy research (Cale & Lillienfeld, 2002; Jackson & Richards, 2007; Neumann et al., 2012). Psychopathy research consistently reports that men have higher psychopathy scores than women, and tend to have a wider range of psychopathy scores (Jackson & Richards, 2007; Levenson et al., 1995; Verona & Vitale, 2006; Williams et al., 2007; Zagon & Jackson, 1994). It is not surprising that these findings were replicated in our sample. Some research has also argued that psychopathic traits will be manifested differently in women than men, which has implications for research measuring psychopathy in women (Cale & Lilienfeld, 2002; Dolan & Völlm, 2009; Kreis & Cooke, 2011). It has been suggested that women use less overt aggression in general, and instead are higher in relational aggression. (Vaillancourt, 2005). These findings have also been found in women high in psychopathic traits, who are less likely to exhibit criminal and violent behaviour than their male counterparts, and that this has implications for the reliability and validity of psychopathy measures (Dolan & Völlm, 2009; Kreis & Cooke, 2011). It is important to note that the women in our sample may have used more relational

aggression, rather than overt or criminal behaviour, and that this type of aggression is not the focus of the Antisocial Behaviour facet of standard psychopathy measures.

Childhood Abuse interacted with some of the psychopathic personality traits, but often the effect of Childhood Abuse was only additive. In our sample, childhood abuse was a significant predictor of Antisocial Behaviour, but only interacted with certain psychopathic traits to predict antisociality. It would seem that only the Callous Affect and Erratic Lifestyle facets are significantly influenced by Childhood Abuse, but not the Interpersonal Manipulation facet, or either Factor 1 or 3 Factor psychopathy scores. Childhood Abuse has been associated with some of the emotional regulation deficits in psychopathy (Daversa, 2010) which is consistent with the interaction with the affective facet in our sample (Callous Affect), but it is possible that these deficits are not fully understood in their relationship with Antisocial Behaviour. In a study of violent offenders, Kolla and associates (2013) found that psychopathic traits and childhood abuse interacted to specifically predict reactive aggression, while childhood abuse did not predict proactive aggression. It is possible that as our antisocial behaviour score as a predicted outcome did not allow us to look at different types of antisocial behaviour, it was not possible to make clear conclusions.

Overall, it would seem that quality of mother's care is the most important moderator in the relationship between psychopathic traits and Antisocial Behaviour, much more so than the quality of care from the father. In our sample, this relationship was especially influential in males. This is consistent with past research demonstrating that maternal neglect was a much stronger predictor of antisocial behaviour in psychopathy than the effects of poor paternal care (Enns, Cox, & Clara, 2002; Gao, Raine, Chan, Venables, & Mednick, 2009). Kimonis, Cross, Howard, and Donoghue (2013) found that in youth high in Callous Unemotional traits (similar to

Factor 1 in adults), maternal warmth had a significant moderating effect on aggressive behaviour, which is included in the Antisocial Behaviour facet of psychopathy.

Both Maternal Neglect and Rejection, and Maternal Warmth and Acceptance were consistently influential in our sample (for males), even more so than Childhood Abuse. Other research has also found that maternal care had more of an effect on at-risk adolescents than childhood maltreatment and abuse (Gao, Raine, Chan, Venables, & Mednick, 2009; Kimonis, Cross, Howard, & Donoghue, 2013).

It is important to note that these differences in antisocial behaviour were studied using a community sample. This sample allowed us to examine psychopathic traits along a continuum. It is argued that psychopathic traits are dimensional (Edens et al., 2006; Guay et al., 2007; Marcus et al., 2004; Walters et al., 2007; Wright, 2009; Zagon & Jackson, 1994), and restricting research to offender populations may ignore this distribution (Falkenbach et al., 2014; Marcus, John & Edens, 2004).

Possible Study Limitations

Limitations to this study include the fact that it used cross-sectional rather than longitudinal data, and as such cannot infer directionality. In the example of maternal care, as Kimonis, Cross, Howard, & Donoghue (2013) suggest, it is possible that the Factor 1 traits affect parenting quality. It is possible that individuals low in empathy and remorse and with shallow affect may push parents away. Kimonis et al., (2013) also suggests the possibility that there may be heritable influences: Parents who are neglectful may also be high in Factor 1 traits themselves, and thus participants in this study may have had genetic influences in their psychopathic traits.

Lastly, our study is limited to self-report data measures only, which could have been strengthened by using other measures. It is possible that there is some amount of correlation among the variables because they are all self-report (as suggested by Kimonis, Cross, Howard, & Donoghue, 2013). However, for the purposes of our study, self-report measures have been argued to be the best method to examine psychopathy in large community samples (Lester, Salekin, & Sellbom, 2011; Williams et al., 2007), especially as these scales were designed with language that minimizes bias in responding.

Directions for Future Research

Directions for future research include investigating the possible moderators between psychopathic traits and antisocial behaviour in different populations, such as in prisons and in corporate settings (where psychopathic traits may manifest differently). It would be helpful to understand how psychopathic traits and risk factors differ between these populations, in order to help predict "successful" and "unsuccessful" psychopathy.

Secondly, it would be essential to include additional measures that would further explore sex differences in psychopathy. One suggestion would be to measure different types of aggression, in order to account for the possibility of sex differences in aggression type. In addition, measures that would examine other gender differences in psychopathy in conjunction with standard measures of psychopathy would help address the gap in the literature regarding how these traits are manifested in women.

Finally, longitudinal research would be essential in helping determine causality, and directionality of these relationships. Do risk factors such as parental neglect exacerbate already existing psychopathic traits to increase overt antisociality? Or do these traits influence

problematic parenting? There is also the possibility that this type of neglectful parenting can cause the callous and unemotional traits of Factor 1, as suggested by Kimonis et al. (2013).

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Appendix A **Supplementary Analyses and Results.**

Childhood Abuse (CTQ-SF)

3-Factor Psychopathy.

For the first step, the 3-Factor composite psychopathy score, sex of participant, and CTQ-SF scores were entered. On the second step, 2-way interactions were entered between sex and CTQ-SF, sex and the 3-Factor score, and CTQ-SF and the 3-Factor score in order to examine the possibility of moderation. On the third step, a 3-way interaction between the variables was entered. Descriptive statistics and correlations between predictors in this analysis are presented in Table 23.

Table 23

Descriptive Statistics and Correlations between Sex, 3-Factor Psychopathy scores, Childhood Abuse and Antisocial Behaviour

Variable	*M*	*SD*	2	3	4
1. Antisocial Behaviour	25.89	8.82	.31**	.17**	.64**
2. Sex	.44	.50	___	-.09*	.35**
3. CTQ-SF	64.53	10.53		___	.09^{t}
4. SRP III 3-Factor (Composite)	115.75	24.02			___

Note. N = 367. Correlations from regression analysis: $^{t}p \leq .050$ *$p < .05$, **$p < .001$, one-tailed.

The overall model was significant, predicting 44.2% of the variance in Antisocial Behaviour $R^2 = .44$, F (7, 359) = 40.61, $p < .001$. The first step was significant, accounting for

43% of the variance in Antisocial Behaviour scores, scores $R^2\Delta = .43$, $F\Delta$ (3, 363) = 91.11, $p < .001$. This step indicated that the 3 variables independently predicted Antisocial Behaviour scores. Men had significantly higher Antisocial Behaviour scores. Also, high 3-Factor psychopathy scores and increased Childhood Abuse predicted higher Antisocial Behaviour. The second step of the model was also significant, accounting for an additional 1.2% of the variance in Antisocial Behaviour, $R^2\Delta = .01$, $F\Delta$ (3, 360) = 2.66, $p = .048$. Examination of the beta weights indicated that none of the interactions were significant, however, and that only sex remained a significant predictor after controlling for the interactions between the other predictors. Results of the regression analysis are presented in Table 24.

Table 24

Results of Hierarchical Regression: Childhood Abuse, 3-Factor psychopathy scores, and Sex predicting Antisocial Behaviour scores

Predictors	Step 1			Step 2		
	β	*t*	sr^2	*β*	*t*	sr^2
Sex	.12*	2.73*	.01	-.69*	-2.18*	.01
CTQ-SF	.13[t]	3.34[t]	.02	-.01	-.04	.00
SRP III 3-Factor (Composite)	.58**	13.66**	.29	.43	1.6	.00
Sex by CTQ-SF				.40	1.40	.00
CTQ-SF by 3-Factor (Composite)				.11	.32	.00
Sex by 3-Factor (Composite)				.45	1.9	.01

Note. $N = 367$. Correlation from regression analysis:* $p < .05$, [t] p = .001, ** $p < .001$, one-tailed.

Callous Affect(CA)

For the first step, the Callous Affect subscale score, sex of participant, and CTQ-SF score were entered. On the second step, 2-way interactions were entered between sex and CTQ-SF, between sex and Callous Affect, and between CTQ-SF and Callous Affect in order to examine the possibility of moderation. On the third step, a 3-way interaction between the variables was entered. Descriptive statistics and correlations between predictors in this analysis are presented in Table 25.

Table 25

Descriptive Statistics and Correlations between Sex, Callous Affect, Childhood Abuse and Antisocial Behaviour

Variable	*M*	*SD*	2	3	4
1. Antisocial Behaviour	25.89	8.82	.31**	.17**	.59**
2. Sex	.44	.50	___	-.09*	.42**
3. CTQ-SF	64.53	10.53		___	.03
4. Callous Affect	36.50	8.46			___

Note. N = 367. Correlations from regression analysis: $^{t}p \leq .050$ *$p < .05$, **$p < .001$, one-tailed.

The overall model was significant, predicting 39.5% of the variance in Antisocial Behaviour $R^2 = .40$, F (7, 359) = 33.48, $p < .001$. The first step was significant, accounting for 37.7% of the variance in Antisocial Behaviour scores, scores $R^2\Delta = .38$, $F\Delta$ (3, 363) = 73.24, $p < .001$. This step indicated that the 3 variables independently predicted Antisocial Behaviour scores. Men had significantly higher Antisocial Behaviour scores, and high Callous Affect subscale scores and increased Childhood Abuse predicted higher Antisocial Behaviour. The

second step of the model was also significant, accounting for an additional 1.8% of the variance in Antisocial Behaviour, $R^2\Delta = .02$, $F\Delta\ (3, 360) = 3.56$, $p = .015$. Examination of the beta weights indicated that only the interaction between CA and CTQ-SF was significant after controlling for the interactions between the other predictors. Results of the regression analysis are presented in Table 26.

Table 26

Results of Hierarchical Regression: Childhood Abuse, Callous Affect scores, and Sex predicting Antisocial Behaviour scores

Predictors	Step 1			Step 2		
	β	*t*	sr^2	*β*	*t*	sr^2
Sex	.10*	2.08*	.01	-.25	-.74	.00
CTQ-SF	.17**	4.00**	.03	-.36	-1.89	.01
SRP III Callous Affect	.54**	11.85**	.24	-.20	-.73	.00
Sex by CTQ-SF				-.04	-.11	.00
CTQ-SF by Callous Affect				.87*	2.51*	.01
Sex by Callous Affect				.41	1.79	.01

Note. $N = 367$. Correlation from regression analysis: * $p < .05$, ** $p \leq .001$, one-tailed.

Interpersonal Manipulation (IM)

For the first step, the Interpersonal Manipulation score, sex of participant, and CTQ-SF score were entered. On the second step, 2-way interactions were entered between sex and CTQ-SF, between sex and Interpersonal Manipulation, and between CTQ-SF and Interpersonal Manipulation in order to examine the possibility of moderation. On the third step, a 3-way

interaction between the variables was entered. Descriptive statistics and correlations between predictors in this analysis are presented in Table 27.

Table 27

Descriptive Statistics and Correlations between Sex, Interpersonal Manipulation, Childhood Abuse and Antisocial Behaviour

Variable	*M*	*SD*	2	3	4
1. Antisocial Behaviour	25.89	8.82	.31**	.17**	.49**
2. Sex	.44	.50	___	-.09*	.27**
3. CTQ-SF	64.53	10.53		___	.04
4. Interpersonal Manipulation	39.06	9.63			___

Note. $N = 367$. Correlations from regression analysis: $^{t}p \leq .050$ $*p < .05$, $**p < .001$, one-tailed.

The overall model was significant, predicting 31% of the variance in Antisocial Behaviour $R^2 = .31$, $F\ (7, 359) = 23.04$, $p < .001$. The first step was significant, accounting for 30% of the variance in Antisocial Behaviour scores, scores $R^2\Delta = .30$, $F\Delta\ (3, 363) = 51.92$, $p < .001$. This step indicated that the 3 variables independently predicted Antisocial Behaviour scores. Men had significantly higher Antisocial Behaviour scores, and high Interpersonal Manipulation scores and increased Childhood Abuse predicted higher Antisocial Behaviour. The second and third steps were not significant, indicating that no significant interaction was found. Results of the regression analysis are presented in Table 28.

Table 28

Results of Hierarchical Regression: Childhood Abuse, Interpersonal Manipulation, and Sex predicting Antisocial Behaviour scores

Predictors	Step 1		
	β	t	sr^2
Sex	.21**	4.61**	.04
CTQ-SF	.18**	3.97**	.03
Interpersonal Manipulation	.42**	9.22**	.16

Note. N = 367. Correlation from regression analysis*: * p< .05, ** p < .001, one-tailed.

Erratic Lifestyle (EL)

For the first step, the Erratic Lifestyle score, sex of participant, and CTQ-SF score were entered. On the second step, 2-way interactions were entered between sex and CTQ-SF, between sex and Erratic Lifestyle, and between CTQ-SF and Erratic Lifestyle in order to examine the possibility of moderation. On the third step, a 3-way interaction between the variables was entered. Descriptive statistics and correlations between predictors in this analysis are presented in Table 29.

Table 29

Descriptive Statistics and Correlations between Sex, Erratic Lifestyle, Childhood Abuse and Antisocial Behaviour

Variable	*M*	*SD*	2	3	4
1. Antisocial Behaviour	25.89	8.82	.31**	.17**	.56**
2. Sex	.44	.50	___	-.09*	.23**
3. CTQ-SF	64.53	10.53		___	.14**
4. Erratic Lifestyle	40.20	9.97			___

Note. $N = 367$. Correlations from regression analysis: $^{t}p \leq .050$ $*p < .05$, $**p < .001$, one-tailed.

