

PERCEIVED SOCIAL SUPPORT FOR PROSOCIAL,  
UNCONVENTIONAL AND ANTISOCIAL BEHAVIOUR IN  
YOUNG ADOLESCENTS

---

A thesis submitted in partial fulfilment of the requirements for the Degree  
of Master of Arts in Psychology  
at the University of Canterbury

by K. R. Perry

University of Canterbury

2010

---

## TABLE OF CONTENTS

---

Table of Contents	2
Acknowledgements	4
List of Tables	5
Abstract	6
Introduction	7
<i>Constitutional Risk Factors for Antisocial Behaviour</i>	8
<i>The Contribution of Life Experiences to the Development of Antisocial Behaviour</i>	16
<i>Antisocial Behaviour in Adolescence</i>	22
<i>Perceived Social Support for Antisocial Behaviour</i>	27
Method	29
<i>Participants</i>	29
<i>Measures</i>	29
<i>Procedure</i>	32
<i>Statistical Analysis</i>	33
Results	34
<i>Psychometric Properties of the Perceived Social Support Questionnaire</i>	36
<i>Analysis of Participant Responses</i>	38
<i>Gender Comparisons</i>	42
<i>Analysis of Aggression and Callous-Unemotional Traits</i>	43
<i>Analysis of Parental Criminality and Exposure to Crime</i>	44
<i>Analysis of Parenting Style</i>	45

Discussion	47
<i>Psychometric Properties of the Perceived Social Support Questionnaire</i>	47
<i>Parents and Peers</i>	48
<i>Gender</i>	49
<i>Aggression and Callous-Unemotional Traits</i>	51
<i>Parental Criminality and Exposure to Crime</i>	52
<i>Parenting Style</i>	53
<i>Unconventional Behaviour</i>	54
<i>Future Research Directions</i>	55
<i>Conclusion</i>	56
References	58
Appendices	64
<i>Appendix 1: Perceived Social Support Questionnaire</i>	64
<i>Appendix 2: List of criminal activities adapted from police crime categories</i>	69

## ACKNOWLEDGMENTS

---

A number of people have offered me support and encouragement during the production of this thesis.

Firstly, I wish to thank Dr Nina McLoughlin for her time, encouragement and incredible commitment to this project. I truly would not have been able to do this without you.

I also want to acknowledge my supervisor Dr Anthony McLean, thank you for your assistance and guidance over the past few years.

Thank you to all my friends for your support and interest. Vinny, thanks so much for your help. To all my clinical classmates, thanks for all the encouragement and your thoughtful texts and emails; you guys really helped me to keep going when things were tough.

To my family, I am so grateful to you all for your unwavering support. Mum, Dad, Logan and Morgan; you are always there for me, thank you.

Tyler, thank you for believing in me, for understanding and for always listening.

**LIST OF TABLES**

---

Table 1	Ethnicity of Sample	29
Table 2	Means, Standard Deviations and Item-Total Correlations for Perceived Social Support Questionnaire	34
Table 3	Variance Explained by Three Sub-components of Questionnaire on Parent Sub-scale	36
Table 4	Factor Analysis of Questions Loading onto Each of the Three Sub- Components for Parent Sub-scale	37
Table 5	Means and Standard Deviation For The Three Sub-components of Questionnaire	39
Table 6	Girls: Means and Standard Deviations	40
Table 7	Boys: Means and Standard Deviations	41
Table 8	Multiple Regression Analysis for Aggression and Callous- Unemotional Traits	43
Table 9	Exposure to Crime and Parental Criminality	45

## ABSTRACT

---

Moffitt (1993) proposed two trajectories for the development of criminal behaviour; one was life-course-persistent offenders with long histories of developmental and behavioural problems and the other was normally developing adolescence-limited offenders who engaged in criminal behaviour for a brief period during the teen years. Moffitt suggested that adolescence-limited offenders mimicked the behaviour of their life-course-persistent contemporaries in order to access the trappings of adulthood, a sign of the “maturity gap” that is hypothesised to occur between physical maturity and social acceptance into adult roles. Consistent with this, Bukowski et al. (2000) found support for an increased attractiveness of antisocial peers during the adolescent years. The goal of the present study was to examine how young adolescents believe others would view different kinds of behaviour. Subjects from a longitudinal study on low socioeconomic families in Christchurch, NZ, completed a questionnaire where they indicated what they believed others would think if they engaged in pro-social, unconventional, and antisocial behaviours. Adolescents rated how they thought parents, same-sex peers, and attractive opposite-sex peers would perceive the different behaviours, and also indicated how they would perceive the same behaviours in an opposite-sex peer. Results showed that, overall, the sample did not think others would approve of antisocial behaviour, and that they would not approve of antisocial behaviour in an opposite-sex friend. However, differences in perceived approval were found when comparisons were made between boys and girls, and across variations in parenting styles of the adolescent’s caregivers. Differences were also found across indicators of different developmental trajectories, such that those youth who are probably on the life-course persistent trajectory expected less disapproval of antisocial behaviour in others than youth who are probably not on that trajectory. These results are partially consistent with Moffitt’s theory.

## INTRODUCTION

---

Identifying indicators that predict the development of criminal or antisocial behaviour is a popular area of research within the psychological and criminology fields. Such research is driven by the hope that risk factors will reveal causes of criminal behaviour that can become the focus of early intervention and prevention. Identification of risk factors that enable early intervention have the potential to reduce the numbers of victims of crime and also to prevent young people from becoming engaged in criminal behaviours and experiencing the myriad of potential negative consequences of this lifestyle.

Criminal behaviour is a serious problem in children and adolescents. Approximately 25% of all crimes serious enough to be reported to the police in a study from the United Kingdom were found to be committed by young people (Rutter, Giller, & Hagell, 1998). Moreover, the majority of these offences tend to be committed by a small number of persistent life-time offenders (4-6% of the cohort). There is now quite strong evidence that interventions with young offenders can indeed be successful in reducing future offending. A meta-analytic review on more than 400 studies by Lipsey (1995) was one of the first to support the effectiveness of correctional treatments with young offenders. However, such interventions are resource-intensive and expensive, and must be employed selectively. Hence, it is of high importance to identify these persistent offenders early in life, but it is also clear that effective interventions with them can have wide ranging benefits in terms of improving the quality of life for themselves and their families as well as for the public in terms of reductions in future offending.

There is comprehensive literature on the risk factors for offending, which has identified a number of factors that are common in young people who engage in crime. Research indicates that boys are at particularly high risk for criminal behaviour. Other risk factors include early signs of disruptive behaviour, attention hyper-activity problems, low intelligence, callous-unemotional traits, teenage parent(s) with poor parenting skills, a high-stress family environment and high rates of

delinquency in the neighbourhood and/or school (Frick et al., 2003; Hawkins et al., 1998; Hill, 2002; Lipsey & Derzon, 1998; Loeber, Stouthamer-Loeber, Van Kammen, & Farrington, 1991; Loeber & Farrington, 2001). Research also shows that early onset offenders have two to three times greater risk of becoming chronic offenders than those who begin offending later in adolescence (Moffitt, 1993).

Risk factors can be categorised in a number of different ways. Here we will consider risk factors which are stable, and possibly innate, before addressing the more dynamic factors that are dependent on life experiences.

### *Constitutional Risk Factors For Antisocial Behaviour*

Many risk factors for antisocial behaviour that have been supported in the literature are factors over which the individual, and perhaps their parents, have little control. Some of these may be determined prior to birth as a consequence of the child's unique genetic make-up.

Many researchers have found evidence for a relationship between temperament and criminal behaviour. Temperament has been found to be relatively stable over time (e.g Newman, Caspi, Moffitt & Silva, 1997) and the early identification of a "difficult temperament" appears to be a predictor of later conduct problems. Characteristics of a "difficult temperament" are usually thought to include traits such as impulsivity, high activity levels, and negative emotionality (Andrews & Bonta, 2006), and a number of studies have found that traits such as these are associated with antisocial or criminal activity (e.g Baker & Yardley, 2002; Geurin, Gottfried & Thomas, 1997).

Henry, Caspi, Moffitt and Silva (1996) used a sample of 536 men from the Dunedin (NZ) Multidisciplinary Health and Development Study to investigate the relationship between childhood temperament and convictions at age 18. They found that a childhood temperament characterised by emotional lability, restlessness, impulsiveness, and negativism, was associated with convictions for violent offences at age 18. Other studies, such as the Montreal study (Tremblay, Pihl, Vitaro, & Dobkin, 1994), have found that impulsivity (measured as fidgeting and over-activity in kindergarten



at age five) was the best predictor of delinquency at age 13. Although this relation has been contested by other researchers such as Belsky, Hsieh, and Crnic (1998), temperament has been implicated in the development of criminality since Glueck and Glueck's (1970) classic work on youth offending. Glueck and Glueck conducted assessments on 1000 young men (average age 14.5 years) half of whom had engaged in criminal behaviour and half who had not. They conducted follow-up measures on this group approximately 16 years after the original assessment when the sample was 31 years old.

There is substantial evidence from twin and adoption studies that conduct problems and antisocial behaviour are partially inherited. Heritability estimates for conduct problems vary from .2 to .8 with the majority of studies reporting heritability estimates between .4 and .7 (Simonoff et al., 1997). Miles and Carey (1997) conducted a meta-analysis of twin and adoptee studies of aggression and found that heritability was higher for antisocial behaviour that persisted into adulthood than for antisocial behaviour limited to childhood and adolescence. This suggests that some of the variation in results across studies can be explained in terms of the age at which antisocial behaviour is assessed.

Genetic factors are known to interact with environmental influences in a number of different ways, resulting in different outcomes. It is important therefore to consider the influence of genetic factors along with environmental factors and the experiences of the individual. Bohman (1996) found that biological parent criminality and criminogenic risk factors in the environment interacted to influence the presence or absence of criminal behaviour in the adult years. Specifically, the risk for criminal behaviour was much greater when both genetic and environmental risk factors were present. A number of different genes may be responsible for influencing behaviours or characteristics that result in delinquency and different combinations of these genes may work to either increase or decrease tendencies towards antisocial behaviour (Rutter et al., 1998). It is, therefore, important to consider both genes and environmental influences, and how these factors interact with each other, when investigating risk for criminal behaviour.

Studies on criminal and antisocial behaviour have consistently found a relationship between neurocognitive impairments and antisocial behaviour. Deficits in verbal skills for example, are commonly found among young people with antisocial and disruptive behaviours. Lynam, Moffit and Stouthamer-Loeber (1993) sought to investigate the link between IQ and delinquency and to establish the directionality of this association. They used a sample of boys aged 12-13 from the longitudinal Pittsburgh Youth Study. Lynam et al. (1993) found that the boys who scored high on a measure of delinquency (the Self-Report Delinquency questionnaire, Elliot et al., 1985 cited in Lynam et al., 1993) scored approximately 10-11 points lower than non-delinquent boys on both the Verbal and Full Scale IQ of the WISC-R intelligence test (Wechsler, 1974, cited in Lynam et al., 1993). Interestingly, the boys who scored high on delinquency had Performance IQ scores significantly higher than their own Verbal IQ scores. This indicates that, although overall the delinquent boys had lower IQs, they were particularly impaired compared to non-delinquents on measures of Verbal IQ. Lynam et al. found these results after controlling for confounds such as race, socioeconomic status, academic achievement and test motivation. They also noted that their results suggested that the directionality of the relationship between IQ and delinquent behaviour was from IQ to delinquency. Farrington and Hawkins (1991) found that low verbal IQ at ages eight to ten years predicted persistent offending outcomes between the ages of 21 and 32.

Executive functioning is another area where deficits may be related to criminal behaviour. Foster, Hillbrand, and Silverstein (1993) found that male forensic patients who performed poorly on neuropsychological assessments, such as the Stroop Colour Word Test, showed a higher frequency and severity of aggression during their stay in hospital. While, Raine et al. (2005) concluded that life-course-persistent offenders had profound neurocognitive impairments in comparison to controls and these impairments were independent of abuse, head injury, hyperactivity and psychosocial adversity. These studies suggest that neurocognitive impairments may be associated with more persistent offending and perhaps more serious aggression which is also related to criminal behaviour (Hill, 2002).

Gray (1987) proposed that activating and inhibitory behavioural systems influence the behaviour of an individual. He suggested that the Behavioural Activation System (BAS) was responsible for initiating behaviour to obtain a positive gain or reward and the Behaviour Inhibition System (BIS) was responsible for inhibiting behaviour that would result in punishment. Quay (1993) argued that antisocial behaviour stems from an imbalance between the BAS and the BIS systems, where the activity of the inhibiting response did not function as expected. Many of the symptoms of disorders known to be associated with antisocial behaviours such as Conduct Disorder and Attention-Deficit/Hyperactivity Disorder can be understood in terms of Gray's BIS and BAS. The underactivation of the BIS system and overactivation of the BAS can explain why children with these disorders are often fixated on gaining reward despite the presence of punishment (Matthys, Van Goozen, Vries, Cohen-Kettenis, & Van Engeland, 1998). The result of this recurring behaviour pattern, engaging in behaviours that are punishable despite knowledge of the potential consequences, is perceived as delinquent or antisocial behaviour. Most children with Attention-Deficit/Hyperactivity Disorder do not have later conduct problems or go on to develop Conduct Disorder; it is the combination of Attention-Deficit/Hyperactivity Disorder and early conduct problems that is strongly predictive of later antisocial behaviour (Moffitt, 1990; Tarolla, Wagner, Rabinowitz, and Tubman, 2002). However, the diagnostic criteria for Conduct Disorder and Oppositional-Defiant Disorder include behaviours that are widely considered to be antisocial. Therefore, some inclination towards acting in antisocial ways or at least having some deviant or delinquent behaviours must be present in children who have these diagnoses (APA, 2000).

Childhood aggression has also received much attention in the literature on antisocial behaviour. Aggression is not necessarily a stable factor; however, as discussed above, research on childhood temperament has found considerable stability of such traits over time (Newman, Caspi, Moffitt & Silva, 1997). Both overt aggressive actions and misinterpretations of others' behaviour as aggressive have been found to be associated with antisocial behaviour (Hill, 2002). For example, a review by Parker and Asher (1987) found that aggression predicted later delinquency (especially

when paired with peer rejection). Some studies have attempted to measure different types of aggressive acts and how they relate to delinquency, for example Crick (1996) distinguished between “overt” aggression (e.g., physical force) and covert or “relational aggression” (e.g. trying to hurt an acquaintance by befriending someone who the acquaintance dislikes). Using a longitudinal study, Crick (1996) found that measures of both overt and relational aggression predicted future social maladjustment, and each contributed unique variance. In a cross-national study with sites in Canada, New Zealand and the United States, Broidy et al. (2003) found that childhood physical aggression in boys was the most consistent predictor of violent and non-violent offending in adolescence. They also concluded that children with chronic physical aggression and/or serious conduct problems as early as kindergarten (preschool) were more at risk for continuing to engage in physically aggressive acts throughout adolescence and adulthood.

The majority of the studies reviewed here have attempted to identify youth at risk for offending behaviour by focusing on the presence of various behavioural indicators observed during development. However, Paul Frick and colleagues have suggested an alternative view based on the adult construct of psychopathy. Frick suggested that research has focused too exclusively on a narrow range of risk factors. He advocated for greater attention to broader constructs that capture the individual’s interpersonal and affective style (Frick, Stickle, Dandreaux, Farrell, and Kimonis, 2005). Frick’s investigations of psychopathy in youth indicated that the construct could be divided into three main dimensions; impulsivity, narcissism and callous-unemotional (CU) traits (defined as a lack empathic concern or guilt regarding the negative effects of their behaviour on others; Blair, Jones, Clark, & Smith, 1997). This model is similar to the research discussed above that has focussed on certain temperamental factors as increasing risk for antisocial behaviour; however, Frick and colleagues have focussed specifically on the predictive validity of these three dimensions. Of these dimensions, CU traits have received increasing attention in the literature as they have been identified as an important factor present in those with particularly severe antisocial behaviour that is stable over time (Frick & White, 2008). For example, Essau, Sasagawa, and Frick (2006) found that youth’s

scores for CU traits were significantly correlated with measures of conduct problems as well as indicators of psychosocial impairment such as lower school performance and poorer peer relationships.

Although research on CU traits in youth is increasing, the predictive validity of using youth psychopathy to predict adult offending is not yet established. Research in this area has been limited by the prevalence of cross sectional rather than longitudinal studies and the focus on forensic or clinical samples (Frick, et al., 2005). This means that few studies have collected data from youth before they engage in antisocial behaviour. Frick et al. (2005) addressed this limitation by following a community sample of children of different ages over a four year period with the aim of assessing the predictive validity of CU traits in children with conduct problems. Parents and teachers completed a screening questionnaire to identify the presence of symptoms of Oppositional Defiant Disorder, Conduct Disorder and CU traits. The children were then divided into four groups based on their scores on the measures of Conduct Disorder and CU traits. Frick et al. (2005) found that children with high levels of conduct problems and CU traits showed more antisocial behaviour than the other groups. Specifically, they self reported more delinquency, and had more police contacts, across each of the four assessment periods. They concluded that the results added further support to the use of CU traits in identifying an important group of high risk antisocial youth.

McLoughlin, Rucklidge, Grace, and McLean (under review) conducted a longitudinal study to investigate the validity of CU traits in identifying youth at high risk for antisocial behaviour, and since their study supplies the participant sample used in the present research, it will be described in some detail here. The longitudinal design of this study allows for comparisons over time which is particularly important to understand the development of antisocial and criminal behaviour. McLoughlin et al. constructed a sample consisting of families scoring low on a measure of socioeconomic status. If CU traits and SES are correlated, research may overestimate the extent of the relationship between CU traits and antisocial behaviour. McLoughlin et al. therefore sought to investigate the predictive validity of CU traits for antisocial behaviour while controlling for

socioeconomic status. To do this they constructed a sample of children from low-socioeconomic status neighbourhoods in New Zealand.

McLoughlin et al.'s sample included similar numbers of boys and girls which allowed for between-gender comparisons. Research in this area often focuses solely on male subjects which restricts the generalisability of findings to females. It is therefore a strength of this study that female subjects were included. McLoughlin et al. divided their sample into two groups by identifying a sub-group of children from the sample who were significantly elevated on measures of both CU traits and aggression. Once this group was identified, known risk factors for later offending were evaluated in order to compare the high CU/aggression sub-group and the low CU/aggression sub-group. They found that the children in the High-CU/Aggression group scored higher than the Low-CU/Aggression group on a range of measures including; oppositional behaviour, symptoms of Attention-Deficit/Hyperactivity Disorder and social problems, with many of the measures for the High-CU/Aggression group falling in the clinically significant range. Children in the High-CU/Aggression group were also found to score significantly lower on measures of emotional intelligence and stress management. McLoughlin et al. note that the antisocial behaviours of the High-CU/Aggression group, as well as higher-than-average exposure to stressful life events, were perhaps exacerbated by their poor stress management skills.

Results from the Child Social Behavior Scale (Crick & Grotpeter, 1995) were used to explore different types of aggressive behaviour in the sample. The High-CU/Aggression group engaged in many forms of aggressive behaviour, including verbal, physical, and relational aggression. This pattern places these youth at risk of rejection by normally developing peers (Lyons-Ruth, 1996; Patterson & Yoerger, 1997), reflected in the further finding that the High-CU/Aggression group reported feeling more lonely than the Low-CU/Aggression group. McLoughlin et al. note that rejection from normally developing peers may increase the risk that these children will form relationships with deviant peers. This would potentially increase the risk of engaging in antisocial behaviour in this already high risk group.

McLoughlin et al. also found that measures taken from parents or caregivers indicated that the parents of High-CU/Aggression children engaged in more inconsistent discipline and lower levels of monitoring. It was also found that parents of children in the High-CU/Aggression group had significantly more convictions than parents of Low-CU/Aggression children.

In summary, McLoughlin et al. found that children in the High-CU/Aggression group tended to have higher levels of disruptive behaviour, higher levels of all kinds of aggression, parents with criminal histories, less emotional awareness and parents who engaged in inconsistent parenting. The High-CU/Aggression children therefore, were found to possess more risk factors for criminal behaviour and to higher degrees than Low-CU/Aggression children. Callous-unemotional traits and aggression indeed appear to be able to differentiate children in terms of risk for antisocial and criminal behaviour.

McLoughlin et al.'s study and the research reviewed above have introduced a number of constitutional factors associated with increased risk of crime. These factors are those over which the child and parents have little control, such as genes involved in determining temperament. However, there are also many experiential factors that can act to increase the risk of an individual engaging in criminal behaviour. The study by McLoughlin et al. indicated that many of these risk factors were present in their sample including parental criminality and parenting style. Those individuals who possess more of the constitutional risk factors for antisocial behaviour are also at increased risk for exposure to the experiential factors. For example their "difficult temperaments" make them more difficult to parent consistently, increase the chance that other children will reject them at school and may make them more inclined to engage in risky, impulsive or sensation seeking behaviours which may be illegal. However, those children who are not at high risk for antisocial behaviour due to the absence of constitutional risk factors can still be exposed to experiential risk factors which, even in isolation, have the potential to result in antisocial or criminal behaviour. We turn to these next.

*The Contribution of Life Experiences in the Development of Antisocial Behaviour*

Risk factors for antisocial or criminal behaviour are not all predetermined at birth. Many environmental factors may contribute to the development of antisocial behaviours and a number of these risk factors originate from within the family unit. Parental behaviour and attitudes and the environment of the family home may all influence the paths taken by the children of that family. Some of the risk factors for crime that parents may possess have been mentioned above as they were evaluated as part of the McLoughlin et al. study; others are discussed below.

Exposure to marital conflict and parental discord has been found to be associated with the development of antisocial behaviour. Davies and Cumming (1994) investigated the outcomes for children in a review of the effect of parental conflict on the emotional security of children. They found that conflict that was indicative of significant marital problems, and conflict that involved a direct threat to the child was most distressing for children. However, the frequency, content, form and resolution of conflict can all influence the degree of distress a child may experience on witnessing parental conflict. Conflict does not always have a negative impact on children and seeing conflict resolution strategies can be an important part of development (Davies & Cumming, 1994). Unfortunately, for many children, marital conflict is frequent, violent, unresolved and represents significant threat to the stability of the family unit. For these children difficulties in affect regulation may result due to prolonged states of hyperarousal, significant stress and fear and regular exposure to negative emotions (Davies & Cumming, 1994). Constant or frequent exposure to parental conflict may result in high levels of distress for children which can decrease their ability to effectively regulate their emotions. This can result in antisocial behaviour as the child's behavioural repertoire is restricted to responses that are less controlled and more reactive. In other cases, children may engage in negative behaviour in an attempt to distract parents from conflict by re-directing their attention towards the child. However, when this technique is successful, negative behaviours are reinforced as they are paired with a decrease in distress as parental conflict momentarily ceases (Davies & Cumming, 1994). Children may also learn maladaptive conflict resolution strategies, such



as using aggression, if they see their parents use these strategies. Many of the possible consequences of exposure to parental conflict put children at risk for developing serious antisocial behaviours, such as criminal behaviour.

The use of physical punishment may also be a risk factor for antisocial behaviour but this is not necessarily specific to violent behaviour. For example, Deater-Deckard, Dodge, Bates, and Pettit (1996) found that physical punishment was associated with general conduct problems for Caucasian children in the USA, but not for African American children. Grogan-Kaylor (2004) used the children of a cohort of women involved in a longitudinal study to investigate the effects of corporal punishment on antisocial behaviour. He included only one child from each family and constructed a sample of 1811 children. Mothers from the sample completed a number of measures on the use of corporal punishment in the home and the behaviour of their child. Grogan-Kaylor found that, when controlling for prior levels of antisocial behaviour, the current use of corporal punishment increased the children's antisocial behaviour by a statistically-significant margin. Antisocial behaviour was measured by mother's reports of the child's tendency to engage in behaviour such as cheating, lying, bullying, breaking things deliberately and being disobedient at school. Grogan-Kaylor did not find a significant difference in antisocial behaviour depending on the level of corporal punishment used suggesting that low levels of corporal punishment may have the same effect on antisocial behaviour as higher levels of corporal punishment.

Research suggests that socioeconomic status of the family or neighbourhood may be associated with criminality or antisocial behaviour in young people (Leventhal & Brooks-Gunn, 2000). Lower socioeconomic status may increase the likelihood of family discord and other stressors and impact negatively on parenting style (Chung, Hawkins, Gilchrist, Hill, and Nagin, 2002; McLoyd, 1998). These stressors, as well as poor parenting, put children at risk for antisocial behaviour as parents have less time or ability to engage in positive parenting and spend quality time with their children (Carr, 2008).

The parenting style and skills of the parents are also associated with antisocial behaviour. Unresponsiveness, inconsistent parenting and parental rejection are powerful predictors of offending in young people (Beck & Shaw, 2005; Loeber & Stouthamer-Loeber, 1986; Shaw, Gilliom, Ingoldsby, & Nagin, 2003). Lack of parental involvement and poor monitoring by parents are also risk factors for the development of deviant or antisocial behaviour in children (Andrews & Bonta, 2000). Low parental involvement decreases the opportunity for positive reinforcement of pro-social/desirable behaviours. It may also mean that children engage in antisocial or negative behaviour patterns in a bid to win parental attention (Davies & Cumming, 1994). Furthermore, children have less exposure to parental modelling of pro-social behaviour, conflict resolution and affect-regulation strategies (Andrews & Bonta, 2000). Lack of involvement by parents also creates more distance between the child and the family unit which likely increases the child's desire to affiliate more closely with peers. Decreases in parental monitoring mean that children have more opportunity to engage in antisocial behaviours and develop relationships with deviant peers without parental awareness (Andrews & Bonta, 2000). If parents are unaware that such behaviours are developing they can not intervene or discuss the behaviours and their consequences with their children.