The overall model was significant, predicting 38.9% of the variance in Antisocial Behaviour $R^2 = .39$, F (7, 359) = 32.70, $p < .001$. The first step was significant, accounting for 36.6% of the variance in Antisocial Behaviour scores, scores $R^2\Delta = .37$, $F\Delta$ (3, 363) = 69.82, $p < .001$. This step indicated that the 3 variables independently predicted Antisocial Behaviour scores. Men had significantly higher Antisocial Behaviour scores, and high 3 Erratic Lifestyle scores and increased Childhood Abuse predicted higher Antisocial Behaviour. The second step of the model was also significant, accounting for an additional 2.3% of the variance in Antisocial Behaviour, $R^2\Delta = .02$, $F\Delta$ (3, 360) = 4.54, $p = .004$. Examination of the beta weights indicated that both the relationship between EL scores and Antisocial Behaviour, and the relationship between Childhood Abuse and Antisocial behaviour depended on sex. Both of these predictors were significant in men. Sex and EL scores also remained significant predictors after controlling for the interactions between the predictors. Results of the regression analysis are presented in Table 30.

Table 30

Results of Hierarchical Regression: Childhood Abuse, Erratic Lifestyle scores, and Sex predicting Antisocial Behaviour scores

Predictors	Step 1			Step 2		
	β	*t*	sr^2	*β*	*t*	sr^2
Sex	.21**	4.77**	.04	-.85*	-2.89*	.01
CTQ-SF	.12*	2.83*	.01	.13	.68	.00
SRP III Erratic Lifestyle	.50**	11.47**	.23	.59*	2.13*	.01
Sex by CTQ-SF				.69*	2.46*	.01
CTQ-SF by EL				-.23	-.65	.00
Sex by EL				.41*	2.09*	.01

Note. N = 367. Correlation from regression analysis*:* $p < .05$, ** $p < .001$, one-tailed.

Parental Neglect/ Rejection

Father.

Descriptive statistics of all variables entered in this regression are presented in Table 31.

Table 31

Descriptive Statistics and Correlations between Sex, 3 Factor Psychopathy scores, Parental Rejection/Neglect (Father) and Antisocial Behaviour

Variable	*M*	*SD*	2	3	4
1. Antisocial Behaviour	25.94	8.90	.32**	.23**	.64**
2. Sex	.44	.50	___	.01	.35**
3. PARQ-Father	114.59	40.69		___	.20**
4. 3 Factor Psychopathy	115.79	24.09			___

Note. N = 364. Correlations from regression analysis: *$p < .05$, **$p < .001$, one-tailed.

For the first step, 3-Factor psychopathy scores, sex of participant, and PARQ-F were entered. On the second step, 2-way interactions were entered between sex and PARQ-F, sex and 3-Factor psychopathy scores, and 3-Factor psychopathy scores and PARQ-F. On the third step, a 3-way interaction between the predictors was entered.

The overall model was significant, accounting for 44.8 % of the variance in Antisocial Behaviour scores R^2= .45, F (7, 356) = 41.35, p < .001. Step 1 was significant accounting for 42.6% of the variance in Antisocial Behaviour scores, $R^2\Delta$= .43, $F\Delta$ (3, 360) = 89.08, p < .001. Results indicated that men had significantly higher Antisocial Behaviour scores, and also that higher 3-Factor psychopathy scores and greater Paternal Neglect/Rejection significantly positively predicted Antisocial Behaviour scores. The second step was also significant, predicting an additional 1.8% of the variance in Antisocial Behaviour, $R^2\Delta$= .02, $F\Delta$ (3, 357) = 3.96, p < .001. This step indicated that sex moderated the relationship between 3-Factor psychopathy scores and Antisocial behaviour. Paternal Neglect and Rejection also moderated the relationship between 3-Factor psychopathy scores and Antisocial Behaviour. Paternal neglect increased Antisocial Behavior scores, and this increase was steepest for those who were also higher in 3-Factor psychopathy score. The third step was not significant, indicating that the 3-way interaction was not significant. Summary of results are presented in Table 32.

Table 32

Results of Hierarchical Regression: Parental Rejection/Neglect for Father, 3-Factor psychopathy scores, and Sex predicting Antisocial Behaviour scores

Predictors	Step 1			Step 2		
	β	*t*	sr^2	*β*	*t*	sr^2
Sex	.11*	2.59*	.01	-.35	-1.05	.00
3-Factor Psychopathy score	.58**	13.23**	.28	.22	1.55	.00
PARQ Father	.11*	2.56*	.01	-35	-1.74	.00
Sex by 3-Factor psychopathy				.55*	2.34*	.01
PARQ Father by 3-Factor Psychopathy				.57*	2.13*	.01
Sex by PARQ Father				-.04	-.20	.01

Note. N = 364. Correlation from regression analysis: *p<.05 **p < .001, one-tailed

Callous Affect (CA).

Descriptive statistics of all variables entered in this regression are presented in Table 33.

Table 33

Descriptive Statistics and Correlations between Sex, Callous Affect scores, Parental Rejection/Neglect (Father) and Antisocial Behaviour

Variable	*M*	*SD*	2	3	4
1. Antisocial Behaviour	25.94	8.90	.32**	.23**	.59**
2. Sex	.44	.50	___	.01	.43**
3. PARQ-Father	114.59	40.69		___	.20**
4. SRP III Callous Affect	36.47	8.44			___

Note. N = 364. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

For the first step, Callous Affect scores, sex of participant, and PARQ-F were entered. On the second step, 2-way interactions were entered between sex and PARQ-F, between sex and CA scores, and between CA scores and PARQ-F. On the third step, a 3-way interaction between the predictors was entered.

The overall model was significant, accounting for 37.9 % of the variance in Antisocial Behaviour scores R^2= .38, F (7, 356) = 31.06, p < .001. Step 1 was significant accounting for 37.0% of the variance in Antisocial Behaviour scores, $R^2\Delta$= .37, $F\Delta$ (3, 360) = 70.50, p < .001. Results indicated that higher Callous Affect scores and greater Paternal Rejection and Neglect each significantly positively predicted Antisocial Behaviour scores. Sex was not a significant predictor in this case. The second and third steps were not significant, indicating that no significant interaction was found. Regression results are summarized in Table 34.

Table 34

Results of Hierarchical Regression: Parental Rejection/Neglect for Father, Callous Affect scores, and Sex predicting Antisocial Behaviour scores

Predictors	Step 1		
	β	*t*	*sr²*
Sex	.09	1.85	.01
Callous Affect score	.53**	11.29**	.22
PARQ Father	.12*	2.73	.01

Note. N = 364. Correlation from regression analysis: *p<.05 **p < .001, one-tailed

Interpersonal Manipulation (IM)

Descriptive statistics of all variables entered in this regression are presented in Table 35.

Table 35

Descriptive Statistics and Correlations between Sex, Interpersonal Manipulation scores, Parental Rejection/Neglect (Father) and Antisocial Behaviour

Variable	*M*	*SD*	2	3	4
1. Antisocial Behaviour	25.94	8.90	.32**	.23**	.49**
2. Sex	.44	.50	___	.01	.27**
3. PARQ-Father	114.59	40.69		___	.20**
4. SRP III Interpersonal Manipulation	39.10	9.65			___

Note. N = 364. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

For the first step, Interpersonal Manipulation subscale scores, sex of participant, and PARQ-F were entered. On the second step, 2-way interactions were entered between sex and PARQ-F, between sex and Interpersonal Manipulation scores, and between IM scores and PARQ-F. On the third step, a 3-way interaction between the predictors was entered.

The overall model was significant, accounting for 30.8 % of the variance in Antisocial Behaviour scores R^2= .31, F (7, 356) = 22.62, p < .001. Step 1 was significant accounting for 29.4% of the variance in Antisocial Behaviour scores, $R^2\Delta$= .29, $F\Delta$ (3, 360) = 49.95, p < .001. Results indicated that men had significantly higher Antisocial Behaviour scores, and also that higher Interpersonal Manipulation scores and greater Paternal Neglect/Rejection each significantly positively predicted Antisocial Behaviour scores. The second and third steps were not significant, indicating that no significant interaction was found. Summary of results are presented in Table 36.

Table 36

Results of Hierarchical Regression: Parental Rejection/Neglect for Father, Interpersonal Manipulation scores, and Sex predicting Antisocial Behaviour scores

Predictors	Step 1		
	β	*t*	sr^2
Sex	.20**	4.43**	.04
Interpersonal Manipulation	.41**	8.66**	.15
PARQ Father	.14*	3.12*	.02

Note. N = 364. Correlation from regression analysis: *p<.05 **p < .001, one-tailed

Erratic Lifestyle (EL)

Descriptive statistics of all variables entered in this regression are presented in Table 37.

Table 37

Descriptive Statistics and Correlations between Sex, Erratic Lifestyle scores, Parental Rejection/Neglect (Father) and Antisocial Behaviour

Variable	*M*	*SD*	2	3	4
1. Antisocial Behaviour	25.94	8.90	.32**	.23**	.56**
2. Sex	.44	.50	___	.01	.23**
3. PARQ-Father	114.59	40.69		___	.13*
4. SRP III Erratic Lifestyle	40.22	10.00			___

Note. N = 364. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

For the first step, Erratic Lifestyle subscale scores, sex of participant, and PARQ-F were entered. On the second step, 2-way interactions were entered between sex and PARQ-F, between

sex and Erratic Lifestyle scores, and between Erratic Lifestyle scores and PARQ-F. On the third step, a 3-way interaction between the predictors was entered.

The overall model was significant, accounting for 40.9 % of the variance in Antisocial Behaviour scores R^2= .41, F (7, 356) = 35.19, p < .001. Step 1 was significant accounting for 37.7% of the variance in Antisocial Behaviour scores, $R^2\Delta$= .38, $F\Delta$ (3, 360) = 72.55, p < .001. Results indicated that on this step, men had significantly higher Antisocial Behaviour scores, and also that higher EL scores and greater Paternal Rejection and Neglect significantly positively predicted Antisocial Behaviour scores. The second step was also significant, predicting an additional 2.6% of the variance in Antisocial Behaviour, $R^2\Delta$= .03, $F\Delta$ (3, 357) = 5.21, p = .002. This step indicated that sex moderated the relationship between Erratic Lifestyle scores and Antisocial Behaviour. Paternal Neglect and Rejection also moderated the relationship between Erratic Lifestyle scores and Antisocial Behaviour. The third step was not significant, indicating that the 3-way interaction was not significant. Summary of results are presented in Table 38.

Table 38

Results of Hierarchical Regression: Parental Rejection/Neglect for Father, Erratic Lifestyle scores, and Sex predicting Antisocial Behaviour scores

Predictors	Step 1			Step 2		
	β	*t*	sr^2	*β*	*t*	sr^2
Sex	.20**	4.67**	.04	-.15	-.52	00
Erratic Lifestyle score	.50**	11.52**	.23	.12	.92	.00
PARQ Father	.15**	3.67**	.02	-.26	-1.50	.00
Sex by EL				.56*	2.93*	.01
PARQ Father by EL				.50*	2.24*	.01
Sex by PARQ Father				-.17	-.84	.00

Note. N = 364. Correlation from regression analysis: *$p<.05$ **$p < .001$, one-tailed

Maternal Warmth

3-Factor Psychopathy Composite.

Descriptive statistics of all variables entered in this regression are presented in Table 39. For the first step, 3-Factor psychopathy scores, sex of participant, and PARQ-M were entered. On the second step, 2-way interactions were entered between sex and PARQ-M, sex and 3-Factor psychopathy, and 3-Factor psychopathy scores and PARQ-M. On the third step, a 3-way interaction between the predictors was entered.

Table 39

Descriptive Statistics and Correlations between Sex, 3-Factor Psychopathy scores, Parental Rejection/Neglect (Mother) and Antisocial Behaviour

Variable	*M*	*SD*	2	3	4
1. Antisocial Behaviour	25.97	8.90	.32**	.29**	.64**
2. Sex	.44	.50	___	-.04	.35**
3. PARQ-Mother	102.88	41.73		___	.26**
4. 3-Factor Psychopathy	115.90	24.11			___

Note. N = 365. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

The overall model was significant, accounting for 50.1 % of the variance in Antisocial Behaviour scores of the variance in Antisocial Behaviour, R^2= .50, F (7, 357) = 51.18, p < .001. Step 1 was significant $R^2\Delta$ = .44, $F\Delta$ (3, 361) = 94.24, p < .001. Men had significantly higher Antisocial Behaviour scores than women. Higher 3-Factor psychopathy scores and higher Maternal Rejection/ Neglect also significantly predicted higher Antisocial Behaviour scores. Summary of regression statistics are presented in Table 40.

Table 40

Results of Hierarchical Regression: Maternal Rejection/Neglect, 3-Factor psychopathy scores, Sex, and interactions in predicting Antisocial Behaviour scores

Predictors	Step 1			Step 2			Step3		
	β	*t*	sr^2	*β*	*t*	sr^2	*β*	*t*	sr^2
Sex	.13*	2.98*	.01	.13	.41	.00	-3.06*	-3.04*	.01
3-Factor Psychopathy	.55**	12.54**	.25	.11	.92	.00	.42*	2.75*	.01
PARQ Mother	.16**	3.80**	.02	-.61*	-3.07*	.01	-.08	-.33	.00
Sex by 3-Factor Psychopathy				.51*	2.23*	.01	-1.32*	-2.23*	.01
Sex by PARQ Mother				-.48*	-2.37*	.02	2.85*	2.81*	.01
3-Factor Psychopathy by PARQ Mother				.87[t]	3.44[t]	.01	.17	.52	.00
3 Way Interaction							2.05[t]	3.34[t]	.02

Note. N = 365. Correlation from regression analysis:* $p < .05$, [t] p = .001, **p <.001, one-tailed.