Specific parenting styles have also been investigated. Reviews of the literature on parenting styles have suggested that, by combining the dimensions of warmth and control, four parenting styles can be identified, each with different associated developmental outcomes for children (Darling and Steinberg, 1993). The first parenting style, authoritative parenting, is a child-centred approach which is high on warmth with a moderate degree of control. Authoritarian parents are also warm but high on the control dimension, while permissive parents are high on warmth but low on control. The final parenting style is neglectful and is characterised by low warmth and low control (Carr, 2008). Children with authoritative parents are expected to have the best developmental outcomes due to the combination of warmth and medium control which generally result in well-adjusted children who are able to take age-appropriate responsibility, problem solve and develop good relationships with others

(Carr, 2008). Carr suggests that any of the other three styles can result in poor adjustment and lead to conduct problems. In particular, Carr suggests that there is a strong association between neglectful parenting and conduct problems but he also notes that the lack of adherence to rules in permissive families and the high control of authoritarian families may also be conducive to the development of antisocial behaviours.

The parenting style that is adopted by a family impacts on how the parents and children interact with each other. In particular, the quality of the parent-child relationship appears to influence the development of antisocial behaviour. This relationship begins with the attachment the child makes to the parents as an infant. The parent-child attachment is influenced by a number of different factors such as the child's temperament and the parent's emotional availability and parenting skills. The parent's response to the needs of the child is a consistent predictor of the kind of attachment that develops, with secure attachments resulting from a relationship that is stable and warm and parents who are highly responsive to the child's needs (Ainsworth, 1979). Children with poor or insecure attachments are at increased risk for a number of negative outcomes, particularly in relationships but also potentially in other areas. The attachment formed to one's parents may influence the development of antisocial behaviour. This may be due to poor affect regulation or positive reinforcement for antisocial behaviours as described above (Davies & Cumming, 1994), due to a lack of identification with the family unit or due to disrupted attachments with a number of caregivers, perhaps a consequence of living in foster homes (Andrews & Bonta, 2000).

The nature of parent-child interactions over time has also been found to be associated with antisocial behaviour. Church (2003) noted that parent-child interactions that are characterised by the child's failure to develop age-appropriate compliance to parent's request may be an indicator for the development of antisocial behaviour. Lyons-Ruth (1996) also supports the idea that the parent-child relationship in the early years can predict non-compliance later in life. She believes it is this non-compliance that leads to rejection by "normally developing peers" and the subsequent development of antisocial behaviour patterns.

As discussed previously, criminality of biological parents may increase the risk for antisocial behaviour through genetic pathways (Bohman, 1996). However, criminality or antisocial behaviours in parents or caregivers (biological or not) may also increase the risk of antisocial behaviour either through social learning, or the presence of a criminogenic environment. A criminogenic environment may be made up of several things but in its simplest form refers to an environment which is conducive to criminal behaviour. This may be due to a lack of monitoring from adults, opportunities for criminal behaviour, or acceptance of criminal behaviour, perhaps by parents who engage in this also (Carr, 2008). Criminal behaviour of parents may also be a risk factor for antisocial behaviour if children mimic this behaviour. Social learning theory (Bandura, 1977) suggests that children engage in behaviours that they see modelled by salient individuals, particularly parents (Carr, 2008). Therefore, children may imitate parents who engage in criminality, alcohol abuse, drug use and other antisocial behaviours particularly if they perceive the outcomes or consequences of these behaviours as primarily positive.

Fishbein and Ajzen's (2009) Reasoned Action approach for understanding behaviour can also be applied to explain the development of antisocial behaviour. Reasoned action is thought to be based on three primary beliefs that guide decision about whether or not to engage in behaviours. These beliefs are; beliefs about the consequences of performing the behaviour, beliefs about personal and environmental factors that could impact on an attempt to engage in the behaviour and finally, beliefs about the approval or disapproval of significant others if the behaviour is carried out. Beliefs about whether others will approve or disapprove of certain behaviours is most relevant to this study.

According to Fishbein and Ajzen, individuals consider whether other people will approve or disapprove of their behaviour before they engage in it and that this influences whether the behaviour is carried out or not. For adolescents, who likely live in the parental home, it could be assumed that beliefs about parental approval or disapproval may exert significant perceived (by the adolescent) social pressure in making decisions about behaviour. However, it is also likely that the perceived approval or disapproval of peer group members would exert as much, if not more, social pressure on

adolescents as they spend increasingly more time away from the family home with their with peers (Andrews & Bonta, 2006). It is this perceived social pressure which drives decisions about behaviour that may be an integral factor in the increase of antisocial behaviour during adolescence.

Fishbein and Ajzen's theory provides a framework for understanding why adolescents may engage in antisocial behaviour if they perceive their peer group or family as approving of the behaviour. However, it is also important to understand how antisocial behaviour, which is generally disapproved of by children, becomes approved of or accepted by adolescents. The influence of peers and the development of approval for antisocial behaviour are addressed below.

Peer rejection has been found to be associated with antisocial behaviour. A number of studies have found that peer rejection in early or middle childhood predicts negative social outcomes, such as delinquency, later in life (Asher & Coie, 1990; Coie & Dodge, 1997). Lyons-Ruth (1996) suggests that peer rejection may result if children are non-compliant with adult requests as other children perceive this negatively.

Fergusson, Woodward, and Horwood (1999) investigated the relationship between problems in peer relationships and later delinquent behaviour. They found that peer relationship problems at age 9 were associated with antisocial behaviour at age 18 and that peer problems were correlated with family adversity, poor parenting and attentional/conduct problems. However, when they controlled for these factors, peer relationship problems no longer made an independent contribution to predicting subsequent antisocial behaviour. This suggests that peer relationship problems may be a consequence of conduct problems, not their cause.

Children who have early conduct problems tend to associate with children that behave in similar ways (Chung, Hill, Hawkins, Gilchrist, & Nagin, 2002; Fergusson & Horwood, 1996). In adolescence, affiliation with delinquent peers may sustain pre-existing inclinations for criminal behaviour, provide reinforcement for antisocial acts or allow the opportunity to learn new antisocial behaviours (Andrews & Bonta, 2000). Fergusson and Horwood (1996) investigated the relationship between early behaviour and later offending in order to determine the extent of influence peer

affiliation has on later offending. They used 916 subjects from the Christchurch (NZ) Health and Development Study and compared teacher and parent report of conduct difficulties at age eight with parent and self-report of offending at ages 14 and 16. Fergusson and Horwood constructed a model including conduct problems, affiliation with delinquent peers (at ages 14 and 16) and offending (at ages 14 and 16). Their model indicates that there was a correlation between early conduct problems and offending at age 14 of 0.63. Fergusson and Horwood estimated from their results that 0.19 of that correlation was mediated by peer influences. They also found that, of the correlation of .50 between early conduct problems and offending at age 16, .25 was mediated by peer influences. These results indicate that peer affiliations significantly contribute towards offending.

A number of different risk factors for criminal behaviour have been described above. Many of these are stable, individual factors while others develop as a consequence of life experiences, family dynamics and peer relationships. Research has shown that there is a significant increase of risk for criminal behaviour during adolescence (Hirschi & Gottfredson, 1983; Moffitt, 1993). Moreover, research has also indicated that many of the young people who engage in antisocial behaviour in adolescence possess very few of the risk factors that have consistently been found to be associated with delinquency (e.g. Donnellan, Ge & Wenk, 2000; Moffitt, 1990; Moffitt, 1993; Raine et al., 2005). A number of theories exist that attempt to explain how the risk factors for crime interact to result in this peak of criminal behaviour in the adolescent years. Many authors have questioned why it is that apparently normally-developing children appear to suddenly develop antisocial traits and criminal tendencies when they reach adolescence. Some of these ideas are described below.

### *Antisocial Behaviour in Adolescence*

A popular theory for understanding the development of criminal behaviour, particularly in the adolescent years, has been developed by Terrie Moffitt. According to Moffitt (1993) there are two main trajectories for the development of criminal or antisocial behaviour. Moffitt suggested that

offenders can be grouped as either “life-course-persistent offenders” or “adolescence-limited offenders”. She developed a comprehensive theory regarding these two categories in which she outlined the differences between them on a number of measures including family factors, individual developmental measures, types of crimes committed, period during which criminal activity occurs and motivations for criminal or antisocial behaviour.

Moffitt considered the causal factors that lead to criminal behaviour in life-course-persistent offenders to be present early in childhood, specifically the presence of neuropsychological deficits and environments that are conducive to criminal behaviour. She noted that it is the continuity of antisocial behaviour across time and context that defines these individuals. Their antisocial behaviours change depending on their social development but remain constant across the life course. In fact, the early onset of antisocial behaviour during a developmentally important period means that there is little opportunity for life-course-persistent offenders to learn pro-social behaviour to include in their behavioural repertoire; they have little option but to act in antisocial ways. As children, life-course-persistent offenders are often rejected by other children due to their non-compliance and aggressive behaviour. However, as adolescents they can become admired by their peers. Moffitt suggested that the life-course-persistent offenders might have little interest in those peers that seek to emulate their behaviour other than perhaps exploiting them as willing participants and accomplices for their antisocial acts.

Conversely, adolescence-limited offenders tend to have more proximal causal factors for criminal behaviour that are not chronic, which creates a pattern of increased criminality during the teen years. In early adulthood these individuals seem to, for the most part, effortlessly desist from criminal or antisocial behaviour. Many of the risk factors reviewed above, particularly the constitutional factors, would be more pertinent to the life-course-persistent than the adolescence-limited offenders. In particular, the aggressive and callous-unemotional characteristics studied by McLoughlin et al. appear to be most prominent among youth who go on to commit offences throughout their lives (in Moffitt’s terms, the life-course-persistent offenders).

Moffitt (1993) developed the “Maturity Gap” theory to explain the onset of antisocial behaviour in the adolescence-limited offenders as many of the widely researched risk factors for crime appeared to be largely absent among this group of young people. The lack of risk factors made explaining their apparently sudden foray into criminal behaviour more difficult than explaining the ongoing antisocial behaviour of the life-course-persistent group.

Moffitt described the maturity gap as the time lapse between biological maturity and reaching the social status of an adult. She noted that, in the past, biological maturity came at a later age and the social status of being an adult came earlier as people tended to marry, gain full-time employment and bear children at younger ages than they do now (Moffitt, 1993). However, changes in the societal structure as well as health and nutrition have meant that young people reach biological maturity at younger ages, yet they must wait longer to achieve adult status due to laws restricting activities such as voting, driving and purchasing alcohol (Cabanese et al., 2009; Graham, Larsen & Xu, 1999). Tertiary education and the trend to remain at secondary school until approximately age 17-18 have led to delays in having children and in moving away from the parental home (Horan & Hargis, 1991; Moffitt, 1993). Moffitt suggested that those who wait until age 22 or older to start their own families are potentially doing this some ten or so years after sexual maturity. She proposed that the desire to be recognised as an adult but the delay in being able to possess the trappings of adulthood leads to antisocial behaviour in previously pro-social, and often high achieving, adolescents.

It is suggested that young people become aware of the maturity gap at about the time of transition to high school (Moffitt, 1993). At this time, they may be exposed to or become aware of, a number of peers or older adolescents who appear to be coping well with the maturity gap by engaging in adult activities, possessing adult-like possessions and acting independently with little concern about consequences in the school or family environment. These adolescents, according to Moffitt, are the life-course-persistent offenders who at high school age engage in behaviours such as driving fast cars, skipping school, being sexually active and engaging in risky behaviours including theft and alcohol or drug use. The antisocial behaviours that the life-course-persistent offenders



engage in appear to offer adult status as these young people seem to be independent and in control of their lives (Moffitt, 1993). Thus, these previously admonished antisocial actions become the gateway to the coveted world of adulthood for many youth, who subsequently mimic the behaviours of the life-course-persistent group and begin to engage in antisocial and criminal behaviour.

As the adolescence-limited group age, they become aware of the potential legal consequences of their antisocial actions, and also begin to be afforded more responsibility and access to more adult activities. These legitimate gains from maturity are, if anything, risked by a continuation of antisocial behaviour as jobs, relationships, and reputations are all likely to suffer as a result of convictions. Thus, as the maturity gap decreases these young people no longer need to engage in antisocial behaviours, and develop stronger reasons to avoid them, and so they resume their former, more pro-social stance (Moffitt, 1993). By contrast, the life-course-persistent offenders with their long history of risk factors continue to behave in antisocial ways, in many cases, for much of their lives.

There is, however, evidence to suggest that the developmental trajectories for boys and girls offenders may differ. This idea is not addressed in Moffitt's theory of criminal behaviour. Unfortunately, much of the research on antisocial and criminal behaviour has concentrated only on boys. Relatively few studies have compared risk factors for boys and girls; indeed, many studies have used male only samples. The lower rate of crime among girls is a significant factor in restricting the ability to carry out sound research on female samples (Henry et al., 1996). However, the number of female offenders is increasing and so this is an area of research that deserves further attention (Mullis et al. 2004). Moreover, research has indicated that girls are becoming increasingly involved in crime of a violent nature (Poe-Yamagata & Butts 1996).

Research that has shown that boys and girls may follow different pathways to criminal behaviour indicates the importance of conducting research specific to girls in order to ensure best practice in treating female offenders and in trying to prevent criminal behaviour. Silverthorn and Frick (1999) found that girls who first engaged in antisocial behaviour in adolescence had an

increased risk of becoming chronic offenders compared to boys who first engaged in antisocial behaviour at this age. In fact, Silverthorn and Frick found that very few girls engaged in any antisocial behaviour prior to adolescence, and that of those who did engage in antisocial behaviour in their teens, few had positive adult outcomes. It would appear that research in this area shows that girls are not as easily categorised under Moffitt's (1993) two crime trajectories (life-course-persistent and adolescence-limited) as boys.