Both the second step (2 way interactions among the predictors $R^2\Delta$ = .05, $F\Delta$ (3,358) = 10.68, p <.001.) and the third step (3-way interaction among the predictors $R^2\Delta$ = .02, $F\Delta$ (1,357) = 11.19, p =.001.) were significant, therefore regression was conducted separating groups by sex to examine the effects of these predictors separately in women and men.

Women.

The overall model was significant, accounting for 38.0% of the variance in Antisocial Behaviour, R^2= .38, F (3, 201) = 41.08, p < .001. Descriptive statistics are presented in Table 39.

Table 41

Descriptive Statistics and Correlations between 3-Factor Psychopathy scores, Parental Rejection/Neglect (Mother) and Antisocial Behaviour, in Women

Variable	*M*	*SD*	2	3
1. Antisocial Behaviour	23.44	6.84	.24**	.61**
2. PARQ-Mother	104.62	43.70	___	.31**
3. 3-Factor Psychopathy	108.25	22.39		___

Note. N = 205. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

The first step was significant, accounting for 37.9% of the variance in Antisocial Behaviour, $R^2\Delta$= .38, $F\Delta$ (2, 202) = 61.59, p < .001. Only 3-Factor psychopathy scores were a significant predictor in Antisocial Behaviour scores (β = .60, t = 10.22, p < .001, sr^2 = .32). No significant interaction was found.

Men.

The overall model was significant, accounting for 47.9% of the variance in Antisocial Behaviour, R^2= .48, F (3, 155) = 47.60, p < .001. Descriptive statistics for the predictors are presented in Table 42.

Table 42

Descriptive Statistics and Correlations between 3-Factor Psychopathy scores, Parental Rejection/Neglect (Mother) and Antisocial Behaviour, in Men

Variable	*M*	*SD*	2	3
1. Antisocial Behaviour	29.27	10.12	.44**	.59**
2. PARQ-Mother	100.24	38.88	___	.28**
3. 3-Factor Psychopathy	125.82	22.74		___

Note. $N = 159$. Correlations from regression analysis: *$p < .05$, **$p < .001$, one-tailed.

The first step was significant, accounting for 43.2% of the variance in Antisocial Behaviour scores in men, $R^2\Delta = .43$, $F\Delta\ (2,156) = 59.35$, $p < .001$. Both PARQ-Mother scores and 3-Factor psychopathy scores significantly predicted Antisocial Behaviour on this step. Step 2 was also significant, with the interaction accounting for an additional 4.7% of the variance in Antisocial Behaviour scores, $R^2\Delta = .05$, $F\Delta(1, 155) = 14.12$, $p < .001$. Once the interaction between PARQ-M and Factor 1 were entered on the second step, 3-Factor psychopathy score was no longer a significant predictor of Antisocial Behaviour on its own. The main effect of the 3-Factor psychopathy score was qualified by its interaction with mother's neglect/rejection, in that the relationship between 3-Factor psychopathy and Antisocial Behaviour depends on Parental neglect or rejection from the mother. Statistics for the regression are summarized in Table 43.

Table 43

Results of Hierarchical Regression: Parental Rejection/Neglect for Mother, 3-Factor Psychopathy scores, and Interaction in predicting Antisocial Behaviour scores (in Men)

Predictors	Step 1			Step 2		
	β	*t*	sr^2	*β*	*t*	sr^2
PARQ-Mother	.30**	4.81**	.08	-.93*	-2.79*	.03
3 Factor Psychopathy	.51**	8.06**	.24	-.04	-.25	.00
PARQ-Mother by 3-Factor Psychopathy				1.50**	3.76**	.05

Note. N = 159. Correlation from regression analysis*:* $p < .05$, **$p < .001$, one-tailed.

Furthermore, since Parental Rejection/Neglect had a significant effect in men from both parents, an additional hierarchical regression was run in men to explore the effects from each parent. On Step 1, 3 -Factor psychopathy scores, PARQ-Father scores, and the interaction between 3-Factor psychopathy scores and PARQ-Father were entered. On the second step, PARQ-Mother scores were added. The overall model was significant, predicting 48.1% of the variance in Antisocial Behaviour in men, $R^2 = .48$, F (5,152) = 28.20, $p < .001$.

The first step was significant, accounting for 38.3% of the variance in Antisocial Behaviour scores in men, $R^2\Delta = .38$, $F\Delta$ (3,154) = 31.83, $p < .001$. Only the interaction between 3-Factor psychopathy and PARQ-F was significant in predicting Antisocial Behaviour scores on this step (please see Table 44). Step 2 was also significant, with the interaction accounting for an additional 9.8% of the variance in Antisocial Behaviour scores, $R^2\Delta = .10$, $F\Delta$ (2, 152) = 14.42, $p < .001$.Once the effects of Mother's Rejection/Neglect were added (and the interaction between 3-Factor psychopathy scores and Mother's Rejection/ Neglect), none of the other predictors were significant. Statistics for the regression are summarized in Table 44.

Table 44

Results of Hierarchical Regression: Examining the effects of Parental Rejection/Neglect from Mother, over and above effects of Parental Rejection/Neglect from Father (in Men)

Predictors	Step 1			Step 2		
	β	*t*	sr^2	*β*	*t*	sr^2
PARQ-Father	-.58	-1.60	.01	.17	.37	.00
3-Factor psychopathy	.18	.95	.00	.00	.00	.00
PARQ-Father by 3-Factor psychopathy	.90*	2.03*	.02	-.23	-.42	.00
PARQ-Mother				-1.05*	-2.34*	.02
PARQ-Mother by 3-Factor psychopathy				1.65*	3.11*	.03

Note. N = 158. Correlation from regression analysis: *p < .05 **p < .001, one-tailed.

Callous Affect

Descriptive statistics of all variables entered in this regression are presented in Table 45. For the first step, Callous Affect subscale scores, sex of participant, and PARQ-M were entered. On the second step, 2-way interactions were entered between sex and PARQ-M, between sex and Callous Affect, and between Callous Affect scores and PARQ-M. On the third step, a 3-way interaction between the predictors was entered.

Table 45

Descriptive Statistics and Correlations between Sex, Callous Affect, Parental Rejection/Neglect (Mother) and Antisocial Behaviour

Variable	*M*	*SD*	2	3	4
1. Antisocial Behaviour	25.97	8.90	.32**	.29**	.59**
2. Sex	___	___	___	-.04	.42**
3. PARQ-Mother	102.88	41.73		___	.23**
4. Callous Affect	36.56	8.48			___

Note. N = 365. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

The overall model was significant, accounting for 43.2 % of the variance in Antisocial Behaviour scores, R^2= .43, F (7, 357) = 38.72, p < .001. Step 1 was significant $R^2\Delta$ = .38, $F\Delta$ (3, 361) = 75.02, p < .001. Men had significantly higher Antisocial Behaviour scores than women. Higher Callous Affect scores and higher Maternal Neglect/Rejection also significantly predicted higher Antisocial Behaviour scores. Summary of regression statistics are presented in Table 46.

Table 46

Results of Hierarchical Regression: Maternal Rejection/Neglect, Callous Affect scores, Sex, and interactions in predicting Antisocial Behaviour scores

Predictors	Step 1			Step 2			Step3		
	β	*t*	sr^2	*β*	*t*	sr^2	*β*	*t*	sr^2
Sex	.11*	2.42*	.01	-.39	-1.86	.01	1.05*	1.88*	.01
Callous Affect	.50**	10.57**	.19	.10	.69	.00	.38*	2.22*	.01
PARQ Mother	.18**	4.25**	.03	-.45*	-2.31*	.01	-.03	-.11	.00
Sex by Callous Affect				.37	1.59	.00	-1.24*	1.99**	.01
Sex by PARQ Mother				.20	1.61	.00	-1.39*	-2.36*	.01
Callous Affect by PARQ Mother				.74*	2.83*	.01	.14	.43	.00
3 Way Interaction							1.80*	2.77*	.01

Note. N = 365. Correlation from regression analysis*: * $p < .05$, ** $p \leq .001$*, one-tailed.

Both the second step (2 way interactions among the predictors $R^2\Delta$ = .04, $F\Delta$ (3,358) = 7.25, p <.001.) and the third step (3-way interaction among the predictors, $R^2\Delta$ = .01, $F\Delta$ (1,357) = 7.69, p =.006.) were significant, therefore regression was conducted separating groups by sex to examine the effects of these predictors separately in men and women.

Women.

The overall model was significant, accounting for 31.3% of the variance in Antisocial Behaviour, R^2= .31, F (3, 201) = 30.57, p < .001. Descriptive statistics are presented in Table 47.

Table 47

Descriptive Statistics and Correlations between Callous Affect scores, Parental Rejection/Neglect (Mother) and Antisocial Behaviour, in Women

Variable	*M*	*SD*	2	3
1. Antisocial Behaviour	23.44	6.84	.24**	.55**
2. PARQ-Mother	104.62	43.70	___	.27**
3. Callous Affect	33.34	7.54		___

Note. N = 205. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

The first step was significant, accounting for 31.2% of the variance in Antisocial Behaviour, $R^2\Delta$= .31, $F\Delta$ (2, 202) = 45.87, p < .001. Only Callous Affect scores were a significant predictor of Antisocial Behaviour scores (β = .52, t = 8.65, p < .001, sr^2 = .25). No significant interaction was found.

Men.

The overall model was significant, accounting for 39.4% of the variance in Antisocial Behaviour, R^2= .39, F (3, 155) = 33.60, p < .001. Descriptive statistics for the predictors are presented in Table 48.

Table 48

Descriptive Statistics and Correlations between Callous Affect scores, Parental Rejection/Neglect (Mother) and Antisocial Behaviour, in Men

Variable	*M*	*SD*	2	3
1. Antisocial Behaviour	29.27	10.12	.44**	.52**
2. PARQ-Mother	100.24	38.88	___	.30**
3. Callous Affect	40.75	7.82		___

Note. N = 159. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

The first step was significant, accounting for 36.0% of the variance in Antisocial Behaviour scores in men, $R^2\Delta$ = .36, $F\Delta$ (2,156) = 43.87, p <.001. Both PARQ-Mother scores and Callous Affect scores significantly predicted Antisocial Behaviour on this step. Step 2 was also significant, with the interaction accounting for an additional 3.4% of the variance in Antisocial Behaviour scores, $R^2\Delta$ = .03, $F\Delta$ (1, 155)=8.73, p =.004. Once the interaction between PARQ-M and Callous Affect were entered on the second step, Callous Affect was no longer a significant predictor of Antisocial Behaviour on its own. The main effect of Callous Affect was qualified by its interaction with mother's neglect/rejection, in that the relationship between Callous Affect and Antisocial Behaviour depends on Parental Neglect/Rejection from the mother. Statistics for the regression are summarized in Table 49.

Table 49

Results of Hierarchical Regression: Parental Rejection/Neglect for Mother, Callous Affect, and Interaction in predicting Antisocial Behaviour scores (in Men)

Predictors	Step 1			Step 2		
	β	*t*	sr^2	*β*	*t*	sr^2
PARQ-Mother	.31**	4.65**	.09	-.77*	-2.07*	.02
Callous Affect	.43**	6.33**	.16	-.07	-.40	.00
PARQ-Mother by Callous Affect				1.34*	2.95*	.03

Note. N = 159. Correlation from regression analysis*:* $p < .05$, **$p < .001$, one-tailed.

Furthermore, since Parental Rejection/Neglect had a significant effect in men from both parents, an additional hierarchical regression was run in men to explore the effects from each parent. On Step 1, Callous Affect scores, PARQ-Father scores, and the interaction between Callous Affect scores and PARQ-Father were entered. On the second step, PARQ-Mother scores and interactions with Callous Affect were added. The overall model was significant, predicting 40.6% of the variance in Antisocial Behaviour in men, $R^2 = .41$, F (5,152) = 20.77, $p < .001$. The first step was significant, accounting for 29.5% of the variance in Antisocial Behaviour scores in men, $R^2\Delta = .30$, $F\Delta$ (3,154) = 14.19, $p < .001$. However, none of the predictors on their own were significant in predicting Antisocial Behaviour scores on this step (please see Table 50). Step 2 was also significant, with the interaction accounting for an additional 11.1% of the variance in Antisocial Behaviour scores, $R^2\Delta = .11$, $F\Delta$ (2, 152) = 14.19, $p < .001$.Once the effects of Mother's Rejection/Neglect were added (and the interaction between Callous Affect scores and Mother's Rejection/ Neglect), none of the other predictors were significant. Statistics for the regression are summarized in Table 50.

Table 50

Results of Hierarchical Regression: Examining the effects of Parental Rejection/Neglect from Mother, over and above effects of Parental Rejection/Neglect from Father (in Men)

Predictors	Step 1			Step 2		
	β	*t*	sr^2	*β*	*t*	sr^2
Callous Affect	.33	1.54	.01	.08	.36	.00
PARQ-Father	-.12	-.31	.00	.63	1.46	.01
PARQ-Father by Callous Affect	.35	.75	.00	-.83	-1.53	.01
PARQ-Mother				-1.23*	-2.58*	.03
PARQ-Mother by Callous Affect				1.92*	3.33*	.04

Note. N = 158. Correlation from regression analysis: *p < .05 **p < .001, one-tailed.

Interpersonal Manipulation (IM).

Descriptive statistics of all variables entered in this regression are presented in Table 51. For the first step, Interpersonal Manipulation scores, sex of participant, and PARQ-M were entered. On the second step, 2-way interactions were entered between sex and PARQ-M, between sex and Interpersonal Manipulation, and between Interpersonal Manipulation scores and PARQ-M. On the third step, a 3-way interaction between the predictors was entered.

Table 51

Descriptive Statistics and Correlations between Sex, Interpersonal Manipulation, Parental Rejection/Neglect (Mother) and Antisocial Behaviour

Variable	*M*	*SD*	2	3	4
1. Antisocial Behaviour	25.97	8.90	.32**	.29**	.49**
2. Sex	.44	.50	___	-.04	.27**
3. PARQ-Mother	102.88	41.73		___	.24**
4. Interpersonal Manipulation	39.11	9.65			___

Note. $N = 365$. Correlations from regression analysis: *$p < .05$, **$p < .001$, one-tailed.