Support for Frick and Silverthorn's finding can be found in research by McGhee, Feehan, Williams, and Anderson (1992). McGhee et al. conducted research on a New Zealand birth cohort and found a significant decrease in the ratio of severe conduct problems between boys and girls from 2.6:1 (boys: girls) at age 11 years to 0.7:1 at age 15 years. This decrease was explained by the increase of oppositional behaviour of girls between the two time frames.

Bukowski, Sippola and Newcomb (2000) explored the validity of Moffitt's maturity gap theory as part of a longitudinal study on girls and boys with measures taken prior to, during and after they transitioned from elementary school to middle school at approximately age 11-12. Bukowski et al. found support for Moffitt's theory as they found that attraction to (or reported liking of) aggressive peers increased both with age and with entry to middle school. Girls in particular reported increased attraction to aggressive boys at this time, but did not report being attracted to aggressive girls at any time. In keeping with these results, Bukowski et al. also found a decrease in attraction to peers who exhibited "good classroom-based behaviour". Results such as these add credibility to the importance of social support for antisocial behaviour as a causal factor in youth offending; the reported increase in attractiveness strongly suggests that social support (specifically, social signals of approval) increases at exactly the same time that adolescent offending increases.

Bukowski et al. also noted that children in their sample who displayed characteristics of observable prominence (e.g. someone who is liked by everyone, someone who would be a good team captain) were also rated as more attractive following the transition to high school. In particular, Bukowski et al. found that opposite-sex peers that boys and girls were attracted to were more likely

to possess characteristics associated with observable prominence than same-sex peers to whom boys and girls were attracted. Attraction to peers with observable prominence was also seen consistently among children who had high scores on measures of aggression. Therefore, observable prominence may be particularly attractive to children who have difficulties interacting with peers, for example, aggressive children, or at a time of uncertainty, such as changing schools. Some of the characteristics that Bukowski et al. used to define observable prominence such as being a good team captain or being good at sports could be considered as falling into the category of pro-social behaviour. However, the findings of their study do raise questions about how children perceive those who engage in unique or highly observable behaviours that may not be either inherently pro-social or antisocial. Engaging in or experimenting with unconventional or non-conformist behaviours is a relatively common part of identity development during the adolescent years (Carr, 2006). It may be that unconventional behaviours are also perceived as attractive by adolescents. Perhaps, like attraction to aggressive behaviour, the approval of unconventional behaviours also changes when individuals transition to high school or enter adolescence. Measures of aggression, callous-unemotional characteristics or other indicators of an individual's likely crime trajectory, may influence whether they approve, disapprove or are uninterested in the unconventional behaviour of others.

#### *Perceived Social Support for Antisocial Behaviour*

This study is a continuation of the research started by McLoughlin et al. (under review). It seeks to investigate the peer influences typically experienced by adolescents, which have been explored by Bukowski et al. (2000). In this study, we investigated how young adolescents thought their parents and peers would respond to antisocial, pro-social and unconventional behaviour, and also how they would perceive these behaviours if an opposite-sex peer engaged in them. As the youth in this sample were about to enter (or actually entering) adolescence at the time of the study, it would be expected that peer influence would be increasing in importance for them, and it is therefore

of interest to know what they believed to be the social consequences of engaging in antisocial versus pro-social behaviour, separately considering parental and peer reactions to such behaviour. Data from the sample at this age will also provide a valuable early baseline against which to measure change in perceived social support for different classes of social behaviour in the future. In one to two years, when the majority of the sample would have recently transitioned to high school, we would expect to see a different pattern of results from those found in this study as the participants move more definitely into the “maturity gap”.

This study also sought to investigate whether an individual’s status as high or low on callous-unemotional traits or aggression influenced their perceptions of which behaviours others would approve and disapprove of and which behaviours they approved and disapproved of themselves. Bukowski et al. did not compare patterns of response to aggressiveness for antisocial versus pro-social youth, and it is possible that the patterns may differ depending on a child’s behavioural style. According to Moffitt’s theory, adolescence-limited offenders, but not life-course-persistent offenders, are highly influenced by social approval. Since early aggression and callous-unemotional traits have been associated with the life-course-persistent pattern (Lynam, 1996) we have the opportunity to compare perceptions of social support for antisocial behaviour in young adolescents who are likely to be on the life-course-persistent trajectory with those who are unlikely to be. The propensity of life-course-persistent youth for antisocial behaviour may be, at least in part, the result of failures of early socialisation which may be reflected in different perceptions of approval and disapproval by parents from those apparent in other youth. Such a pattern could appear as a perception of positive or neutral parental reactions to behaviour that is less clearly pro-social, and/or a more neutral perception of peer reactions to all behaviours (reflecting indifference) than other youth.

## METHOD

---

### *Participants*

The sample for this study was made up of 81 young adolescents. The original sample from McLoughlin et al.'s (under review) longitudinal research study, on which this study is based, consisted of 117 children, however, some children were unable to be contacted at Time 3 (when data were collected for this study), and others did not complete the Perceived Social Support Questionnaire. The sample included slightly more boys than girls; boys (N=45) made up 55.6% of the sample, while girls (N=36) accounted for the remaining 44.4%. The mean age of the sample was 12.8 years with a range of 11.9 – 13.8 years. Ethnicity was divided into four primary categories which can be seen in Table 1. Where a child's ethnicity had not been given, the ethnicity of the primary caregiver was used.

*Table 1: Ethnicity of Sample*

<b>Ethnicity</b>	<b>Frequency</b>	<b>Percentage</b>
NZ European	43	53.1
NZ Maori + NZ European/Maori	26	32.1
Pacific Island (Samoan, Tongan, NZ/Samoan)	7	8.6
Other	5	6.2

### *Measures*

As part of their study, McLoughlin et al. completed thorough assessments on the sample and their caregivers and collected a broad range of information including child behaviour, family functioning, parental criminality, and psychopathy. The measures from McLoughlin et al. that are used in this study, as well as a new questionnaire, the "Perceived Social Support Questionnaire", are described below.

### *Socioeconomic Status*

The socioeconomic status of each participant was estimated using the New Zealand Socioeconomic Index of Occupational Status (NZSEI - Davis, et al., 1997). However, 32 participants from McLoughlin et al.'s study had no occupational status, which is required in order to assign socioeconomic status. A proxy socioeconomic status based on the formula  $NZSEI-96 = 9.966 + 3.182 * \text{Years in Education} + 0.209 * \text{Age}$  was calculated as recommended by Davis et al. (1997).

### *Inventory of Callous-Unemotional traits (ICU; Frick, 2003)*

The ICU is a 24 item questionnaire derived from the Anti-Social Processing Screening Device (APSD - Frick & Hare, 2001) and focuses purely on Callous-Unemotional traits. The parents or caregivers of the children in the sample answered each of the 24 questions on a four-point scale ranging from 0 (not at all true) to 3 (definitely true). No published norms are available for this questionnaire; however, internal consistency scores for the ICU has been shown to be acceptable ( $\alpha = 0.72$ , Munoz & Frick, 2007).

### *Youth Self Report for ages 11-18 (YSR:11-18; Achenbach, 2001)*

The YSR: 11-18 was administered to the children. It contains 112 items relating to behavioral and emotional problems and academic achievement/ performance. Children rated the items on a 3 point scale from 0 (not true) to 2 (very true). Subscales within this measure include: competence in activities, competence in social contexts, total competence, aggression, internalizing, externalizing, and total problems. In the current study we used the aggression sub-scale only. The aggression sub-scale included 17 questions (e.g. you 'get into many fights'). All raw scores are converted to T-scores based on the child's age and gender. The T-score is a raw score that has been transformed to have a predetermined mean and standard deviation. For the YSR: 11-18, the mean is 50 with a standard deviation of 10.

*Perceived Social Support Questionnaire (McLoughlin et al., unpublished)*

This questionnaire was comprised of 42 questions divided into four parts and was devised by the research team (McLoughlin, Rucklidge, Grace & McLean). Part One of the questionnaire asked the child what they believed their parents/caregivers (called “parents”) would think if they engaged in a range of behaviours. Responses were “funny/cool”, “nothing special” or “stupid/nasty”. A higher score on this measure denoted a higher level of disapproval of the given behaviour. The behaviours included in the questionnaire represented three categories (14 questions for each category) these being; antisocial behaviour (e.g. “smoke cigarettes”), pro-social behaviour (e.g. “work hard at school”) and unconventional behaviour (e.g. “ate a spider”). Part Two of the questionnaire asked the same questions except this time the child was to imagine what an opposite-sex peer whom they found attractive would think of the behaviours (called “opposite-sex attractive peer”). For Part Three of the questionnaire the child was to imagine what a same-sex peer would think (called “same-sex peer”). Finally, in Part Four the child was to imagine what *they* would think if an opposite-sex peer carried out any of the listed behaviours (called “rater thinks of opposite-sex peer”). The full list of questions is given in Appendix 1.

*Alabama Parenting Questionnaire: (APQ; Frick, 1991)*

Both children and parents had completed the appropriate versions of the Alabama Parenting Questionnaire (Frick, 1991) at Time 1 of McLoughlin et al.’s longitudinal study (under review). The questionnaire asks the child and parents/caregivers to indicate how frequently a number of different behaviours occur in their home. Sub-scales of the questionnaire were: parental involvement, positive parenting, poor monitoring, parental involvement, inconsistent discipline, corporal punishment, other discipline, and other caregiver (usually the father’s) involvement. An analysis comparing the children’s and parent’s answers resulted in a positive significant correlation; indicating that, overall, children and parents demonstrated agreement in the way they answered the questionnaire. The child

version of the questionnaire (APQ: Child Form; Frick, 2001) was used for the subsequent analyses in this project.

### *Parents'/caregivers' Criminal History*

The parents' or caregivers' criminal history was obtained from the New Zealand Police database which has information on criminal convictions (National Intelligence Application; NIA).

McLoughlin et al. divided criminal offences into the following categories (based on an adapted version of the New Zealand Police crime categorisation system-[www.crime.co.nz](http://www.crime.co.nz)): violent offences, sexual offences, drug offences, antisocial behaviour offences, family offences, dishonesty offences, property offences, property abuse, administrative offences, and driving offences (full details are given in Appendix 2).

### *Procedure*

All schools in New Zealand are assigned a decile rating. This rating indicates the average SES of the school's community. Deciles range from 1 to 10 (with a decile 10 school comprising only high SES communities). As part of the longitudinal study all of the lower SES schools in Christchurch (41 schools) were invited to participate in a 3 year study into youth development; 8 agreed to take part. The children and their caregivers were informed of the nature of the study and consent was obtained. Of the parents or caregivers contacted, 117 agreed to participate.

The Perceived Social Support Questionnaire, on which this study is based, was administered to the children (now young adolescents) in the sample at Time 3 of McLoughlin et al.'s longitudinal study along with a number of other self-report measures. Previously collected data from Time 1 and Time 2 was made available by McLoughlin et al. and used a part of data analysis for this study (the measures used have been described above). As previously stated, 81 young adolescents from McLoughlin et al.'s original sample completed the Perceived Social Support Questionnaire at Time 3. Only the data collected at Time 1 and Time 2 for these 81 participants is used in the present study.



Data collection at Times 1 and 2 was conducted in face-to-face interviews and observations. Questionnaires and scales used in Time-3 data collection were mailed to participants. Of the 117 participants contacted at Time 1 and Time 2, 82 participants responded at Time 3, 81 of these participants completed the Perceived Social Support Questionnaire.

The study and all materials associated with it have been reviewed and approved by the University of Canterbury Human Ethics Committee.

### *Statistical analysis*

Statistical analyses run as part of this study were conducted using SPSS Statistics 17.0. A significance level of  $p < .05$  was used throughout.

## RESULTS

The mean and standard deviation for each question on each of the four parts of the Perceived Social Support Questionnaire are presented in Table 2.