The overall model was significant, accounting for 37.7 % of the variance in Antisocial Behaviour scores of the variance in Antisocial Behaviour, $R^2 = .38$, F (7, 357) = 30.92, p < .001. Step 1 was significant $R^2\Delta = .32$, $F\Delta$ (3, 361) = 56.34, $p < .001$. On this step, men had significantly higher Antisocial Behaviour scores than women. Interpersonal Manipulation scores and higher Maternal Rejection/ Neglect also significantly predicted higher Antisocial Behaviour scores on the first step. Summary of regression statistics are presented in Table 52.

Table 52

Results of Hierarchical Regression: Maternal Rejection/Neglect, Interpersonal Manipulation scores, Sex, and interactions in predicting Antisocial Behaviour scores

Predictors	Step 1			Step 2			Step3		
	β	t	sr^2	β	t	sr^2	β	t	sr^2
Sex	.22**	4.87**	.04	-.36	-1.77	.01	1.27*	2.48*	.01
Interpersonal Manipulation	.38**	8.16**	.13	.04	.31	.00	.36*	2.19*	.01
PARQ Mother	.22**	4.87**	.04	-.36	-1.92	.01	.09	.41	.00
Sex by IM				.30	1.39	.00	-1.46*	-2.65*	.01
Sex by PARQ Mother				.35*	2.81*	.01	-1.51*	-2.73*	.01
IM by PARQ Mother				.62*	2.54*	.01	-.01	-.02	.00
3 Way Interaction							2.01**	3.45**	.02

Note. N = 365. Correlation from regression analysis:* $p < .05$, **$p \leq .001$, one-tailed.

Both the second step (2 way interactions among the predictors $R^2\Delta$ = .04, $F\Delta$ (3,358) = 7.02, p <.001.) and the third step (3-way interaction among the predictors $R^2\Delta$ = .02, $F\Delta$ (1,357) = 11.88, p =.001.) were significant, therefore regression was conducted separating groups by sex to examine the effects of these predictors separately in men and women.

Women.

The overall model was significant, accounting for 24.2% of the variance in Antisocial Behaviour, R^2= .24, F (3, 201) = 21.37, p < .001. Descriptive statistics are presented in Table 53.

Table 53

Descriptive Statistics and Correlations between Interpersonal Manipulation scores, Parental Rejection/Neglect (Mother) and Antisocial Behaviour, in Women

Variable	*M*	*SD*	2	3
1. Antisocial Behaviour	23.44	6.84	.24**	.48**
2. PARQ-Mother	104.62	43.70	___	.30**
3. Interpersonal Manipulation	36.77	9.32		___

Note. N = 205. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

The first step was significant, accounting for 24.2% of the variance in Antisocial Behaviour, $R^2\Delta$= .24, $F\Delta$ (2, 202) = 32.21, p < .001. Only Interpersonal Manipulation scores were a significant predictor in Antisocial Behaviour scores (β = .45, t = 7.00, p < .001, sr^2 = .18). Maternal Warmth had no effect on Antisocial Behaviour scores in women, and no significant interaction was found.

Men

The overall model was significant, accounting for 35.3% of the variance in Antisocial Behaviour, R^2= .35, F (3, 155) = 28.16, p < .001. Descriptive statistics for the predictors are presented in Table 54.

Table 54

Descriptive Statistics and Correlations between Interpersonal Manipulation scores, Parental Rejection/Neglect (Mother) and Antisocial Behaviour, in Men

Variable	*M*	*SD*	2	3
1. Antisocial Behaviour	29.27	10.12	.44**	.42**
2. PARQ-Mother	100.24	38.88	___	.22*
3. Interpersonal Manipulation	42.14	9.28		___

Note. N = 159. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

The first step was significant, accounting for 30.8% of the variance in Antisocial Behaviour scores in men, $R^2\Delta$ = .31, $F\Delta$ (2,156) = 34.68, p <.001. Both PARQ-Mother scores and Interpersonal Manipulation scores significantly predicted Antisocial Behaviour on this step. Step 2 was also significant, with the interaction accounting for an additional 4.5% of the variance in Antisocial Behaviour scores, $R^2\Delta$ = .05, $F\Delta$(1, 155) = 10.77, p = .001. Once the interaction between PARQ-M and Interpersonal Manipulation were entered on the second step, only Interpersonal Manipulation remained a significant predictor of Antisocial Behaviour on its own, while the significant interaction between PARQ-M and Interpersonal Manipulation showed that for those high in Interpersonal Manipulation, Maternal Neglect predicted a steeper increase in Antisocial Behaviour scores. Statistics for the regression are summarized in Table 55.

Table 55

Results of Hierarchical Regression: Parental Rejection/Neglect for Mother, Interpersonal Manipulation scores, and Interaction in predicting Antisocial Behaviour scores (in Men)

Predictors	Step 1			Step 2		
	β	*t*	sr^2	*β*	*t*	sr^2
PARQ-Mother	.37**	5.38**	.13	-.67*	-2.08*	.02
Interpersonal Manipulation	.34**	5.03**	.11	-.20	-1.10	.01
PARQ-Mother by Interpersonal Manipulation				1.29**	3.28**	.04

Note. N = 159. Correlation from regression analysis*:* $p < .05$, **$p \leq .001$, one-tailed.

Furthermore, since Parental Rejection/Neglect had a significant effect in men from both parents, an additional hierarchical regression was run in men to explore the effects from each parent. On Step 1, Interpersonal Manipulation scores, PARQ-Father scores, and the interaction between Interpersonal Manipulation scores and PARQ-Father were entered. On the second step, PARQ-Mother scores were added.

The overall model was significant, predicting 35.5% of the variance in Antisocial Behaviour in men, $R^2 = .36$, F (5,152) = 16.71, $p < .001$. The first step was significant, accounting for 22.4% of the variance in Antisocial Behaviour scores in men, $R^2\Delta = .22$, F (3,154) = 14.83, $p < .001$. However, none of the predictors on their own were significant in predicting Antisocial Behaviour scores (please see Table 56). Step 2 was also significant, with the interaction accounting for an additional 13.1% of the variance in Antisocial Behaviour scores, $R^2\Delta = .13$, $F\Delta$ (2, 152) = 15.38, $p < .001$. Once the effects of Mother's Rejection/Neglect were added (and the interaction between Interpersonal Manipulation scores and Mother's Rejection/ Neglect), none of the other predictors were significant. Statistics for the regression are summarized in Table 56.

Table 56

Results of Hierarchical Regression: Examining the effects of Parental Rejection/Neglect from Mother, over and above effects of Parental Rejection/Neglect from Father (in Men)

Predictors	Step 1			Step 2		
	β	*t*	sr^2	*β*	*t*	sr^2
PARQ-Father	-.23	-.73	.00	.22	.61	.00
Interpersonal Manipulation	.11	.54	.00	-.13	-.63	.00
PARQ-Father by Interpersonal Manipulation	.55	1.40	.01	-.32	-.71	.00
PARQ-Mother				-82*	-2.03*	.02
PARQ-Mother by Interpersonal Manipulation				1.49*	3.04*	.04

Note. N = 158. Correlation from regression analysis: *p < .05 **p < .001, one-tailed.

Erratic Lifestyle (EL)

Descriptive statistics of all variables entered in this regression are presented in Table 57. For the first step, Erratic Lifestyle scores, sex of participant, and PARQ-M were entered. On the second step, 2-way interactions were entered between sex and PARQ-M, between sex and Erratic Lifestyle, and between Erratic Lifestyle scores and PARQ-M. On the third step, a 3-way interaction between the predictors was entered.

Table 57

Descriptive Statistics and Correlations between Sex, Erratic Lifestyle scores, Parental Rejection/Neglect (Mother) and Antisocial Behaviour

Variable	*M*	*SD*	2	3	4
1. Antisocial Behaviour	25.97	8.90	.32**	.29**	.57**
2. Sex	.44	.50	___	-.04	.23**
3. PARQ-Mother	102.88	41.73		___	.19**
4. Erratic Lifestyle	40.22	10.00			___

Note. N = 365. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

The overall model was significant, accounting for 46.0 % of the variance in Antisocial Behaviour scores of the variance in Antisocial Behaviour, R^2= .46, F (7, 357) = 43.38, p < .001. Step 1 was significant $R^2\Delta$ = .40, $F\Delta$ (3, 361) = 79.37, p < .001. Men had significantly higher Antisocial Behaviour scores than women. Higher Erratic Lifestyle scores and higher Maternal Neglect/Rejection also significantly predicted higher Antisocial Behaviour scores. Summary of regression statistics are presented in Table 58.

Table 58

Results of Hierarchical Regression: Maternal Rejection/Neglect, Erratic Lifestyle scores, Sex, and interactions in predicting Antisocial Behaviour scores

Predictors	Step 1			Step 2			Step3		
	β	t	sr^2	β	t	sr^2	β	t	sr^2
Sex	.21**	5.10**	.04	-.56*	-3.02	.01	.51	1.16	.00
Erratic Lifestyle	.48**	11.06**	.20	.04	.37	.00	.27	1.90	.01
PARQ Mother	.21**	5.02**	.04	-.43*	-2.55*	.01	-.07	-.35	.00
Sex by Erratic Lifestyle				.54*	2.89*	.01	-.62	-132	.00
Sex by PARQ Mother				.32*	2.83*	.01	-.89	-1.91	.01
Erratic Lifestyle by PARQ Mother				.70**	3.36**	.02	.23	.86	.00
3 Way Interaction							1.32*	2.67*	.01

Note. N = 365. Correlation from regression analysis:* $p < .05$, **$p \leq .001$, one-tailed.

Both the second step (2 way interactions among the predictors, $R^2\Delta$ = .05, $F\Delta$ (3,358) = 11.13, p <.001.) and the third step (3-way interaction among the predictors $R^2\Delta$ = .01, $F\Delta$ (1,357) = 7.13, p =.008.) were significant, therefore a regression was conducted separating groups by sex to examine the effects of these predictors separately in men and women.

Women.

The overall model was significant, accounting for 29.3% of the variance in Antisocial Behaviour, R^2= .29, F (3, 201) = 27.75, p < .001. Descriptive statistics are presented in Table 59.

Table 59

Descriptive Statistics and Correlations between Erratic Lifestyle, Parental Rejection/Neglect (Mother) and Antisocial Behaviour, in Women

Variable	*M*	*SD*	2	3
1. Antisocial Behaviour	23.44	6.84	.24**	.52**
2. PARQ-Mother	104.62	43.70	___	.23**
3. Erratic Lifestyle	38.14	9.76		___

Note. N = 205. Correlations from regression analysis: *p < .05, **$p \leq .001$, one-tailed.

The first step was significant, accounting for 28.9% of the variance in Antisocial Behaviour, $R^2\Delta$= .29, $F\Delta$ (2, 202) = 41.02, p < .001. Erratic Lifestyle scores and Maternal Warmth scores were both significant individual predictors of Antisocial Behaviour scores. Higher Erratic Lifestyle scores and higher Maternal Neglect predicted higher Antisocial Behaviour. No significant interaction was found. Results are summarized in Table 60.

Table 60

Results of Hierarchical Regression: Parental Rejection/Neglect for Mother and Erratic Lifestyle scores, predicting Antisocial Behaviour scores (in women)

Predictors	Step 1		
	β	*t*	sr^2
Erratic Lifestyle	.49*	8.10**	.23
PARQ Mother	.13*	2.11*	.02

Note. N = 364. Correlation from regression analysis: *p<.05 **p < .001, one-tailed

Men.

The overall model was significant, accounting for 46.4% of the variance in Antisocial Behaviour, R^2= .46, F (3, 155) = 44.64, p < .001. Descriptive statistics for the predictors are presented in Table 61.

Table 61

Descriptive Statistics and Correlations between Erratic Lifestyle scores, Parental Rejection/Neglect (Mother) and Antisocial Behaviour, in Men

Variable	*M*	*SD*	2	3
1. Antisocial Behaviour	29.27	10.12	.44**	.56**
2. PARQ-Mother	100.24	38.88	___	.20*
3. Erratic Lifestyle	42.93	9.73		___

Note. N = 159. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

The first step was significant, accounting for 42.5% of the variance in Antisocial Behaviour scores in men, $R^2\Delta$ = .43, $F\Delta$ (2,156) = 57.75, p <.001. Both PARQ-Mother scores and Erratic Lifestyle scores significantly predicted Antisocial Behaviour on this step. Step 2 was also significant, with the interaction accounting for an additional 3.8% of the variance in

Antisocial Behaviour scores, $R^2\Delta$ = .04, $F\Delta$ (1, 155) = 11.02, p = .001. Once the interaction between PARQ-M and Erratic Lifestyle were entered on the second step, Erratic Lifestyle was no longer a significant predictor of Antisocial Behaviour on its own. The main effect of Erratic Lifestyle was qualified by its interaction with mother's Neglect/Rejection, in that the relationship between Erratic Lifestyle and Antisocial Behaviour depends on Parental Neglect/Rejection from the mother. Statistics for the regression are summarized in Table 62.

Table 62

Results of Hierarchical Regression: Parental Rejection/Neglect for Mother, Erratic Lifestyle scores, and Interaction in predicting Antisocial Behaviour scores (in Men)

Predictors	Step 1			Step 2		
	β	t	sr^2	β	t	sr^2
PARQ-Mother	.35**	5.61**	.12	-.48	-1.87	.01
Erratic Lifestyle	.49**	7.90**	.23	.03	.17	.00
PARQ-Mother by Erratic Lifestyle				1.04**	3.32**	.04

Note. N = 159. Correlation from regression analysis:* $p < .05$, ** $p \leq .001$, one-tailed.

Furthermore, since Parental Rejection/Neglect had a significant effect in men from both parents, an additional hierarchical regression was run in men to explore the effects from each parent. On Step 1, Erratic Lifestyle scores, PARQ-Father scores, and the interaction between Erratic Lifestyle scores and PARQ-Father were entered. On the second step, PARQ-Mother scores and PARQ-Mother interaction with Erratic Lifestyle were added.