*Table 2: Means, Standard Deviations and Item-Total Correlations for Perceived Social Support Questionnaire*

Sub-Component	Question number	Parent		Same-sex peer		Opposite-sex attractive peer		Rater thinks of opposite-sex peer		Item-total Correlations (parent)
		M	SD	M	SD	M	SD	M	SD	
Antisocial										
	4	2.80	0.534	2.40	0.722	2.48	0.718	2.50	0.694	0.765
	8	2.84	0.432	2.55	0.634	2.61	0.610	2.64	0.601	0.781
	9	2.63	0.601	2.20	0.802	2.30	0.745	2.29	0.715	0.708
	11	2.85	0.477	2.49	0.729	2.62	0.708	2.64	0.680	0.795
	13	2.73	0.525	2.41	0.774	2.52	0.718	2.54	0.728	0.721
	15	2.81	0.503	2.64	0.680	2.71	0.604	2.71	0.640	0.722
	17	2.91	0.360	2.65	0.597	2.71	0.582	2.70	0.560	0.813
	20	2.93	0.307	2.65	0.658	2.60	0.674	2.65	0.677	0.776
	22	2.75	0.488	2.48	0.693	2.40	0.765	2.49	0.675	0.653
	24	2.91	0.324	2.70	0.582	2.69	0.591	2.74	0.568	0.587
	26	2.86	0.379	2.55	0.692	2.57	0.715	2.59	0.669	0.616
	36	2.90	0.374	2.79	0.520	2.81	0.539	2.84	0.514	0.780
	37	2.88	0.399	2.54	0.728	2.55	0.680	2.56	0.672	0.823
	41	2.83	0.412	2.44	0.709	2.48	0.681	2.55	0.673	0.762
Pro-social										
	1	1.22	0.447	1.29	0.508	1.18	0.421	1.21	0.441	0.367
	3	1.43	0.569	1.71	0.697	1.49	0.620	1.56	0.613	0.791
	6	1.60	0.736	2.00	0.656	1.91	0.632	2.06	0.700	0.590
	10	1.27	0.596	1.53	0.656	1.58	0.656	1.65	0.781	0.633
	14	1.73	0.725	1.90	0.704	1.86	0.702	1.86	0.651	0.496
	18	1.46	0.593	1.78	0.656	1.69	0.654	1.64	0.621	0.538
	29	1.33	0.612	1.59	0.630	1.65	0.684	1.51	0.595	0.819
	30	1.32	0.544	1.55	0.634	1.57	0.658	1.46	0.655	0.670
	31	1.23	0.531	1.56	0.633	1.65	0.664	1.46	0.594	0.766
	32	1.30	0.558	1.74	0.742	1.62	0.708	1.50	0.616	0.729
	33	1.65	0.655	2.10	0.722	1.97	0.707	1.94	0.700	0.640
	34	1.47	0.634	1.95	0.745	1.88	0.707	1.75	0.684	0.696
	35	1.39	0.606	1.68	0.708	1.74	0.785	1.68	0.725	0.630
	42	1.42	0.567	1.90	0.739	1.75	0.764	1.76	0.783	0.627

Table 2 - (continued)

Sub-Component	Question number	Parent		Same-sex peer		Opposite-sex attractive peer		Rater thinks of opposite-sex peer		Item-total Correlations (parent)
		M	SD	M	SD	M	SD	M	SD	
Unconventional										
	2	2.72	0.597	2.36	0.783	2.65	0.684	2.56	0.709	0.425
	5	2.53	0.654	2.24	0.750	2.31	0.693	2.23	0.729	0.623
	7	2.76	0.534	2.20	0.853	2.22	0.873	2.34	0.846	0.587
	12	2.31	0.701	2.11	0.811	2.19	0.762	2.23	0.763	0.586
	16	2.06	0.695	2.08	0.742	2.10	0.771	2.16	0.683	0.641
	19	2.80	0.459	2.45	0.710	2.43	0.751	2.50	0.729	0.365
	21	2.88	0.367	2.53	0.729	2.52	0.681	2.65	0.638	0.528
	23	2.19	0.635	2.27	0.693	2.31	0.712	2.23	0.656	0.330
	25	2.49	0.594	2.34	0.674	2.38	0.689	2.40	0.686	0.628
	27	2.55	0.673	2.00	0.796	2.00	0.743	2.16	0.754	0.634
	28	2.11	0.612	2.23	0.656	2.19	0.650	2.19	0.658	0.443
	38	2.69	0.584	2.34	0.795	2.45	0.770	2.48	0.746	0.693
	39	2.69	0.539	2.76	0.509	2.82	0.421	2.68	0.591	0.566
	40	2.90	0.339	2.72	0.595	2.79	0.546	2.80	0.537	0.468

The table above indicates which questions from the Perceived Social Support Questionnaire made up each sub-component (antisocial, pro-social, unconventional). For each of the four parts of the questionnaire (parents, same-sex peer, opposite-sex attractive and rater thinks of opposite-sex peer) the scale for the questions was scored as “funny/cool” = 1, “nothing special” = 2, “stupid/nasty” = 3, and these were summed within subcomponents to give an overall subcomponent score. The minimum score possible for each sub-component is 14 and would indicate maximal approval for items in that sub-component. The maximum possible score for each subcomponent is 42, indicating maximal disapproval. The score that would indicate neutrality of responses on each question within a sub-component is 28. Part 4 of the questionnaire, rater thinks of opposite-sex peer, is scored the same way but measures the adolescent’s level of approval for the different behaviour types if they were enacted by an opposite-sex peer. This differs from Parts 1-3 which ask the adolescents to consider how others would perceive them if they engaged in the behaviours listed.

*Psychometric properties of Perceived Social Support Questionnaire*

As the Perceived Social Support Questionnaire is a new scale, little is known about its psychometric properties. Before interpreting scores on the scale, it is important to investigate whether the items on the scale behave as they were intended. Because of the small sample size and the homogeneity of the sample in terms of age and background, any assurance that the scale is acting as expected is limited. However, to get an indication of the performance of the scale, item-total correlations for the sub-components of the scale were calculated using data from the parent form. These are given in Table 2, above. The item-total correlations are all significant and indicate that each item within the sub-component is contributing significantly to the sub-component total. That is, the internal consistency of the scale appears to be reasonable in that all of the items are significantly related to the total. However, some items were also correlated with other subscale totals suggesting that there may be more than three subscales.

Exploratory factor analyses were completed to investigate whether the questions of the Perceived Social Support Questionnaire collapsed into the three sub-components intended. All 42 questions were included in the factor analyses. Only factors with an eigenvalue  $>1$  were used in the factor solution and the scree plot was used to indicate the number of factors to retain. Varimax rotation was used to assist in the factor interpretation. The scree plot indicated that three independent factors for each of the four parts of the questionnaire were present; the parent sub-scale is used to demonstrate this below. The factor solution explained a substantial fraction of the total variance as detailed in Table 3.

*Table 3: Variance Explained by Three Sub-components of Questionnaire on Parent Sub-scale*

	Parent Sub-scale	
	% of Variance	Cumulative % Variance
Antisocial	30.224	30.224
Pro-social	10.928	41.152
Unconventional	6.739	47.891

The loadings of each variable across the four subcomponents are given in Table 4 below.

The bold type indicates which sub-component each individual question loaded onto.

*Table 4: Factor Analysis of Questions Loading onto Each of the Three Sub-Components for Parent Sub-scale*

Question Number	Parent Sub-scale		
	Antisocial	Pro-social	Unconventional
1	-0.210	<b>0.304</b>	0.001
2	-0.013	-0.301	<b>0.579</b>
3	-0.121	<b>0.466</b>	-0.114
4	<b>0.685</b>	-0.278	0.065
5	<b>0.496</b>	0.216	0.370
6	-0.137	<b>0.532</b>	0.123
7	<b>0.694</b>	-0.192	0.100
8	<b>0.712</b>	-0.238	0.133
9	<b>0.644</b>	-0.275	0.093
10	-0.080	<b>0.647</b>	-0.009
11	<b>0.697</b>	-0.217	0.096
12	0.224	0.144	<b>0.556</b>
13	<b>0.643</b>	-0.134	0.241
14	-0.018	<b>0.451</b>	0.029
15	<b>0.610</b>	-0.242	0.132
16	0.044	-0.008	<b>0.766</b>
17	<b>0.865</b>	0.061	-0.023
18	0.153	<b>0.619</b>	-0.046
19	<b>0.579</b>	-0.070	-0.179
20	<b>0.741</b>	-0.124	0.217
21	<b>0.715</b>	-0.060	-0.019
22	<b>0.647</b>	-0.137	0.025
23	-0.065	0.230	<b>0.456</b>
24	<b>0.491</b>	-0.221	0.285
25	<b>0.433</b>	-0.161	0.411
26	<b>0.521</b>	-0.174	0.509
27	<b>0.551</b>	0.024	0.248
28	0.079	0.357	<b>0.561</b>
29	-0.246	<b>0.800</b>	-0.041
30	-0.250	<b>0.654</b>	-0.040
31	-0.319	<b>0.730</b>	-0.026
32	-0.411	<b>0.631</b>	0.170
33	-0.085	<b>0.645</b>	-0.087
34	-0.206	<b>0.663</b>	0.200
35	-0.030	<b>0.634</b>	-0.189
36	<b>0.801</b>	-0.135	-0.063
37	<b>0.865</b>	-0.071	-0.007

Table 4 – continued

Question Number	Parent Sub-scale		
	Antisocial	Pro-social	Unconventional
38	0.355	-0.147	<b>0.671</b>
39	<b>0.528</b>	-0.014	0.322
40	<b>0.574</b>	-0.234	0.243
41	<b>0.798</b>	-0.085	-0.018
42	-0.298	<b>0.561</b>	<b>0.333</b>

The table above indicates that, in the majority of cases, the questions loaded onto the expected sub-components. Factor 2 contained all of the items intended for the Prosocial subcomponent, and no others. The items that load on to Factor 3 (2, 12, 16, 23, 28, 38) are all items intended for Unconventional Behaviour). However, some of the items intended for that sub-component loaded instead onto the first factor (5, 7, 19, 21, 25, 27, 39, 40) which contained all the items intended for the Antisocial sub-component. This suggests that the unconventional sub-component is not working well, as some of the unconventional items are viewed similarly to the antisocial items. It is possible that the young adolescents in this sample were unable to, or did not, differentiate between unconventional and antisocial behaviour. This is an issue that will be addressed further in the discussion. Nevertheless, the results of the factor analysis give sufficient support for the sub-components such that the data analysis can proceed as intended, though the scale may benefit from some revision in the future.

#### *Analysis of participant responses*

Table 5 below shows the means and standard deviations for each sub-component across the four parts of the questionnaire. Due to a small number of cases of missing data these means and standard deviations differ slightly from what the mean and standard deviations would be if calculated from Table 2. A score greater than 28 indicates disapproval and a score lower than 28 indicates approval. The table shows that, overall, the participants indicated that antisocial and unconventional behaviours were disapproved of over all four parts of the questionnaire (parents, same-sex peer,

opposite-sex peer and rater thinks of opposite-sex peer). Moreover, it is indicated that pro-social behaviour was demonstrated as being approved of over across the four parts of the questionnaire. More specific results regarding the way the participants answered the questionnaire are given below.

*Table 5: Means and Standard Deviation For The Three Sub-components of Questionnaire*

Sub-Component	Parent		Same-sex peer		Opposite-sex attractive peer		Rater thinks of opposite-sex peer	
	M	SD	M	SD	M	SD	M	SD
Antisocial	39.773	0.513	35.493	0.831	36.200	0.817	36.347	0.811
Pro-social	19.627	0.585	24.707	0.793	23.587	0.710	23.040	0.672
Unconventional	35.627	0.517	32.720	0.655	33.467	0.619	33.653	0.610

A within-subjects ANOVA with four levels (parents, same-sex peer, opposite-sex attractive peer and rater thinks of opposite-sex peer) was conducted to investigate whether the sample as a whole showed any significant difference in the way that questions for each sub-component (antisocial, pro-social, unconventional) were answered across the four parts of the Perceived Social Support Questionnaire. The ANOVA for the antisocial items showed that overall, there was a significant difference in how the questions were answered,  $F_{(1,74)} = 24.50, p < .001$ . Post-hoc analyses (using Bonferonni correction for multiple comparisons) showed that the ratings for the parent questionnaire were significantly higher than the same-sex peer, opposite-sex attractive peer and rater thinks of opposite-sex peer questionnaires for the antisocial behaviour sub-component (see Table 5 above for means and standard deviations). The ratings for the other sub-components were not significantly different from each other. This result suggests that the young adolescents believed that their parents would be more disapproving of antisocial behaviour than their same-sex peers and opposite-sex attractive peers, and more disapproving than they themselves would be if an opposite-sex peer engaged in antisocial behaviour. No other differences reached statistical significance.

Analyses for the pro-social items gave comparable results,  $F_{(1,74)} = 35.23, p < .001$ . The post-hoc comparisons indicated that adolescents in the sample believe their parents would be more approving of pro-social behaviour than their same-sex peers, opposite-sex attractive peers, and more

approving than they would be if an opposite-sex peer engaged in pro-social behaviour. No other differences reached statistical significance.

The same pattern of results was found for the analysis of unconventional behaviour,  $F_{(1,74)} = 16.247, p < .001$ . The participants indicated that their parents would be more disapproving of unconventional behaviour than their same-sex peers, opposite-sex attractive peers and more disapproving than they would be if an opposite-sex peer engaged in unconventional behaviour. No other differences reached statistical significance.

Within-subjects ANOVAs for gender were then conducted to see if boys and girls in the sample showed any difference in regards to their patterns of responding on the four parts of the questionnaire compared to the sample as a whole. ANOVAs were conducted separately for each gender and questionnaire subcomponent; one for each of the three subcomponents of the questionnaire.

For girls the results for pro-social behaviour ( $F_{(1,34)} = 8.795, p < .005$ ) and unconventional behaviour ( $F_{(1,34)} = 11.252, p < .005$ ) followed the same pattern as the overall sample results given above (see table 6 below for means and standard deviations). That is, female respondents expected more approval of pro-social behaviour from parents than others, and less approval of unconventional behaviour.