The overall model was significant, predicting 48.1% of the variance in Antisocial Behaviour in men, R^2 = .48, F (5,152) = 28.20, p < .001. The first step was significant, accounting for 36.9% of the variance in Antisocial Behaviour scores in men, $R^2\Delta$= .37, $F\Delta$ (3,154) = 30.08, p <.001. Step 2 was also significant, with the interaction accounting for an

additional 9.5% of the variance in Antisocial Behaviour scores, $R^2\Delta = .10$, $F\Delta\ (2, 152) = 13.45$, $p < .001$. Once the effects of Mother's Rejection/Neglect were added (and the interaction between Erratic lifestyle scores and Mother's Rejection/ Neglect), none of the other predictors were significant. Statistics for the regression are summarized in Table 63.

Table 63

Results of Hierarchical Regression: Examining the effects of Parental Rejection/Neglect from Mother, over and above effects of Parental Rejection/Neglect from Father (in Men)

Predictors	Step 1			Step 2		
	β	t	sr^2	β	t	sr^2
PARQ-Father	-.50	-1.56	.01	-.16	-.40	.00
Erratic Lifestyle	.09	.45	.08	-.04	-.21	.00
PARQ-Father by Erratic Lifestyle	.89	2.24	.02	.24	.49	.00
PARQ-Mother				-.40	-1.15	.00
PARQ-Mother by Erratic Lifestyle				.92*	2.22*	.02

Note. $N = 158$. Correlation from regression analysis: *$p < .05$ **$p < .001$, one-tailed

Parental Warmth

Father.

3-Factor Psychopathy.

Descriptive statistics of all variables entered in this regression are presented in Table 64.

Table 64

Descriptive Statistics and Correlations between Sex, 3-Factor Psychopathy scores, Paternal Warmth/Acceptance and Antisocial Behaviour

Variable	*M*	*SD*	2	3	4
1. Antisocial Behaviour	25.94	8.90	.32**	-.13*	.64**
2. Sex	___	___	___	.003	.35**
3. Paternal Warmth	57.40	18.62		___	-.14*
4. 3-Factor Psychopathy	115.79	24.09			___

Note. N = 364. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

For the first step, 3-Factor psychopathy scores, sex of participant, and Parental Warmth/Acceptance scores for participants' father were entered. On the second step, 2-way interactions were entered between sex and Paternal Warmth/Acceptance, between sex and 3-Factor psychopathy scores, and between 3-Factor psychopathy scores and Paternal Warmth/Acceptance. On the third step, a 3-way interaction between the predictors was entered.

The overall model was significant, accounting for 43.5 % of the variance in Antisocial Behaviour scores R^2= .44, F (7, 356) = 39.23, p < .001. Step 1 was significant accounting for 41.8% of the variance in Antisocial Behaviour scores, $R^2\Delta$ = .42, $F\Delta$ (3, 360) = 86.25, p < .001. On this step, only 3-Factor psychopathy scores and participants' sex were significant predictors of Antisocial Behaviour scores, where men scored higher in Antisocial Behaviour than women, and higher 3-Factor psychopathy scores predicted higher Antisocial Behaviour. Father's Warmth was not a significant predictor. The second step was also significant, predicting an additional 1.3% of the variance in Antisocial Behaviour, $R^2\Delta$= .01, $F\Delta$ (3, 357) = 2.73, p = .044. Only the

interaction between sex and 3-Factor psychopathy was significant on this step (please see Table 65 below). The third step was not significant, indicating that the 3-way interaction was not significant. Summary of regression results are presented in Table 65.

Table 65

Results of Hierarchical Regression: Parental Warmth/Acceptance (Father), 3-Factor Psychopathy scores, and Sex predicting Antisocial Behaviour scores

Predictors	Step 1			Step 2		
	β	*t*	sr^2	*β*	*t*	sr^2
Sex	.11*	2.48*	.01	-.34	-1.27	00
Paternal Warmth	-.05	-1.26	.00	.20	.98	.00
3-Factor Psychopathy	.59**	13.66**	.30	.66**	4.49**	.03
Paternal Warmth by 3-Factor Psychopathy				-.27	-1.14	.00
3-Factor Psychopathy by Sex				.56*	2.40*	.01
Paternal Warmth by Sex				-.06	-.43	.00

Note. N = 364. Correlation from regression analysis*: * $p < .05$, ** $p < .001$, one-tailed.

Callous Affect (CA).

Descriptive statistics of all variables entered in this regression are presented in Table 66.

Table 66

Descriptive Statistics and Correlations between Sex, Callous Affect, Paternal Warmth/Acceptance and Antisocial Behaviour

Variable	*M*	*SD*	2	3	4
1. Antisocial Behaviour	25.94	8.90	.32**	-.13*	.59**
2. Sex	.44	.50	___	.003	.43*
3. Paternal Warmth	57.40	18.62		___	-.16*
4. Callous Affect	36.47	8.44			___

Note. N = 364. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

For the first step, Callous Affect subscale scores, sex of participant, and Parental Warmth/Acceptance scores for participants' father were entered. On the second step, 2-way interactions were entered between sex and Paternal Warmth/Acceptance, between sex and Callous Affect scores, and between Callous Affect scores and Paternal Warmth/Acceptance. On the third step, a 3-way interaction between the predictors was entered.

The overall model was significant, accounting for 37.0 % of the variance in Antisocial Behaviour scores R^2= .37, F (7, 356) = 29.86, p < .001. Step 1 was significant accounting for 35.9% of the variance in Antisocial Behaviour scores, $R^2\Delta$ = .36, $F\Delta$ (3, 360) = 67.25, p < .001. On this step, only Callous Affect scores significantly positively predicted Antisocial Behaviour scores (β = .55, t = 11.67, p < .001, sr^2 = .24), where higher 3 Callous Affect scores predicted

higher Antisocial Behaviour. The second and third steps were not significant, indicating that no significant interaction was found.

Interpersonal Manipulation (IM).

Descriptive statistics of all variables entered in this regression are presented in Table 67.

Table 67

Descriptive Statistics and Correlations between Sex, Interpersonal Manipulation scores, Paternal Warmth/Acceptance and Antisocial Behaviour

Variable	*M*	*SD*	2	3	4
1. Antisocial Behaviour	25.94	8.90	.32**	-.13*	.49**
2. Sex	.44	.50	___	.003	.27**
3. Paternal Warmth	57.40	18.62		___	-.12*
4. Interpersonal Manipulation	39.10	9.65			___

Note. N = 364. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

For the first step, Interpersonal Manipulation scores, sex of participant, and Parental Warmth/Acceptance scores for participants' father were entered. On the second step, 2-way interactions were entered between sex and Paternal Warmth/Acceptance, between sex and Interpersonal Manipulation scores, and between Interpersonal Manipulation scores and Paternal Warmth/Acceptance. On the third step, a 3-way interaction between the predictors was entered.

The overall model was significant, accounting for 43.5 % of the variance in Antisocial Behaviour scores R^2= .29, F (7, 356) = 20.88, p < .001. Step 1 was significant accounting for 28.1% of the variance in Antisocial Behaviour scores, $R^2\Delta$ = .28, $F\Delta$ (3, 360) = 46.93, p < .001. On this step, only Interpersonal Manipulation scores and participants' sex were significant

predictors of Antisocial Behaviour scores, where men scored higher in Antisocial Behaviour than women, and higher Interpersonal Manipulation scores predicted higher Antisocial Behaviour. Paternal Warmth did not have an effect on Antisocial Behaviour scores in this group. The second and third steps were not significant, indicating that no significant interaction was found. Summary of regression results are presented in Table 68.

Table 68

Results of Hierarchical Regression: Parental Warmth/Acceptance (Father), Interpersonal Manipulation scores, and Sex predicting Antisocial Behaviour scores

Predictors	Step 1		
	β	*t*	sr^2
Sex	.20**	4.33**	.04
Paternal Warmth	-.08	-1.78	.01
Interpersonal Manipulation	.43**	9.08**	.16

Note. N = 364. Correlation from regression analysis:* $p < .05$, ** $p < .001$, one-tailed.

Erratic Lifestyle (EL).

Descriptive statistics of all variables entered in this regression are presented in Table 69.

Table 69

Descriptive Statistics and Correlations between Sex, Erratic Lifestyle, Paternal Warmth/Acceptance and Antisocial Behaviour

Variable	*M*	*SD*	2	3	4
1. Antisocial Behaviour	25.94	8.90	.32**	-.13*	.56**
2. Sex	___	___	___	.003	.23**
3. Paternal Warmth	57.40	18.62		___	-.08
4. Erratic Lifestyle	40.22	10.00			___

Note. N = 364. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

For the first step, Erratic Lifestyle subscale scores, sex of participant, and Parental Warmth/Acceptance scores for participants' father were entered. On the second step, 2-way interactions were entered between sex and Paternal Warmth/Acceptance, between sex and Erratic Lifestyle scores, and between Erratic Lifestyle scores and Paternal Warmth/Acceptance. On the third step, a 3-way interaction between the predictors was entered.

The overall model was significant, accounting for 38.5 % of the variance in Antisocial Behaviour scores R^2= .39, F (7, 356) = 31.85, p < .001. Step 1 was significant accounting for 36.2% of the variance in Antisocial Behaviour scores, $R^2\Delta$ = .36, $F\Delta$ (3, 360) = 68.04, p < .001. On this step, Erratic Lifestyle scores, Paternal warmth and participants' sex were each significant independent predictors of Antisocial Behaviour scores, where men scored higher in Antisocial Behaviour than women, and higher Erratic Lifestyle scores predicted higher Antisocial

Behaviour. Higher Paternal warmth predicted a decrease in Antisocial Behaviour. The second step was also significant, predicting an additional 2.0% of the variance in Antisocial Behaviour, $R^2\Delta = .02$, $F\Delta$ (3, 357) = 3.85, p < .001. The relationship between Erratic Lifestyle and Antisocial Behaviour depended on participants' sex (please see Table 70 below). Erratic Lifestyle scores remained a significant independent predictor of Antisocial Behaviour after accounting for the interaction effects. The third step was not significant, indicating that the 3-way interaction was not significant. Summary of regression results are presented in Table 70.

Table 70

Results of Hierarchical Regression: Parental Warmth/Acceptance (Father), Erratic Lifestyle scores, and Sex predicting Antisocial Behaviour scores

Predictors	Step 1			Step 2		
	β	*t*	sr^2	*β*	*t*	sr^2
Sex	.20**	4.60**	.04	-.24	-1.02	.00
Paternal Warmth	-.09*	-2.18*	.01	.18	1.01	.00
Erratic Lifestyle	.51**	11.76**	.25	.60**	4.07**	.03
Paternal Warmth by Sex				-.09	-.60	.00
Erratic Lifestyle by Sex				.57*	2.95*	.02
Paternal Warmth by Erratic Lifestyle				-.31	-1.43	.00

Note. N = 364. Correlation from regression analysis:* $p < .05$, ** $p < .001$, one-tailed.

Mother

3-Factor Psychopathy.

Descriptive statistics of all variables entered in this regression are presented in Table 71.

For the first step, 3-Factor psychopathy scores, sex of participant, and Parental Warmth/Acceptance scores for participant's mother were entered. On the second step, 2-way interactions were entered between sex and Maternal Warmth/Acceptance, between sex and 3-Factor psychopathy scores, as well as between 3-Factor psychopathy and Maternal Warmth/Acceptance. On the third step, a 3-way interaction between the predictors was entered.

Table 71

Descriptive Statistics and Correlations between Sex, 3-Factor Psychopathy scores, Maternal Warmth/Acceptance and Antisocial Behaviour

Variable	*M*	*SD*	2	3	4
1. Antisocial Behaviour	25.97	8.89	.32**	-.22**	.64**
2. Sex	.44	.50	___	.02	.35**
3. Maternal Warmth	65.36	15.98		___	-.20**
4. 3 Factor Psychopathy	115.90	24.11			___

Note. N = 365. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

The overall model was significant, accounting for 48.0 % of the variance in Antisocial Behaviour scores, R^2= .48, F (7, 357) = 51.18, p < .001. Step 1 was significant $R^2\Delta$ = .43, $F\Delta$ (3, 361) = 89.91, p < .001. On this step, men had significantly higher Antisocial Behaviour scores than women. Higher 3-Factor psychopathy scores also significantly predicted higher Antisocial Behaviour scores. Conversely, higher Maternal Warmth predicted significantly lower Antisocial Behaviour. Summary of regression statistics are presented in Table 72.

Table 72

Results of Hierarchical Regression: Maternal Warmth, 3-Factor psychopathy scores, Sex, and interactions in predicting Antisocial Behaviour scores

Predictors	Step 1			Step 2			Step3		
	β	*t*	sr^2	β	*t*	sr^2	β	*t*	sr^2
Sex	.12*	2.68*	.01	.03	.10	.00	-2.68*	-3.16*	.01
3-Factor Psychopathy	.58**	13.24**	.28	.93**	5.47**	.04	.47*	2.2*	.01
Maternal Warmth	-.11*	-2.60*	.01	.49*	2.5*	.01	-.05	-.19	.00
Sex by 3-Factor Psychopathy				.52*	2.30*	.01	3.44**	3.87**	.02
Sex by Maternal Warmth				-.40*	-2.30*	.01	2.48*	2.86*	.01
3-Factor Psychopathy by Maternal Warmth				-.62*	-2.65*	.01	.05	.17	.00
3-Way Interaction							-3.09^t	-3.39^t	.02

Note. N = 365. Correlation from regression analysis:* $p < .05$, ^{t} p = .001**p < .001, one-tailed.

Both the second step (2 way interactions among the predictors $R^2\Delta = .04$, $F\Delta$ (3, 358) = 8.02, p < .001.) and the third step (3-way interaction among the predictors $R^2\Delta = .02$, $F\Delta$ (1, 357) = 11.49, $p = .001$.) were significant, therefore regression was conducted separating groups by sex to examine the effects of these predictors separately in men and women.

Women.

The overall model was significant, accounting for 37.6% of the variance in Antisocial Behaviour, $R^2 = .38$, F (3, 201) = 40.42, $p < .001$. Descriptive statistics are presented in Table 73.

Table 73

Descriptive Statistics and Correlations between 3-Factor Psychopathy scores, Maternal Warmth and Antisocial Behaviour, in Women

Variable	*M*	*SD*	2	3
1. Antisocial Behaviour	23.44	6.84	-.17*	.61**
2. Maternal Warmth	64.97	16.43	___	-.27**
3. 3-Factor Psychopathy	108.25	22.39		___

Note. $N = 205$. Correlations from regression analysis: *$p < .05$, **$p < .001$, one-tailed.

The first step of the model was significant, accounting for 31% of the variance in Antisocial Behaviour, $R^2\Delta = .38$, $F\Delta$ (2, 202) = 60.90, $p < .001$. Only 3-Factor psychopathy scores were a significant predictor in Antisocial Behaviour scores ($\beta = .61$, $t = 10.63$, $p < .001$, $sr^2 = .35$) in this step. Mother's warmth had no effect in women, and no significant interaction was found.

Men.

The overall model was significant, accounting for 44.5% of the variance in Antisocial Behaviour, R^2= .45, F (3, 155) = 41.34, p < .001. Descriptive statistics for the predictors are presented in Table 74.

Table 74

Descriptive Statistics and Correlations between 3-Factor Psychopathy scores, Maternal Warmth/Acceptance and Antisocial Behaviour, in Men

Variable	*M*	*SD*	2	3
1. Antisocial Behaviour	29.27	10.12	-.33**	.59**
2. Maternal Warmth	66.0	15.38	___	-.17*
3. 3-Factor Psychopathy	125.82	22.74		___

Note. N = 159. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

The first step of the model was significant, accounting for 40.2% of the variance in Antisocial Behaviour scores in men, $R^2\Delta$ = .40, $F\Delta$ (2,156) = 52.48, p < .001. Both Maternal Warmth and 3-Factor psychopathy scores significantly predicted Antisocial Behaviour, in that higher Maternal Warmth predicted lower Antisocial Behaviour, while higher 3-Factor psychopathy scores predicted higher Antisocial Behaviour. Step 2 was also significant, with the interaction accounting for an additional 4.3% of the variance in Antisocial Behaviour scores, $R^2\Delta$ = .04, $F\Delta$ (1, 155)=11.98, p = .001. The significant interaction between Maternal Warmth and 3-Factor psychopathy scores indicated that the relationship between 3-Factor psychopathy and Antisocial Behaviour is moderated by Maternal Warmth in men. Statistics for the regression are summarized in Table 75.

Table 75

Results of Hierarchical Regression: Maternal Warmth, 3-Factor Psychopathy scores, and Interaction in predicting Antisocial Behaviour scores (in Men)

Predictors	Step 1			Step 2		
	β	*t*	sr^2	*β*	*t*	sr^2
Maternal Warmth	-.24**	-3.76**	.05	.88*	2.68*	.03
3-Factor Psychopathy	.55**	8.77**	.29	1.41**	5.52**	.11
Maternal Warmth by 3-Factor Psychopathy				-1.30^t	-3.46^t	.04

Note. N = 159. Correlation from regression analysis*:* $p < .05$, ** $p < .001$, ^{t} p=.001, one-tailed.

Furthermore, an additional hierarchical regression was run in men to explore the effects of Mother's Warmth, over and above the effects from Father's Warmth. On Step 1, 3-Factor psychopathy scores, Paternal Warmth scores, and the interaction between 3-Factor psychopathy and Paternal Warmth were entered. On the second step, Maternal Warmth and Maternal Warmth interacting with 3-Factor psychopathy scores were added.

The overall model was significant, predicting 44.7% of the variance in Antisocial Behaviour in men, R^2 = .45, F (5,152) = 24.62, p < .001. The first step was significant, accounting for 36.4% of the variance in Antisocial Behaviour scores in men, $R^2 \Delta$= .36, $F\Delta$ (3,154) = 29.42, p <.001. However, only 3-Factor psychopathy was a significant predictor of Antisocial Behaviour on this step (please see Table 74). Step 2 was also significant, accounting for an additional 8.3 % of the variance in Antisocial Behaviour scores, $R\Delta^2$ = .08 $F\Delta$ (2, 152) = 11.44, p < .001. Once the effects of Mother's Rejection/Neglect were added (and the interaction between 3-Factor psychopathy scores and Maternal Warmth as well), only 3-Factor psychopathy

remained significant in addition to the interaction with Maternal Warmth. Statistics for the regression are summarized in Table 76 below.

Table 76

Results of Hierarchical Regression: Examining the effects of Parental Warmth from Mother, over and above effects of Parental Warmth from Father (in Men)

Predictors	Step 1			Step 2		
	β	*t*	sr^2	*β*	*t*	sr^2
Paternal Warmth	.48	1.31	.01	.09	.20	.00
3-Factor Psychopathy	.92**	405**	.07	1.43**	5.34**	.10
Paternal Warmth by 3-Factor Psychopathy	-.63	-1.57	.01	-.07	-.15	.00
Maternal Warmth				.83	1.89	.01
Maternal Warmth by 3-Factor Psychopathy				-1.28*	-2.61*	.02

Note. N = 159. Correlation from regression analysis: *p < .05, **p < .001, one-tailed.

Parental Warmth- Mother

Callous Affect (CA.)

Descriptive statistics of all variables entered in this regression are presented in Table 77. For the first step, Callous Affect subscale score, sex of participant, and Parental Warmth/Acceptance scores for participant's mother were entered. On the second step, 2-way interactions were entered between sex and Maternal Warmth/Acceptance, between sex and Callous Affect scores, as well as between CA and Maternal Warmth/Acceptance. On the third step, a 3-way interaction between the 3 predictors was entered.

Table 77

Descriptive Statistics and Correlations between Sex, Callous Affect scores, Maternal Warmth/Acceptance and Antisocial Behaviour

Variable	*M*	*SD*	2	3	4
1. Antisocial Behaviour	25.97	8.89	.32**	-.22**	.59**
2. Sex	.44	.50	___	.02	.42**
3. Maternal Warmth	65.36	15.98		___	-.19**
4. Callous Affect	36.56	8.48			___

Note. N = 365. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

The overall model was significant, accounting for 41.2% of the variance in Antisocial Behaviour scores, R^2= .41, F (7, 357) = 35.69, p < .001. Step 1 was significant $R^2\Delta$ = .38, $F\Delta$ (3, 361) = 69.73, p < .001. Men had significantly higher Antisocial Behaviour scores than women. Higher Callous Affect scores also significantly predicted higher Antisocial Behaviour scores. Conversely, higher Maternal Warmth predicted significantly lower Antisocial Behaviour. Summary of regression statistics are presented in Table 78.

Table 78

Results of Hierarchical Regression: Maternal Warmth, Callous Affect scores, Sex, and interactions in predicting Antisocial Behaviour scores

Predictors	Step 1			Step 2			Step3		
	β	t	sr^2	β	t	sr^2	β	t	sr^2
Sex	.10*	2.07*	.01	.07	.23	.00	-2.58*	-2.95*	.01
Callous Affect	.53**	11.13**	..22	.87**	4.46**	.03	.35	1.41	.00
Maternal Warmth	-.12*	-2.79*	.01	.38	1.95	.01	-.14	-.56	.00
Sex by Callous Affect				.38	1.67	.00	3.31**	3.54**	.02
Sex by Maternal Warmth				-.32	-1.66	.00	2.49*	2.87*	.01
Callous Affect by Maternal Warmth				-.55*	-2.18*	.01	.16	.49	.00
3 Way Interaction							-3.09**	-3.22**	.02

Note. N = 365. Correlation from regression analysis:* $p < .05$, **$p \leq .001$, one-tailed.

Both the second step (2 way interactions among the predictors $R^2\Delta = .03$, $F\Delta$ (3, 358) = 5.47, $p = .001$.) and the third step (3-way interaction among the predictors $R^2\Delta = .02$, $F\Delta$ (1, 357) = 10.39, $p = .001$.) were significant, therefore regression was conducted separating groups by sex to examine the effects of these predictors separately in men and women.

Women.

The overall model was significant, accounting for 30.5% of the variance in Antisocial Behaviour, $R^2 = .31$, F (3, 201) = 29.41, $p < .001$. Descriptive statistics are presented in Table 79.

Table 79

Descriptive Statistics and Correlations between Callous Affect scores, Maternal Warmth and Antisocial Behaviour, in Women

Variable	*M*	*SD*	2	3
1. Antisocial Behaviour	23.44	6.84	-.17*	.55**
2. Maternal Warmth	64.97	16.43	___	-.25**
3. Callous Affect	33.34	7.54		___

Note. $N = 205$. Correlations from regression analysis: *$p < .05$, **$p < .001$, one-tailed.

The first step of the model was significant, accounting for 30.4% of the variance in Antisocial Behaviour, $R^2\Delta = .30$, $F\Delta$ (2, 202) = 44.10, $p < .001$. Only Callous Affect scores were a significant predictor of Antisocial Behaviour scores ($\beta = .54$, $t = 8.96$, $p < .001$, $sr^2 = .28$) in this step. No significant interaction was found.

Men.

The overall model was significant, accounting for 36.3% of the variance in Antisocial Behaviour, R^2= .36, F (3, 155) = 29.48, p < .001. Descriptive statistics for the predictors are presented in Table 80.

Table 80

Descriptive Statistics and Correlations between Callous Affect, Maternal Warmth/Acceptance and Antisocial Behaviour, in Men

Variable	*M*	*SD*	2	3
1. Antisocial Behaviour	29.27	10.12	-.33**	.52**
2. Maternal Warmth	66.0	15.38	___	-.19*
3. Callous Affect	40.75	7.82		___

Note. N = 159. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

The first step of the model was significant, accounting for 32.5% of the variance in Antisocial Behaviour scores in men, $R^2\Delta$ = .33, $F\Delta$ (2,156) = 37.53, p < .001. Both Maternal Warmth and 3 Callous Affect scores significantly predicted Antisocial Behaviour, in that higher Maternal Warmth predicted lower Antisocial Behaviour, while higher Callous Affect scores predicted higher Antisocial Behaviour. Step 2 was also significant, with the interaction accounting for an additional 4.3% of the variance in Antisocial Behaviour scores, $R^2\Delta$ = .04, $F\Delta$ (1, 155)= 9.38, p = .003. The significant interaction between Maternal Warmth and Callous Affect scores indicated that the relationship between Callous Affect and Antisocial Behaviour is moderated by Maternal Warmth in men. Statistics for the regression are summarized in Table 81.

Table 81

Results of Hierarchical Regression: Maternal Warmth, Callous Affect, and Interaction in predicting Antisocial Behaviour scores (in Men)

Predictors	Step 1			Step 2		
	β	*t*	sr^2	*β*	*t*	sr^2
Maternal Warmth	-.24[t]	-3.52[t]	.05	.82*	2.34*	.02
Callous Affect	.48**	7.09**	.22	1.34**	4.62**	.09
Maternal Warmth by Callous Affect				-1.24*	-3.06*	.04

Note. N = 159. Correlation from regression analysis:* $p < .05$, **$p < .001$, [t] p=.001, one-tailed.

Furthermore, an additional hierarchical regression was run in men to explore the effects from each parent. On Step 1, Callous Affect scores, Paternal Warmth scores, and the interaction between Callous Affect and Paternal Warmth were entered. On the second step, Maternal Warmth and Maternal Warmth interacting with Callous Affect scores were added.

The overall model was significant, predicting 37.2% of the variance in Antisocial Behaviour in men, $R^2 = .37$, F (5,152) = 17.99, $p < .001$. The first step was significant, accounting for 27.9% of the variance in Antisocial Behaviour scores in men, $R^2\Delta = .28$, $F\Delta$ (3,154) = 19.82, $p < .001$. However, only Callous Affect was a significant predictor of Antisocial Behaviour on this step (please see Table 82). Step 2 was also significant, accounting for an additional 9.3 % of the variance in Antisocial Behaviour scores, $R\Delta^2 = .09$, $F\Delta$ (2, 152) = 11.27, $p < .001$. Once the effects of Mother's Rejection/Neglect were added (and the interaction between Callous Affect scores and Maternal Warmth as well), only Callous Affect remained significant in addition to the interaction with Maternal Warmth. Statistics for the regression are summarized in Table 82 below.

Table 82

Results of Hierarchical Regression: Examining the effects of Parental Warmth from Mother, over and above effects of Parental Warmth from Father (in Men)

Predictors	Step 1			Step 2		
	β	*t*	sr^2	*β*	*t*	sr^2
Paternal Warmth	.13	3.66	.00	-.34	-.80	.00
Callous Affect	.64*	2.77*	.04	1.33**	4.43**	.08
Paternal Warmth by Callous Affect	-.24	-.66	.00	.40	.89	.00
Maternal Warmth				1.06*	2.39*	.02
Maternal Warmth by Callous Affect				-1.55*	-3.08*	.04

Note. N = 159. Correlation from regression analysis: *p < .05, **p < .001, one-tailed.

Interpersonal Manipulation (IM).

Descriptive statistics of all variables entered in this regression are presented in Table 83. For the first step, Interpersonal Manipulation scores, sex of participant, and Parental Warmth/Acceptance scores for participant's mother were entered. On the second step, 2-way interactions were entered between sex and Maternal Warmth/Acceptance, between sex and Interpersonal Manipulation scores, as well as between Interpersonal Manipulation and Maternal Warmth/Acceptance. On the third step, a 3-way interaction between the 3 predictors was entered.

Table 83

Descriptive Statistics and Correlations between Sex, Interpersonal Manipulation scores, Maternal Warmth/Acceptance and Antisocial Behaviour

Variable	*M*	*SD*	2	3	4
1. Antisocial Behaviour	25.97	8.89	.32**	-.22**	.49**
2. Sex	.44	.50	___	.02	.35**
3. Maternal Warmth	65.36	15.98		___	-.19**
4. Interpersonal Manipulation	39.11	9.65			___

Note. N = 365. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

The overall model was significant, accounting for 34.6 % of the variance in Antisocial Behaviour scores, R^2= .35, F (7, 357) = 26.98, p < .001. Step 1 was significant, $R^2\Delta$ = .30, $F\Delta$ (3, 361) = 50.99, p < .001. Men had significantly higher Antisocial Behaviour scores than women. Higher Interpersonal Manipulation scores also significantly predicted higher Antisocial Behaviour scores. Conversely, higher Maternal Warmth predicted significantly lower Antisocial Behaviour. Summary of regression statistics are presented in Table 84.