*Table 6: Girls: Means and Standard Deviations*

	<b>Pro-social Behaviour</b>		<b>Unconventional Behaviour</b>	
	M	SD	M	SD
Parents	18.400	0.678	36.486	0.650
Same-sex	22.371	0.916	34.114	0.829
Opposite-sex attractive	23.171	0.898	33.914	0.861
Rater thinks of opposite-sex	21.314	0.889	34.457	0.767

However, the results for antisocial behaviour for girls differed from those found for the overall sample. These results showed a significant difference in how the questions for each sub-



component were answered across the four parts of the questionnaire for the antisocial behaviour questions ( $F_{(1,34)} = 6.502, p < .05$ ). Post-hoc analyses for the antisocial items revealed that significant differences were found only between the parents ( $M=40.429, SD=.0645$ ) and opposite-sex peers measures ( $M=37.257, SD=0.885$ ) and between the parents and same-sex peers measures ( $M=38.057, SD=0.833$ ). This shows that girls perceived their parents as being more disapproving of antisocial behaviour than opposite-sex attractive peers and same-sex peers. However, the girls did not show a significant difference between what they would think of an opposite peer who engaged in antisocial behaviour ( $M=38.114, SD=0.984$ ) and what they believed their parents would think of antisocial behaviour.

For boys the results for antisocial ( $F_{(1,39)}=19.138, p < .001$ ) and pro-social behaviour ( $F_{(1,39)}=29.132, p < .001$ ) were no different from the overall sample results given above (see table 7 below for means and standard deviations).

*Table 7: Boys: Means and Standard Deviations*

	<b>Antisocial Behaviour</b>		<b>Pro-social Behaviour</b>	
	Mean	Standard Deviation	Mean	Standard Deviation
Parents	39.200	0.776	20.700	0.896
Same-sex	33.250	1.285	26.750	1.170
Opposite-sex attractive	35.275	1.316	23.950	1.082
Rater thinks of opposite-sex	34.800	1.212	24.550	0.938

However, for the unconventional items for boys ( $F_{(1,39)} = 7.342, p < .01$ ) a significant difference was found only between the parents ( $M=34.875, SD=0.773$ ) and same-sex peer ( $M=31.500, SD=0.959$ ) measures. This shows that boys perceived parents as more disapproving of unconventional behaviour than same-sex peers.

### *Gender comparisons*

An ANOVA was carried out in order to compare the responses of boys and girls on the Perceived Social Support Questionnaire. A significant difference between boys and girls was found for ratings of how the participants believed same-sex peers would perceive antisocial behaviour  $F_{(1,78)} = 8.479$   $p < .005$ , (boys  $M=33.477$ ,  $SD=7.981$ , girls  $M = 37.917$ ,  $SD=4.930$ ). This indicates that girls were more likely than boys to believe that same-sex peers would disapprove of antisocial behaviour.

A significant difference was also found between boys and girls on ratings of how the young adolescents believed same-sex peers would perceive pro-social behaviour  $F_{(1,78)} = 6.888$   $p < .05$ . This indicates that boys were more likely than girls to believe that same-sex peers would disapprove of pro-social behaviour, (boys  $M=26.364$ ,  $SD=7.266$ , girls  $M=22.528$ ,  $SD=5.422$ ).

The results of the ANOVA also indicated that girls were more likely than boys to believe that same-sex peers would disapprove of unconventional behaviour  $F_{(1,78)} = 4.578$   $p < .036$ , (boys  $M=31.409$ ,  $SD=5.986$ , girls  $M=34.056$ ,  $SD=4.846$ ).

When asked what they would think about antisocial behaviour in an opposite-sex attractive peer, a significant difference was found between the ratings of girls and boys  $F_{(1,78)} = 3.926$   $p < .05$ . Girls were more disapproving of antisocial behaviour in opposite-sex peers than boys, (boys  $M=35.11$ ,  $SD=7.349$ , girls  $M=38.11$ ,  $SD=5.820$ ). That is, girls in the sample seem to find antisocial behaviour in attractive boys unattractive, and more unattractive than boys report finding it in attractive girls.

Finally, in support of the findings above, the analysis indicated that boys were less likely to approve of pro-social behaviour in attractive opposite-sex peers than girls did  $F_{(1,78)} = 6.138$   $p < .05$ , (boys  $M=24.40$ ,  $SD=5.726$ , girls  $M=21.31$ ,  $SD=5.257$ ).

*Analysis of aggression and callous-unemotional traits*

Multiple regression analyses were carried out to determine the utility of aggression and callous-unemotional traits in predicting scores on the Perceived Social Support Questionnaire. Twelve separate regression analyses were conducted which covered each of the four parts of the questionnaire (parents, same-sex peer, opposite-sex attractive peer and rater thinks of opposite-sex peer) and each of the three sub-components (antisocial, pro-social and unconventional). For each regression model, the score for each sub-component was regressed upon scores for both aggression and callous-unemotional traits. Only four of the models were significant and the results for these are displayed in Table 8.

*Table 8: Multiple Regression Analysis for Aggression and Callous-Unemotional Traits*

		<b>Aggression</b>	<b>Callous-Unemotional</b>
<b>Variable</b>	<b>R<sup>2</sup></b>	<b>Beta</b>	<b>Beta</b>
Parent_prosocial	0.103**	-0.109	0.385**
Samesex_antisocial	0.106**	-0.343**	-0.036
Samesex_unconventional	0.084*	-0.303*	-0.053
Prosocial_rater-oppositesex	0.148***	0.050	0.389***

\* = p<.05

\*\* = p<.01

\*\*\* = p<.001

Table 8 shows R<sup>2</sup> values and beta weights for each of the four significant regression models. In this case R<sup>2</sup> indicates the effect size which is the percentage of total variance accounted for in the dependent variable (questionnaire scores) by the regression model when it includes the independent variables (aggression and callous-unemotional traits). The R<sup>2</sup> value is made up of beta weights which represent the unique contribution of each variable to predicting scores on any given sub-component of the dependent variable (the questionnaire).

Interestingly, there is only one significant predictor for each model. The analyses indicated that Callous-Unemotional traits accounted for more unique variance than aggressive behaviour in the following subcomponents; adolescent's perceptions of how their parents would view their pro-social behaviour and adolescent's perceptions of pro-social behaviour in opposite-sex peers.

The table also shows that aggressive behaviour accounted for more unique variance than Callous-Unemotional traits on the following subcomponents; adolescent's perceptions of how their same-sex peers view their antisocial behaviour and adolescent's perceptions of how their same-sex peers would view their unconventional behaviour.

These analyses reveal that there is an association between Callous-Unemotional traits and adolescent's perceptions of how their parents would view their pro-social behaviour. In other words, the higher an individual is rated on Callous-Unemotional traits, the more likely that individual is to indicate on the questionnaire that their parents would disapprove of pro-social behaviour. Young adolescents high on Callous-Unemotional traits were also more likely to be disapproving of pro-social behaviour in opposite-sex peers.

A significant association was also found between aggression and adolescent's perceptions of how same-sex peers would view antisocial behaviour. This can be interpreted as suggesting that adolescents who scored high on aggression were more likely to think that their same-sex peers would approve of antisocial behaviour. Further, adolescents scoring high on aggression also appeared to be more likely to think that same-sex peers would approve of unconventional behaviour.

#### *Analysis of parental criminality and exposure to crime*

We were also interested to see if there was a relationship between measures of parental criminality and exposure to crime for the parent questionnaire (i.e. Part 1). As part of McLoughlin et al.'s longitudinal study, four measures relating to family involvement with crime were taken. A measure of 'occurrences of crime' was taken from the NIA (National Intelligence Application) database. Occurrences of crime were those incidents where the child or family had been exposed to crime; for example, if they had phoned the police to report a break-in or a disturbance in the home. The NIA database was also used to investigate whether the child's parents/caregivers had been convicted of a crime (a full list of crime categories can be found in the appendix). The final two measures were part of an unpublished History Questionnaire. This questionnaire was developed by

Rucklidge and McLoughlin (unpublished) and consisted of 33 questions including questions about the child and family's physical health, mental health and education. Two questions from this measure (which was completed by a parent or caregiver) were related to crime: Have any of the child's caregivers been convicted of an offence which **did not** result in a prison sentence? Have any of the child's caregivers been convicted of an offence which **did** result in a prison sentence?

Descriptive statistics for the criminality data can be seen in Table 9.

*Table 9: Total Number of Families Reporting Exposure to Crime and Parental Criminality*

Occurrences of crime (NIA)		Parental conviction (NIA)		Offence: no prison term (self report)		Offence: with prison term (self report)	
Yes	No	Yes	No	Yes	No	Yes	No
40	41	23	58	28	51	18	61

Four ANOVAs were completed for the "parent" section of the questionnaire, one for each of the crime categories (occurrences of crime, parental conviction, offence: no prison term and offence: with prison term). None of the ANOVAs showed any significant results. It appears, therefore, that parental criminality or exposure to crime did not influence the adolescent's responses to the parent section of the Perceived Social Support Questionnaire.

#### *Analysis of parenting style*

Measures of parenting using the Alabama Parenting Questionnaire were used to investigate whether there was a relationship between parenting style and the adolescent's answers on the parent section of the Perceived Social Support Questionnaire. Correlations were calculated to investigate the relationship between the seven components of the Alabama Parenting Questionnaire (parental involvement, positive parenting, poor monitoring, inconsistent discipline, corporal punishment, other discipline methods, contact with father/other parent) and the adolescent's answers for the parent section of the Perceived Social Support Questionnaire.

Two significant negative correlations were found between the adolescent's answers on the antisocial items from the Perceived Social Support Questionnaire and components of the Alabama Parenting Questionnaire. Lack of parental monitoring was negatively correlated with disapproval of antisocial behaviour, ( $r = -0.446, p < .01$ ). This indicates that the adolescents who rated their parents as having poor parental monitoring also thought their parents would be more approving of antisocial behaviour. A similar result was found for the measure of inconsistent discipline, ( $r = -0.316, p < .01$ ); this shows that adolescents who rated their parents as being high on inconsistent discipline also thought their parents would be more approving of antisocial behaviour.

For the pro-social items significant correlations results were found for parental involvement ( $r = -0.299, p < .01$ ), positive parenting ( $r = -0.323, p < .01$ ), parental monitoring ( $r = 0.268, p < .05$ ) and corporal punishment ( $r = 0.303, p < .01$ ). These results show that adolescents who rated their parents as being high on parental involvement and positive parenting also thought that their parents would be more approving of pro-social behaviour. The results for parental monitoring and corporal punishment demonstrate that adolescents who rated their parents as high on poor monitoring and corporal punishment also thought that their parents would be more disapproving of pro-social behaviour.

The final analyses for parenting style were for the unconventional items. Similar to the antisocial items significant results were found for parental monitoring ( $r = -0.350, p < .01$ ) and inconsistent discipline ( $r = -0.295, p < .01$ ). These results show that adolescents who rated their parents as being high on poor monitoring and inconsistent discipline also thought that their parents would more approving of unconventional behaviour.

## DISCUSSION

---

Previous research has indicated the strong influence of peers on the development of antisocial behaviour during the adolescent years. Many risk factors for antisocial and criminal behaviour exist; however, in this study we were particularly interested in those experiential factors that are associated with deviant behaviour in adolescence, especially those relating to approval from peers. Moreover, we were interested to investigate perceived social support for antisocial behaviour in young people who are probably not on a trajectory toward persistent criminal behaviour as well as in those who probably are. Moffitt (1993) and others (e.g. Andrews & Bonta, 2006) have suggested that the influence of peers is of significant importance in understanding the onset of antisocial behaviour in adolescence. This study sought to investigate perceptions of approval from parents and peers for antisocial, pro-social and unconventional behaviours in a sample aged 12-13 years old. Understanding how young adolescents perceive antisocial behaviour in others and how they believe others would perceive antisocial behaviour in themselves may increase knowledge regarding the antisocial behaviour patterns of adolescents.

The results of this study did not indicate approval for antisocial or unconventional behaviour overall. However, differences were seen in the amount of approval or disapproval for certain behaviours when the participants were grouped based on different variables.

### *Psychometric properties of Perceived Social Support Questionnaire*

Analyses were conducted in order to establish preliminary support for the validity of the Perceived Social Support Questionnaire prior to the commencement of data analysis. The internal consistency of the scale was supported by significant item-total correlations which indicated that each question within each sub-component (antisocial, pro-social, unconventional) contributed significantly to the total score for that sub-component. Factor analyses on the parent section of the questionnaire gave a 3-factor solution that explained a substantial fraction of the total variance in

ratings of approval, and showed that for the most part, items in the questionnaire behaved as expected. However, a number of the items intended for the unconventional sub-component had loaded onto the antisocial sub-component, indicating that some revision of questions on the unconventional sub-component could be beneficial. However, it was concluded that this issue was not sufficient to interfere with data analysis which proceeded as intended.

### *Parents and peers*

Comparisons between the four parts of the questionnaire (parent, opposite-sex attractive peer, same-sex peer, rater thinks of opposite-sex peer) indicated that young adolescents believed that their parents were more likely to approve of pro-social behaviour and disapprove of antisocial and unconventional behaviour compared to their peers and their own perceptions of behaviour in opposite-sex peers. Comparisons between the other parts of the questionnaire (same-sex attractive peer, opposite-sex peer and rater thinks of opposite-sex peer) showed that there were no other significant differences. This means that the sample overall, did not indicate any significant differences in patterns of approval and disapproval for antisocial, pro-social and unconventional behaviour across the three parts of the questionnaire relating to peers.