Table 84

Results of Hierarchical Regression: Maternal Warmth, Interpersonal Manipulation scores, Sex, and interactions in predicting Antisocial Behaviour scores

Predictors	Step 1			Step 2			Step3		
	β	*t*	sr^2	*β*	*t*	sr^2	*β*	*t*	sr^2
Sex	.21**	4.54*	.04	.36	1.21	.00	-2.19*	-2.75*	.01
Interpersonal Manipulation	.41**	8.72**	.15	.71**	4.01**	.03	-2.19*	-2.75*	.00
Maternal Warmth	-.15**	-3.23*	.02	.30	1.66	.01	-.17	-.77	.00
Sex by Interpersonal Manipulation				.31	1.43	.00	3.05**	3.70**	.02
Sex by Maternal Warmth				-.44*	-2.29*	.01	2.24*	2.79*	.01
Interpersonal Manipulation by Maternal Warmth				-.47*	-2.03*	.01	.17	.59	.00
3 Way Interaction							-2.88**	-3.44**	.02

Note. N = 365. Correlation from regression analysis:* $p < .05$, **$p \leq .001$, one-tailed.

Both the second step (2 way interactions among the predictors $R^2\Delta = .03$, $F\Delta$ (3, 358) = 4.72, $p < .003$) and the third step (3-way interaction among the predictors $R^2\Delta = .02$, $F\Delta$ (1, 357) = 11.82, $p = .001$) were significant, therefore regression was conducted separating groups by sex to examine the effects of these predictors separately in men and women.

Women.

The overall model was significant, accounting for 23.5% of the variance in Antisocial Behaviour, $R^2 = .24$, F (3, 201) = 20.58, $p < .001$. Descriptive statistics are presented in Table 85.

Table 85

Descriptive Statistics and Correlations between Interpersonal Manipulation scores, Maternal Warmth and Antisocial Behaviour, in Women

Variable	*M*	*SD*	2	3
1. Antisocial Behaviour	23.44	6.84	-.17*	.48**
2. Maternal Warmth	64.97	16.43	___	-.25**
3. Interpersonal Manipulation	37.77	9.32		___

Note. $N = 205$. Correlations from regression analysis: *$p < .05$, **$p < .001$, one-tailed.

The first step of the model was significant, accounting for 23.3% of the variance in Antisocial Behaviour, $R^2\Delta = .23$, $F\Delta$ (2, 202) = 30.73, $p < .001$. Interpersonal Manipulation scores were a significant predictor in Antisocial Behaviour scores ($\beta = .47$, $t = 7.37$, $p < .001$, $sr^2 = .21$) in this step. No significant interaction was found.

Men.

The overall model was significant, accounting for 29.9% of the variance in Antisocial Behaviour, R^2= .30, F (3, 155) = 22.01, p < .001. Descriptive statistics for the predictors are presented in Table 86.

Table 86

Descriptive Statistics and Correlations between Interpersonal Manipulation, Maternal Warmth/Acceptance and Antisocial Behaviour, in Men

Variable	*M*	*SD*	2	3
1. Antisocial Behaviour	29.27	10.12	-.33**	.42**
2. Maternal Warmth	66.0	15.38	___	-.14*
3. Interpersonal Manipulation	42.14	9.28		___

Note. N = 159. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

The first step of the model was significant, accounting for 25.4% of the variance in Antisocial Behaviour scores in men, $R^2\Delta$ = .25, $F\Delta$ (2,156) = 26.50, p < .001. Both Maternal Warmth and Interpersonal Manipulation scores significantly predicted Antisocial Behaviour, in that higher Maternal Warmth predicted lower Antisocial Behaviour, while higher 3 Interpersonal Manipulation scores predicted higher Antisocial Behaviour. Step 2 was also significant, with the interaction accounting for an additional 4.5% of the variance in Antisocial Behaviour scores, $R^2\Delta$ = .05, $F\Delta$(1, 155)= 9.98, p = .002. The significant interaction between Maternal Warmth and Interpersonal Manipulation scores indicated that the relationship between Interpersonal Manipulation and Antisocial Behaviour is moderated by Maternal Warmth in men. Statistics for the regression are summarized in Table 87.

Table 87

Results of Hierarchical Regression: Maternal Warmth, Interpersonal Manipulation, and Interaction in predicting Antisocial Behaviour scores (in Men)

Predictors	Step 1			Step 2		
	β	*t*	sr^2	*β*	*t*	sr^2
Maternal Warmth	-.28**	-3.84**	.07	.66*	2.17*	.02
Interpersonal Manipulation	.39**	5.52**	.15	1.28**	4.40**	.09
Maternal Warmth by IM				-1.21*	3.16*	.05

Note. N = 159. Correlation from regression analysis*:* $p < .05$, ** $p < .001$, one-tailed.

Furthermore, an additional hierarchical regression was run in men to explore the effects from each parent. On Step 1, Interpersonal Manipulation scores, Paternal Warmth scores, and the interaction between Interpersonal Manipulation and Paternal Warmth were entered. On the second step, Maternal Warmth and Maternal Warmth interacting with Interpersonal Manipulation scores were added.

The overall model was significant, predicting 30% of the variance in Antisocial Behaviour in men, $R^2 = .30$, F (5,152) = 13.0, $p < .001$. The first step was significant, accounting for 19.9% of the variance in Antisocial Behaviour scores in men, $R^2\Delta = .20$, $F\Delta$ (3,154) = 12.76, $p < .001$. However, only Interpersonal Manipulation was a significant predictor of Antisocial Behaviour on this step (please see Table 88). Step 2 was also significant, accounting for an additional 10.1 % of the variance in Antisocial Behaviour scores, $R\Delta^2 = .10$ $F\Delta$ (2, 152) = 10.90, $p < .001$. Once the effects of Mother's Rejection/Neglect were added (and the interaction between Interpersonal Manipulation scores and Maternal Warmth as well), only Interpersonal

Manipulation remained significant in addition to the interaction with Maternal Warmth. Statistics for the regression are summarized in Table 88 below.

Table 88

Results of Hierarchical Regression: Examining the effects of Parental Warmth from Mother, over and above effects of Parental Warmth from Father (in Men)

Predictors	Step 1			Step 2		
	β	*t*	sr^2	*β*	*t*	sr^2
Paternal Warmth	.28	.87	.00	-.08	-.21	.01
Interpersonal Manipulation	.69*	2.90*	.04	1.26**	4.21**	.08
Paternal Warmth by IM	-.46	-1.25	.01	.13	.31	.00
Maternal Warmth				.70	1.82	.02
Maternal Warmth by IM				-1.30*	-2.70*	.03

Note. N = 159. Correlation from regression analysis: *p <.05 **p < .001, one-tailed.

Erratic Lifestyle (EL)

Descriptive statistics of all variables entered in this regression are presented in Table 89. For the first step, Erratic Lifestyle subscale score, sex of participant, and Parental Warmth/Acceptance scores for participant's mother were entered. On the second step, 2-way interactions were entered between sex and Maternal Warmth/Acceptance, between sex and Erratic Lifestyle scores, as well as between Erratic Lifestyle and Maternal Warmth/Acceptance. On the third step, a 3-way interaction between the 3 predictors was entered.

Table 89

Descriptive Statistics and Correlations between Sex, Erratic Lifestyle scores, Maternal Warmth/Acceptance and Antisocial Behaviour

Variable	*M*	*SD*	2	3	4
1. Antisocial Behaviour	25.97	8.89	.32**	-.22**	.57**
2. Sex	___	___	___	.02	.23**
3. Maternal Warmth	65.36	15.98		___	-.13*
4. Erratic Lifestyle	40.22	10.00			___

Note. N = 365. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

The overall model was significant, accounting for 43.4 % of the variance in Antisocial Behaviour scores, R^2= .43, F (7, 357) = 39.13, p < .001. Step 1 was significant $R^2\Delta$ = .38, $F\Delta$ (3, 361) = 73.47, p < .001. Men had significantly higher Antisocial Behaviour scores than women. Higher Erratic Lifestyle scores also significantly predicted higher Antisocial Behaviour scores. Conversely, higher Maternal Warmth predicted significantly lower Antisocial Behaviour. Summary of regression statistics are presented in Table 90.

Table 90

Results of Hierarchical Regression: Maternal Warmth, Erratic Lifestyle scores, Sex, and interactions in predicting Antisocial Behaviour scores

Predictors	Step 1			Step 2			Step3		
	β	*t*	sr^2	*β*	*t*	sr^2	*β*	*t*	sr^2
Sex	.21**	4.80**	.04	.09	.35	.00	-1.59*	-2.19*	.01
Erratic Lifestyle	.50**	11.55**	.23	.92**	5.32**	.05	.57*	2.57*	.01
Maternal Warmth	-.16**	-3.72*	.02	.45*	2.64*	.01	.11	.49	.00
Sex by Erratic Lifestyle				.56*	3.01*	.01	2.39*	3.13*	.02
Sex by Maternal Warmth				-.41*	-2.36*	.01	1.34	1.83	.01
Erratic Lifestyle by Maternal Warmth				.56*	3.01*	.01	2.39	3.13	.00
3 Way Interaction							-1.90*	-2.46*	.01

Note. N = 365. Correlation from regression analysis:* $p < .05$, **$p \leq .001$, one-tailed.

Both the second step (2 way interactions among the predictors $R^2\Delta = .05$, $F\Delta$ (3, 358) = 9.43, $p < .001$.) and the third step (3-way interaction among the predictors $R^2\Delta = .02$, $F\Delta$ (1, 357) = 6.07, $p = .014$.) were significant, therefore regression was conducted separating groups by sex to examine the effects of these predictors separately in men and women.

Women.

The overall model was significant, accounting for 28.2% of the variance in Antisocial Behaviour, $R^2 = .28$, F (3, 201) = 26.36, $p < .001$. Descriptive statistics are presented in Table 91.

Table 91

Descriptive Statistics and Correlations between Erratic Lifestyle scores, Maternal Warmth and Antisocial Behaviour, in Women

Variable	*M*	*SD*	2	3
1. Antisocial Behaviour	23.44	6.84	-.17*	.52**
2. Maternal Warmth	64.97	16.43	___	-.18*
3. Erratic Lifestyle	38.14	9.76		___

Note. $N = 205$. Correlations from regression analysis: *$p < .05$, **$p < .001$, one-tailed.

The first step of the model was significant, accounting for 31% of the variance in Antisocial Behaviour, $R^2\Delta = .28$, $F\Delta$ (2, 202) = 39.03, $p < .001$. Only Erratic Lifestyle scores significantly predicted Antisocial Behaviour scores ($\beta = .51$, $t = 8.39$, $p < .001$, $sr^2 = .25$) on this step. Maternal Warmth was not a significant predictor of Antisocial Behaviour in this group, and no significant interaction was found.

Men.

The overall model was significant, accounting for 42.2% of the variance in Antisocial Behaviour, R^2= .42, F (3, 155) = 37.79, p < .001. Descriptive statistics for the predictors are presented in Table 92.

Table 92

Descriptive Statistics and Correlations between Erratic Lifestyle scores, Maternal Warmth/Acceptance and Antisocial Behaviour, in Men

Variable	*M*	*SD*	2	3
1. Antisocial Behaviour	29.27	10.12	-.33**	.56**
2. Maternal Warmth	66.0	15.38	___	-.10
3. Erratic Lifestyle	42.93	9.73		___

Note. N = 159. Correlations from regression analysis: *p < .05, **p < .001, one-tailed.

The first step of the model was significant, accounting for 38.4% of the variance in Antisocial Behaviour scores in men, $R^2\Delta$ = .38, $F\Delta$ (2,156) = 48.58, p < .001. Both Maternal Warmth and Erratic Lifestyle scores significantly predicted Antisocial Behaviour, in that higher Maternal Warmth predicted lower Antisocial Behaviour, while higher Erratic Lifestyle scores predicted higher Antisocial Behaviour. Step 2 was also significant, with the interaction accounting for an additional 3.9% of the variance in Antisocial Behaviour scores, $R^2\Delta$ = .04, $F\Delta$ (1, 155) = 10.38, p = .002. The significant interaction between Maternal Warmth and Erratic Lifestyle scores indicated that the relationship between Erratic Lifestyle and Antisocial Behaviour is moderated by Maternal Warmth in men. Statistics for the regression are summarized in Table 93.

Table 93

Results of Hierarchical Regression: Maternal Warmth, Erratic Lifestyle scores, and Interaction in predicting Antisocial Behaviour scores (in Men)

Predictors	Step 1			Step 2		
	β	*t*	sr^2	*β*	*t*	sr^2
Maternal Warmth	-.27**	-4.33**	.07	.55*	2.09*	.02
Erratic Lifestyle	.53**	8.36**	.28	1.34**	5.17**	.10
Maternal Warmth by Erratic Lifestyle				-1.11*	-3.22*	.04

Note. N = 159. Correlation from regression analysis*:* $p < .05$, ** $p < .001$, one-tailed.

Furthermore, since Parental Warmth had a significant effect in men from both parents, an additional hierarchical regression was run in men to explore the effects from each parent. On Step 1, Erratic Lifestyle scores, Paternal Warmth scores, and the interaction between Erratic Lifestyle and Paternal Warmth were entered. On the second step, Maternal Warmth and Maternal Warmth interacting with Erratic Lifestyle scores were added.

The overall model was significant, predicting 42.3% of the variance in Antisocial Behaviour in men, $R^2 = .42$, F (5,152) = 22.33, $p < .001$. The first step was significant, accounting for 33.6% of the variance in Antisocial Behaviour scores in men, $R^2\Delta = .34$, $F\Delta$ (3,154) = 25.97, $p < .001$. However, only Erratic Lifestyle significantly predicted Antisocial Behaviour on this step (please see Table 92). Step 2 was also significant, accounting for an additional 8.8 % of the variance in Antisocial Behaviour scores, $R\Delta^2 = .09$ $F\Delta$ (2, 152) = 11.54, $p < .001$. Once the effects of Mother's Rejection/Neglect were added (and the interaction between Erratic Lifestyle scores and Maternal Warmth as well), only Erratic Lifestyle remained

significant in addition to the interaction with Maternal Warmth. Statistics for the regression are summarized in Table 94 below.