These results indicate that the sample perceived their parents to be less approving of antisocial and unconventional behaviour than peers, suggesting that there is indeed a perception that peers and parents appreciate different behaviours. This result supports research by both Moffitt (1993) and Bukowski et al. (2000) who reported increased approval of antisocial behaviour and behaviours associated with observable prominence, during adolescence. This finding could also indicate support for the expectation that young people become more rebellious, and so more interested in antisocial behaviour, during adolescence (e.g. Carr, 2006). Moreover, during adolescence, youth tend to begin to align themselves and their preferences more in accordance with ideas and behaviours desired by their peer group than their family (Andrew & Bonta, 2006). This is supported by the finding that the behaviours that individuals reported they would approve or



disapprove of in an opposite-sex peer, were more similar to the behaviours they believed their peers would approve or disapprove of than what they believed their parents would approve or disapprove.

### *Gender*

Results for gender indicated that girls were more disapproving of antisocial behaviour in an opposite-sex peer than boys. In fact, girl's ratings of opposite-sex peers were more similar to their perceptions of what their parents would approve, than of what they thought their peers would approve. Girls were also more likely than boys to believe that same-sex peers would disapprove of antisocial behaviour and unconventional behaviour and that opposite-sex peers would disapprove of antisocial behaviour. Boys, however, were more likely than girls to believe that same-sex peers would disapprove of pro-social behaviour and were more likely to disapprove of pro-social behaviour in opposite-sex peers. Results for boys also show that they believed that parents would disapprove of unconventional behaviour more than same-sex peers.

Overall, the gender analyses showed that girls are more likely than boys to approve of pro-social behaviour and boys are more likely than girls to approve of antisocial behaviour. However, both boys and girls indicated overall approval for pro-social behaviour and disapproval for antisocial and unconventional behaviour. The results suggest that there is some evidence of attractiveness of antisocial behaviour, but among the boys in this sample more than the girls. If Moffitt's (1993) "maturity gap" theory applied here, we would expect to see more of the girls endorsing antisocial behaviour as well. Bukowski et al. (2000) found that girls in particular showed increased appreciation of antisocial behaviour in boys after the transition to high school, and no increased appreciation of antisocial behaviour in other girls. Boys also showed increased appreciation of boys and girls that were aggressive. In fact, according to the results of Bukowski et al.'s research we would have expected to see more positive endorsement of antisocial behaviour by the boys in the sample as well as the girls. Our results indicated that boys were more supportive or accepting of antisocial behaviour than girls, but that they did not support antisocial behaviour overall. The results

showed that the boys rated pro-social behaviour as more acceptable than antisocial behaviour but just to a lesser degree than girls.

Research indicates that boys are at higher risk for engaging in antisocial behaviour than girls (Carr, 2008; Henry et al., 1996). Our results support this finding as they indicate that boys appear more interested in and amenable to antisocial behaviour in early adolescence than girls. However, research also indicates that girls who do engage in antisocial behaviour are more likely than boys to commence this behaviour at a later age (McGhee et al., 1992; Silverthorn and Frick, 1999). It may be that the girls in this sample had not yet become interested in antisocial behaviour which is reflected in the results. The differences found in this study, with regards to the behaviours that boys and girls approve and disapprove of, perhaps indicate that girls become interested in or show support for antisocial behaviour at older ages than boys and subsequently are generally older when they first engage in antisocial behaviour. It may be that re-administration of this questionnaire when the sample is older would show more similar scores between girls and boys.

It is possible that the age of the adolescents in our sample impacted on these results. The adolescents in this sample were aged 11.9 – 13.8 years. Most of the sample had not yet entered high school at the time the Perceived Social Support Questionnaire was administered. Moffitt (1993) and Bukowski et al. (2000) both cite the transition to high school as particularly important in the development of a more positive attitude to antisocial behaviour. It would be interesting to see if these results change significantly when the sample is approached again in one to two years when they may be more likely to exhibit the trends identified by Moffitt and Bukowski et al. Moreover, a sharp change in the behaviour that adolescents find attractive or approve of is consistent with the sharp increase of antisocial behaviour seen in the adolescent years. It may be that the adolescents in this sample will show dramatic changes over the coming months and years in the behaviours that they endorse or find attractive.

*Aggression and Callous-Unemotional traits*

Analyses specifically investigating the relationship of aggression or callous-unemotional traits and answers on the Perceived Social Support Questionnaire also showed some interesting trends. Adolescents high on callous-unemotional traits were more likely to believe their parents would disapprove of pro-social behaviour and they were themselves more likely to disapprove of pro-social behaviour in an opposite-sex peer. Adolescents high on aggression were more likely to think that their same-sex peers would approve of antisocial behaviour or unconventional behaviour. These results show, that although the adolescents showed similar patterns of responses overall, dividing the adolescents based on these measures (aggression and callous-unemotionality) shows significantly different patterns of responding. Callous-unemotional adolescents were more likely to indicate disapproval for pro-social behaviours while aggressive adolescents were more likely to indicate approval for antisocial and unconventional behaviours.

The results regarding aggression and callous-unemotional traits support the research that indicates that children high on these traits are at higher risk for adverse outcomes in terms of deviant behaviour and criminality (Frick & White, 2008, McLoughlin et al., under review). In this study, there was a clear trend that adolescents scoring high on these measures were more likely than other adolescents to respond to the questionnaire in a way that indicated either their perceptions of support from others for antisocial behaviour or their perception that others would disapprove of pro-social behaviour. This supports findings from Frick and White and McLoughlin et al, as it indicates increased risk for antisocial behaviour in aggressive and callous-unemotional youth, in so much as their perceptions of approval and disapproval influence the behaviours in which they engage. The assumption here, that indications of approval for antisocial behaviour and disapproval for pro-social behaviour will also be correlated with actual antisocial behaviour, fits with Fishbein and Ajzen's theory of Reasoned Action (2009).

*Parental criminality and exposure to crime*

Measures of parental criminality and exposure to crime did not provide any significant results. This is interesting as, from a Social Learning or Reasoned Action perspective, we would have expected to see adolescents of parents who have engaged in crime to rate antisocial behaviour as more acceptable than other adolescents did, or at least to rate their parents as more accepting of antisocial behaviour.

It was expected that factors that would likely be associated with parental criminality, for example increased opportunity to witness crime and observe salient models (i.e. parents) engaging in crime as well as more normalisation of and support for crime, would impact on adolescent's perceptions of social support for antisocial behaviour. Indeed, one of the dangers of being born into a family where criminal behaviour is common is believed to be the lack of, or uncertainty around, rules of appropriate conduct within the family that are expected to emerge in parents with antisocial attitudes. It is unclear why this trend was not seen. It would appear that, despite parental criminality and exposure to crime, the adolescents in this sample still perceived antisocial behaviour as being disapproved of by their parents.

If the adolescents in the sample were unaware of parental criminality, perhaps if the criminal behaviour occurred prior to the child's birth or in their early years, that could explain the pattern of results found. It is also possible that criminality needed to be measured with a higher threshold. In this study, having one or more convictions was used as a measure to indicate parental criminality. However, having just one conviction may not be enough to indicate that the parent held antisocial attitudes and conveyed these attitudes to their children. Perhaps identifying parents as "criminal" only if they show indications of chronic offending would make a difference to the results. It would be interesting to see whether re-administration of this measure in one to two years, when the sample may be more interested in or approving of antisocial behaviour, would also give any different results. Social desirability may also have impacted on the ratings the adolescents gave. However, the significant results seen for analyses of parenting style (next) would suggest that the adolescents were

in no way deterred from indicating that they thought their parents might approve of some antisocial behaviours.

### *Parenting Style*

Analyses of parenting style or parenting skills did, however, show some significant results. Children of parents who displayed poor monitoring and inconsistent discipline on the Alabama Parenting Questionnaire believed that their parents would be more approving of antisocial behaviour and unconventional behaviour and more disapproving of pro-social behaviour than other youth. It appears that poor monitoring and inconsistent discipline function as a lack of clear rules or boundaries. That is, the children of parents who adopt these parenting styles seem to have no clear sense of disapproval from others. Children of parents who engaged in a high degree of involvement with their child and used positive parenting (e.g. time-out, natural consequences, praise and rewards) believed their parents would be more approving of pro-social behaviour. These findings are both interesting and important as they strongly suggest that the way parents interact with their children influence the perceptions children have about the behaviours that their parents appreciate or endorse. It is likely that these perceptions then go on to influence the child's behaviour as children engage in behaviours that they expect their parents condone. It may be that in homes where parents have poor parenting skills that children learn to see antisocial behaviours as "good" or "ok" or do not learn how to identify which behaviours may result in disapproval from others.

A significant body of research has found that parenting style can have considerable impact on the behaviour of children and adolescents and can increase risk for the development of antisocial behaviour and criminality. This appears to be supported by the results of the current study which indicate that part of the mechanism by which parenting style may influence behavioural outcomes of children involves differences in real or perceived regimes of approval and disapproval.

### *Unconventional behaviour*

The results of this study showed little difference across the sample in ratings for antisocial compared to unconventional behaviour. The factor analysis indicated that, although there do appear to be three factors involved, some of the unconventional items loaded onto the antisocial sub-component. Antisocial behaviour is always unconventional, but unconventional behaviour is not automatically antisocial, and so a potentially useful distinction may be made. It is possible that this distinction is too complex for the age group in this sample. It may be that the adolescents in the sample see the behaviours more simplistically, perhaps as either “good” or “bad”, thus meaning that little difference is seen when comparing results for the antisocial items with the unconventional items. Older children or adolescents may be more likely to differentiate between unconventional and antisocial behaviour.

Bukowski et al. (2000) found that adolescents reported increased attraction to peers who possessed characteristics associated with observable prominence. As discussed earlier, observable prominence can be considered to be similar to unconventional behaviour due to the idea that both create increased visibility of an individual within a group. Perhaps, as the adolescents in this sample age and transition to high school, approval for unconventional behaviour will increase, mimicking the results found by Bukowski et al. with regards to observable prominence. Bukowski et al. noted that attraction to peers who possessed observable prominence increased following the transition to high school. Moreover, with time it may be that adolescents who scored highly on measures of aggression, and perhaps also callous-unemotional traits, will show particular attraction to youth who engage in unconventional behaviour as was indicated by aggressive youth in Bukowski et al.’s research on observable prominence.

Alternatively, it may also be that any distinction between antisocial and unconventional behaviour is rather tenuous and transient. Later in life, it seems likely that a strong assertion of unconventionality may commonly be viewed as flouting or “thumbing the nose” at convention, and hence moderately antisocial. Thus, further research will be needed to clarify the position of

unconventional behaviour, and it may be that revision of the scale to address the overlap between some of the unconventional and antisocial items will be needed.

### *Future Research Directions*

Future research that involves the re-administration of the Perceived Social Support Questionnaire to the same sample in one to two years could provide evidence of some interesting changes in perceptions of social support for antisocial and perhaps unconventional behaviour. The age of subjects at the time of data collection for this study (12-13 years) can act as a pre-adolescent measure and re-administration of the measure in one to two years could lead to the identification of significant changes following the transition to high school and as subjects begin to adopt more definitively 'adolescent-like' behaviour patterns. The data collected for this study would be invaluable if the measure was re-administered as it would allow direct comparisons of the subject's ratings. It could also be interesting to administer the questionnaire again in the late teen years or early twenties when, according to Moffitt (1993), we would expect to begin to see decreases in support for antisocial behaviour.

Other researchers may wish to construct their own versions of questionnaires aimed at gaining a measure of perceived support for behaviour or perhaps expand on the categories used in this study. Questions about the kind of behaviours that young adolescents or their friends do engage in, rather than just about perceptions of support for hypothetical behaviours, could add another dimension to research of this kind.

The Perceived Social Support Questionnaire asked young adolescents to rate how they thought a same-sex peer and opposite-sex attractive peer would perceive antisocial, pro-social and unconventional behaviour. It cannot be assumed, however, that these ratings really reflect the perceptions of youth in general because it is highly likely that adolescents chose peers who behave in similar ways to themselves. That is, children who engage in antisocial behaviour are likely to think that their friends find this behaviour acceptable and the same would apply for children who engage in

pro-social and unconventional behaviours. Similarly, the self ratings might indicate how children in general viewed antisocial behaviour, but for the fact that they were asked how they would perceive different behaviours in a “liked/attractive” opposite-sex peer. Further research could attempt to broaden the scope of these results by asking participants to answer the questions for a number of different peers perhaps including a current friend, a peer they dislike and a peer they admire or would like to be friends with. It would be interesting to investigate how children and adolescents would respond to the questionnaire if they were asked to rate how a peer that they disliked would perceive different behaviours compared to a friend or a peer they admire.