Table 94

Results of Hierarchical Regression: Examining the effects of Parental Warmth from Mother, over and above effects of Parental Warmth from Father (in Men)

Predictors	Step 1			Step 2		
	β	*t*	sr^2	*β*	*t*	sr^2
Paternal Warmth	.34	1.11	.01	.24	.61	.00
Erratic Lifestyle	.92**	3.74**	.06	1.40**	5.06**	.10
Paternal Warmth by Erratic Lifestyle	-.59	-1.56	.01	-.29	-.63	.00
Maternal Warmth				.41	1.13	.00
Maternal Warmth by 3 Factor Psychopathy				-.95*	-2.09*	.02

Note. N = 159. Correlation from regression analysis: *p < .05 **p < .001, one-tailed.

Appendix B –Ethics Clearance

Brock University
Research Ethics Office
Tel: 905-688-5550 ext. 3035
Email: reb@brocku.ca

Social Science Research Ethics Board

Certificate of Ethics Clearance for Human Participant Research

DATE:	4/16/2014		
PRINCIPAL INVESTIGATOR:	BOOK, Angela Psychology		
FILE:	13-191 - BOOK		
TYPE:	Masters Thesis/Project	STUDENT: SUPERVISOR:	Nathalie Gauthier Angela Book

TITLE: Personality and Environment

ETHICS CLEARANCE GRANTED

Type of Clearance: NEW Expiry Date: 4/30/2015

The Brock University Social Sciences Research Ethics Board has reviewed the above named research proposal and considers the procedures, as described by the applicant, to conform to the University's ethical standards and the Tri-Council Policy Statement. Clearance granted from 4/16/2014 to 4/30/2015.

The Tri-Council Policy Statement requires that ongoing research be monitored by, at a minimum, an annual report. Should your project extend beyond the expiry date, you are required to submit a Renewal form before 4/30/2015. Continued clearance is contingent on timely submission of reports.

To comply with the Tri-Council Policy Statement, you must also submit a final report upon completion of your project. All report forms can be found on the Research Ethics web page at http://www.brocku.ca/research/policies-and-forms/research-forms.

In addition, throughout your research, you must report promptly to the REB:

a) Changes increasing the risk to the participant(s) and/or affecting significantly the conduct of the study;
b) All adverse and/or unanticipated experiences or events that may have real or potential unfavourable implications for participants;
c) New information that may adversely affect the safety of the participants or the conduct of the study;
d) Any changes in your source of funding or new funding to a previously unfunded project.

We wish you success with your research.

Approved:

Jan Frijters, Chair
Social Sciences Research Ethics Board

Note: Brock University is accountable for the research carried out in its own jurisdiction or under its auspices and may refuse certain research even though the REB has found it ethically acceptable.

If research participants are in the care of a health facility, at a school, or other institution or community organization, it is the responsibility of the Principal Investigator to ensure that the ethical guidelines and clearance of those facilities or institutions are obtained and filed with the REB prior to the initiation of research at that site.

Appendix C –Mturk Advertisement

Questionnaires : Personality and Environment

Looking for people over the age of 18, whose first language is English and who live in the United States to participate in a study looking at people's environment and how different factors can interact with personality traits. Participants will be asked to fill out some questionnaires about themselves. Takes about 45 minutes

This research project has been reviewed
and received ethics clearance through the Research Ethics Board at Brock, REB 13-191

Compensation of $2 CAN.

Survey link: _____

There will be a confirmation code at the end of the debriefing form. Please, enter your confirmation code in the box below.

[ ] *

** Need code or script to stop people from taking it without completing multiple times in order to be paid multiple times (does not identify people, confidentiality is maintained)*

Appendix D

Facebook/Twitter Advertisement

(This will be a link posted to facebook that can be shared. No "friending" of the account or login required. The link will take them to the Qualtrics online consent form and survey)

Looking for people over the age of 16, whose first language is English and to participate in a study looking at people's environment and how different factors can interact with personality traits. Participants will be asked to fill out some questionnaires about themselves and to complete some logic puzzles. Takes about 60 minutes.

Appendix E

Personality and Environment

Information and Consent Form

Date: April 2014

Principal Student Investigator:
Nathalie Gauthier
MA Candidate
Department of Psychology
ng04bn@brocku.ca

Faculty Supervisor:
Dr. Angela Book
Associate Professor
Department of Psychology
Brock University
abook@brocku.ca
(905) 688-5550 ext. 5223

Purpose:

- The purpose of this study is to determine how environment may interact with certain personality types.

What's Involved:

- As a participant, you will be asked to complete some questionnaires about your behaviours and attitudes. You will also be asked about some of your background, and to complete a few short logic puzzles.
- Participation will take approximately 1 hour of your time.

Potential Benefits and Risks:

- Participation in this study may give you a better understanding of psychological research and the methods used to explore psychological topics.
- The results of this research are likely to contribute to a better scientific understanding of how environment interacts with different personality types, and the personality characteristics that may be related to different outcomes later in life.
- Some questions will relate to your personal experiences. You will be asked some questions about sensitive topics, such as drug use, involvement in criminal activity, and childhood traums. If any of the questions make you feel uncomfortable, you can choose not to answer them. If discussing life events make you feel uncomfortable or distressed in any way, you may contact Brock Counselling services (see http://www.brocku.ca/personal-counselling, or call (905) 688-5550 ext. 4750) for confidential support.

Compensation:

- This study counts as 1 credit towards research participation assignments in psychology courses (such as PSYC 1F90) that have this requirement.

Confidentiality:

- Information that you provide will be kept confidential.

- The data you provide during your participation in the present study will remain anonymous. Your questionnaire responses will be coded with an arbitrary number that will not be associated in any way with your name.
- Because our interest is in the average responses of the entire group of participants, you will not be identified individually in any way in written reports of this research.
- Data will be stored in a locked lab, and will only be accessed by the researchers and research assistants. Data will be destroyed 5 years following publication.
- Please note that, Mechanical Turk and Qualtrics are based in the United States and therefore are subject to American Homeland Security laws such as the Patriot Act.

Voluntary Participation:

- As previously stated, your participation in the present study is completely voluntary and you may decline to respond to any questions asked of you. Additionally, you may withdraw at any point until completion of study. Should you choose to withdraw, any incomplete data that has been collected will not be utilized. Once the data have been submitted and the session is over, you will be unable to withdraw your responses as responses are anonymous and therefore cannot be linked to your name.

Publication of Results:

- Results of this study may be published in professional journals and presented at conferences.
- Feedback about this study will be available upon request from the Faculty Supervisor in September 2014.

Contact Information and Ethics Clearance:

- If you have any questions about this study or require further information, please contact the Principal Student Investigators or the Faculty Supervisor using the contact information provided above.
- This study has been reviewed and received ethics clearance through the Research Ethics Board at Brock University (File # _____). If you have any comments or concerns about your rights as a research participant, please contact the Research Ethics Office at (905) 688-5550 ext. 3035, or reb@brocku.ca.

Thank you very much for your assistance in this project!

Please keep a copy of this form for your records.

Consent

I have read the above form and I agree to participate in this study described above. I have made this decision based on the information I have read in the Information and Consent Form. I have had the opportunity to receive any additional details I wanted about the study and understand that I may ask questions in the future. I understand that I may withdraw this consent at any time until completion of all materials.

Appendix F Demographic Information – Personality and Environment

1. Male/Female

2. Age: _____

3. Race: _____

4. Nationality: _____

5. Please indicate your education level
    a. Some high school
    b. Completed high school
    c. Some post secondary education
    d. Completed post secondary education
    e. Graduate school (MA/PhD)

6. Occupation:_____

7. Please indicate if you have ever been diagnosed with any mental health conditions

_____

Appendix G ***Self-Report Head Injury Measure***

1. Have you ever been hospitalized for (circle any that apply):
    a. Fractures Y N
    b. Illness Y N
    c. Surgery Y N
    d. Neurological complications Y N
    e. Other Y N

If you answered Y to any of the above, briefly please provide details:
e.g. How old were you? How did it happen? _____
_____
_____

2. Have you ever been diagnosed with a neurological condition? Y N

3. Have you ever been diagnosed with a psychiatric condition? Y N

4. Are you currently taking any prescribed medications for a neurological or psychiatric condition? Y N

    a. If Yes, if you wish to disclose what medication please do so: _____

5. Have you ever sustained an injury to your head with a force sufficient to alter your consciousness (e.g. dizziness, vomiting, seeing stars, or loss of consciousness, or confusion)? Y N

[If you answered **no** to this question you may move ahead to question 41]

If yes to question 5, please answer the following questions (if you have had more than one injury, please refer to the *most recent* time you injured your head):

6. If you answered yes to question 5, did you experience these symptoms for more than 20 minutes? Y N

7. Did you experience a loss of consciousness associated with the head injury? Y N

    i. If so, how long was the loss of consciousness?
        1. [ ] < 5 minutes
        2. [ ] < 30 minutes
        3. [ ] < 24 hours
        4. [ ] < 1 week
        5. [ ] < 1 month
        6. [ ] > 1 month

8. If applicable, where did you strike your head?
    a. Front of the head
    b. Right side of the head
    c. Left side of the head
    d. Other Provide brief details: _____
    e. I can't remember

9. How did you injure your head?

    i. [ ] Motor vehicle collision
    ii. [ ] Sports-related injury
    iii. [ ] Falling
    iv. [ ] Other Please Specify:_____

10. Please briefly describe the incident during which the head injury occurred:

_____

_____

_____

11. Please answer the following questions:

    a. Did the head injury result in a concussion? Y N

    b. Did it require stitches? Y N

    c. Did you receive medical treatment for your injury? Y N

    d. Did you stay overnight at a medical care facility? Y N

    e. Approximately how old were you at the time ___

    f. How many months or year(s) have past since you hit your head? ___

12. Have you sustained *more than one* injury to your head with a force sufficient to alter your consciousness (e.g. dizziness, vomiting, seeing stars, or loss of consciousness, or confusion)?

Y N

    a. **If yes**, how many times? ___

13. **If you answered yes to question 12**, did you experience these symptoms for more than 20 minutes? Y N

If you responded yes to question 12, please answer the following with respect to your *least recent* head injury:

14. Did you experience a loss of consciousness associated with the least recent head injury?
    Y N

    i. If so, how long was the loss of consciousness?
        1. [ ] < 5 minutes
        2. [ ] < 30 minutes
        3. [ ] < 24 hours
        4. [ ] < 1 week
        5. [ ] < 1 month
        6. [ ] > 1 month

15. If applicable, where did you strike you head?
    a. Front of the head
    b. Back of the head
    c. Right side of the head
    d. Left side of the head
    e. Other Provide brief details: _____
    f. I can't remember

16. How did you injure your head?
    i. [ ] Motor vehicle collision
    ii. [ ] Sports-related injury
    iii. [ ] Falling
    iv. [ ] Other Please Specify:_____

17. Please briefly describe the incident during which the least recent head injury occurred:

_____

_____

_____

18. Please answer the following questions:

    a. Did the head injury result in a concussion? Y N

    b. Did it require stitches? Y N

    c. Did you receive medical treatment for your injury? Y N

    d. Did you stay overnight at a medical care facility? Y N

    e. Approximately how old were you at the time ___

f. How many months or year(s) have past since you hit your head? ___

19. Have you ever experienced any other neural trauma (e.g. stroke, anoxia)? Y N
    a. **If yes**, please explain:

_____

_____

Appendix H **Family Affluence Scale**

Growing up…

Did your family own a car, van or truck?	No	Yes, one	Yes more than one
Did you have your own bedroom?	No	Yes	

How many times per year did you travel with your family on Holidays?

Not at all	Once	Twice	More than twice

How many computers did your family own?

One	Two	More than two

Appendix I **Additional SES Questions**

What would you categorize your family as, growing up?
Lower class Lower-middle class Upper-middle class Upper class

What level of education did your parents complete?
Mother University/College degree complete Some University/College
High School Diploma Some High School

Father University/College degree complete Some University/College
High School Diploma Some High School

Parental
Occupation_____

Did you go on school trips (that you had to pay for)?
Often Sometimes Never

Did your parents help you buy your first car?
Paid all of it Paid some of it Paid none of it

Are your parents helping you pay for school?
Paid all of it Paid some of it Paid none of it

Appendix J **Study Debriefing**

Thank you for participating in this study!

The study you have just participated in is about the differences in how environmental factors can influence the way individuals use personality traits. We are interested in whether certain childhood influences and personality can affect attitudes and behaviours.
In this study, you were asked several questions regarding your attitudes and behaviours, your childhood experiences, as well as to complete some logical puzzles.

We are interested in whether some early childhood experiences or individual differences predict better outcomes later in life. In particular, we are interested if some personality features, as well as early childhood abuse or neglect, or head injury, can predict antisocial behaviour later in life. We are also investigating if certain protective factors, such as parental warmth and high intelligence can act as a buffer and predict successful outcomes.

Should you have any questions or concerns regarding this study, please contact the principal student investigator, Nathalie Gauthier at the email address provided below. Alternatively, you may contact the faculty supervisor, Dr. Angela Book, at abook@brocku.ca.

If you feel distressed at all about the life event questions in this study, you should feel free to contact Brock Counseling Services (see http://www.brocku.ca/personal-counselling, or call (905) 688-5550 ext. 4750). Alternatively, please contact your local crisis line.

The results of this research will be available will be available from the faculty supervisor in September 2014. If you would like to receive information about the results of this research, please send an email to abook@brocku.ca at that time.

Until this study is complete, please do not discuss the content of this study with other Brock University Psychology students. Discussing the content of this study with others who have not completed it yet could affect how they respond. We would really appreciate your help on this!

Thank you once again for your time!

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