### *Conclusion*

Although a number of significant and interesting results were found as part of this study, overall the results did not show evidence of general support by the sample for antisocial behaviour. Dividing the young adolescents on different measures (e.g, aggression, parenting style) resulted in some clear differences between groups, many of which support previous literature on this topic which has indicated various groups at higher risk for antisocial and criminal behaviour (e.g. Andrews & Bonta, 2000; Hill, 2002). These findings show how perceptions of approval from others are associated with the presence of different risk factors and the findings add to the literature on risk factors for antisocial and criminal behaviour. However, social support for antisocial behaviour, over and above support for pro-social behaviour, has not been demonstrated in these results. Therefore, there does not appear to be a strong case to support the idea that young people engage in antisocial or criminal behaviour because they believe their peers support it. Moreover, the young people in this study did not indicate that they found antisocial behaviour attractive in opposite-sex peers. The perception that adolescents engage in antisocial behaviour due to the endorsement of this behaviour from others is not supported here, at least for 12-13 year olds

It is possible, however, that re-administration of the Perceived Social Support Questionnaire in one to two years, when the sample are in the midst of their teen years, would generate a different



pattern of results. Following the transition to high school and potentially an increase in ‘adolescent-like’ behaviour, it may be that the young people in this sample will increase their endorsement of antisocial and unconventional behaviours. If a change like this is seen when the questionnaire is re-administered it would seem that the findings of both Moffitt and Bukowski et al.’s research had been supported or replicated with this sample. However, in order for future researchers to be able to conclude that support has been found for Moffitt and Bukowski et al.’s research, it is imperative that a baseline or post-adolescence measure is used for comparison. The current study could act as such a measure and therefore, has significant potential to contribute to the ongoing understanding of the development of antisocial and criminal behaviour in young people.

## REFERENCES

---

- Achenbach, T. (2001). *Youth Self report for ages 11-18 (YSR:11-18)*. Achenbach System of Empirically Based Assessment (ASEBA).
- Ainsworth, M. S. (1979). Infant–mother attachment. *American Psychologist*, *34*(10), 932-937.
- American Psychiatric Association: *Diagnostic and Statistical Manual of Mental Disorders*. Fourth Edition, Text Revision. Washington DC, American Psychiatric Association, 2000.
- Andrews, D. A., & Bonta, J. (2006). *The psychology of criminal conduct* (4th edn.). Newark, NJ: Anderson.
- Asher, S. R., & Coie, J. D. (1990). *Peer rejection in childhood*. New York: Cambridge University Press.
- Baker, J. R., & Yardley, J. K. (2002). Moderating effect of gender on the relationship between sensation seeking-impulsivity and substance use in adolescents. *Journal of Child & Adolescent Substance Abuse*, *12*(1), 27-43.
- Bandura, A. (1977). *Social Learning Theory*. New Jersey: Prentice-Hall.
- Barkley, R. A. (1997). Behavioral inhibition, sustained attention, and executive functions: Constructing a unifying theory of ADHD. *Psychological Bulletin*, *121* (1), 65-94.
- Beck, J. E., & Shaw, D. S. (2005). The influence of perinatal complications and environmental adversity on boys' antisocial behavior. *Journal of Child Psychology and Psychiatry*, *46*(1), 35-46.
- Belsky, J., Hsieh, J., & Crnic, K. (1998). Mothering, fathering, and infant negativity as antecedents of boys' externalizing problems and inhibition at age 3 years: Differential susceptibility to rearing experiences? *Development and Psychopathology*, *10*, 301-319.
- Blair, R. J., Jones, L., Clark, F. & Smith, M. (1997). The psychopathic individual: A lack of responsiveness to distress cues? *Psychophysiology*, *34*(2), 192-198.
- Bohman, M. (1996). Predisposition to criminality: Swedish adoption studies in retrospect. In G. R. G. Bock, J.A (Ed.), *Genetics of criminal and antisocial behavior (Ciba Foundation Symposium no. 194)*. Chichester: Wiley.
- Broidy, L. M., Nagin, D. S., Tremblay, R. E., Bates, J. E., Brame, B., Dodge, K. A., et al. (2003). Developmental trajectories of childhood disruptive behaviors and adolescent delinquency: A six-site, cross national study. *Developmental Psychology*, *39*(2), 222-245.

- Bukowski, W. B., Sippola, L. K., & Newcomb, A. F. (2000). Variations in patterns of attraction to same- and other-sex peers during early adolescence. *Developmental Psychology, 36*(2), 147-154.
- Cabanes, A., Ascunce, N., Vidal, E., Ederra, M., Barcos, A., Erdozain, N., Lope, V., & Pollán, M. (2009). Decline in age at menarche among Spanish women born from 1925 to 1962. *BMC Public Health, 9*,(449).
- Carr, A. (2008). *The handbook of child and adolescent psychology: A contextual approach*. London: Routledge.
- Church, R.J. (2003). *The definition, diagnosis and treatment of children and youth with severe behaviour difficulties: A review of research*. Report to the Ministry of Education. University of Canterbury, Education Department.
- Chung, I., Hawkins, D., Gilchrist, L. D., Hill, K. G., & Nagin, D. S. (2002). Identifying and predicting offending trajectories among poor children. *Social Services Review, 76*(4), 663-688.
- Chung, I., Hill, K. G., Hawkins, J. D., Gilchrist, L. D., & Nagin, D. S. (2002). Childhood predictors of offence trajectories. *Journal of Research in Crime and Delinquency, 39*(1), 60-90.
- Coie, J. D., & Dodge, K. A. (1997). Aggression and antisocial behavior. In W. Damon, & Eisenberg, N. (Ed.), *Handbook of child psychology. Volume 3: Social, emotional, personality and development*. (5th edition ed., pp. 779-862). New York: Wiley.
- Crick, N. B. (1996). The role of overt aggression, relational aggression, and prosocial behavior in the prediction of children's future social adjustment. *Child Development, 67*, 2317-2327.
- Crick, N. B., & Grotpeter, L. K. (1995). Relational aggression, sex, and social-psychological adjustment. *Child Development, 66*, 710-722.
- Darling, N., & Steinberg, L. (1993). Parenting style as context: An integrative model. *Psychological Bulletin, 113*(3), 487-496.
- Davies, P. T., & Cummings, E. M. (1994). Marital conflict and child adjustment: An emotional security hypothesis. *Psychological Bulletin, 116*, 387-411.
- Davis, P., McLeod, K., Ransom, M. & Ongley, P. (1997). The New Zealand Socioeconomic Index of Occupational Status. Statistics New Zealand.
- Deater-Deckard, K., Dodge, K. A., Bates, J. E., & Pettit, G. S. (1996). Physical discipline among African American and European American mothers: Links to children's externalizing behaviors. *Developmental Psychology, 32*, 1065-1072.
- Donnellan, M. B., Ge, X., & Wenk, E. (2000). Cognitive abilities in adolescent-limited and life-course-persistent criminal offenders. *Journal of Abnormal Psychology, 109*(3), 396-402.
- Essau, C. A., Sasagawa, S. & Frick, P. J. (2006). Callous-Unemotional Traits in a Community Sample of Adolescents. *Assessment, 13*(4), 454-469.

- Farrington, D. P. (1992). Explaining the beginning, process and ending of antisocial behavior from birth to adulthood. In J. McCord (Ed.), *Advances in criminological theory, Vol 3: Facts, frameworks and forecasts*. (pp. 253-286). New Brunswick, NJ: Transaction Publishers.
- Farrington, D. P., & Hawkins, J. D. (1991). Predicting participation, early onset and later persistence in officially recorded offending. *Criminal behavior and Mental Health, 1*, 1-33.
- Fergusson, D. M., & Horwood, J. L. (1993). The structure, stability, and correlations of the trait components of conduct disorder, attention deficit and anxiety/withdrawal reports. *Journal of Child Psychology and Psychiatry, 34*, 479-466.
- Fishbein, M., & Ajzen, I. (2009). *Predicting and changing behaviour: The reasoned action approach*. New York: Psychology Press.
- Foster, H. G., Hillbrand, M., & Silverstein, M. (1993). Neuropsychological deficits and aggressive behavior: A prospective study. *Progressive Neuro-Psychopharmacol and Biological Psychiatry, 17*, 939-946.
- Frick, P. J. (1991). *The Alabama Parenting Questionnaire*. Unpublished rating scale, University of Alabama
- Frick, P. J. (2003). *The Inventory of Callous-Unemotional Traits*. Unpublished rating scale, University of New Orleans.
- Frick, P. J., Cornell, A. H., Bodin, S. D., Dane, H. E., Barry, C. T., & Loney, B. (2003). Callous-Unemotional traits and developmental pathways to severe conduct problems. *Developmental Psychology, 39*(2), 246-260.
- Frick, P. J., & Hare, R. D. (2001). *The antisocial process screening device*. Toronto, Ontario: Multi-health systems.
- Frick, P. J., Stickle, T. R., Dandreaux, D. M., Farrell, J., & Kimonis, E. R. (2005). Callous-Unemotional traits in predicting the severity and stability of conduct problems and delinquency. *Journal of Abnormal Child Psychology, 33*(4), 471-487.
- Frick, P. J., & White, S. F. (2008). Research review: The importance of callous-unemotional traits for developmental models of aggressive and antisocial behavior. *Journal of Child Psychology and Psychiatry, 49*(4), 359-375.
- Glueck, S. & Glueck, E. (1970). *Toward a typology of juvenile offenders: Implications for therapy and prevention*. New York: Grune & Stratton.
- Graham, M. J., Larsen, U., & Xu, X. (1999). Secular trend in age at menarche in China: a case study of two rural counties in Anhui Province. *Journal of Biosocial Science, 31*(2), 257-267.
- Gray, J. A. (1987). *The psychology of fear and stress*. Cambridge: Cambridge University Press.
- Grogan-Kaylor, A. (2004). The effect of corporal punishment on antisocial behavior in children. *Social Work Research, 28*(3), 153-162.

- Guerin, D. W., Gottfried, A. W., & Thomas, C. W. (1997). Difficult temperament and behaviour problems: A longitudinal study from 1.5 to 12 years. *International Journal of Behavioral Development, 21*(1), 71-90.
- Hare, R. D. (1991). *The Hare Psychopathy Checklist - Revised*. Toronto, Ontario, Canada: Multi-health systems.
- Hawkins, J. D., Herrenkohl, T., Farrington, D. P., Brewer, D., Catalano, R. F., & Harachi, T. W. (1998). A review of predictors of youth violence. In R. F. Loeber, D.P. (Ed.), *Serious and violent juvenile offenders: Risk factors and successful interventions*: Thousand Oaks: Sage.
- Henry, B., Caspi, A., Moffitt, T. E., & Silva, P. A. (1996). Temperamental and familial predictors of violent and non-violent criminal convictions: Age 3 to age 18. *Developmental Psychology, 32*(4), 614-623.
- Hill, J. (2002). Biological, psychological and social processes in conduct disorders. *Journal of Child Psychology and Psychiatry, 43*(1), 133-164.
- Hirschi, T., & Gottfredson, M. (1983). Age and the Explanation of Crime. *The American Journal of Sociology, 89*(3), 552-584.
- Horan, P. M., & Hargis, P. G. (1991). Children's work and schooling in the late nineteenth century family economy. *American Sociological Review, 56*, 583-596.
- Leventhal, T., & Brooks-Gunn, J. (2000). The neighborhood they live in: The effects of neighborhood residence on child and adolescent outcomes. *Psychological Bulletin, 126*(2), 309-337.
- Lipsey, M. W. (1995). "What do we learn from 400 research studies on the effectiveness of treatment with juvenile delinquency?" In J. McGuire (Ed.), *What works: Reducing reoffending, guidelines from research to practice* (pp. 63-78). England: John Wiley & Sons.
- Lipsey, M. W., & Derzon, J. H. (1998). Predictors of violent or serious delinquency in adolescence and early childhood. In R. L. F. Loeber, D.P. (Ed.), *Serious and violent juvenile offenders: Risk factors and successful interventions* (pp. 86-105): Thousand Oaks, CA: Sage.
- Loeber, R., & Stouthamer-Loeber, M. (1986). Family factors as correlates and predictors of juvenile conduct problems and delinquency. In M. Tonry, & Morris, N. (Ed.), *Crime and justice: An annual review of research* (Vol. 7, pp. 29-149). Chicago: University of Chicago Press.
- Loeber, R., Stouthamer-Loeber, M., Van Kammen, W., & Farrington, D. P. (1991). Initiation, escalation and desistance in juvenile offending and their correlates. *Journal of Criminal Law and Criminology, 82*, 36-82.
- Loeber, R. L., & Farrington, D. P. (2001). *Child delinquents: Development, intervention, and service needs*: Thousand Oaks, CA: Sage Publications.
- Lynam, D. R. (1996). Early identification of chronic offenders: Who is the fledgling psychopath? *Psychological Bulletin, 120*(2), 209-234.

- Lynam, D., Moffitt, T. E., & Stouthamer-Loeber, M. (1993). Explaining the relationship between IQ and delinquency: Class, race, test, motivation, school failure, or self-control? *Journal of Abnormal Psychology, 102*(2), 187-196.
- Lyons-Ruth, K. (1996). Attachment relationships among children with aggressive behavior problems: The role of disorganised attachment patterns. *Journal of Consulting and Clinical Psychology, 64*(1), 64-73.
- McGhee, F., Feehan, M., Williams, S., & Anderson, J. (1992). DSM-III disorders from age 11 to age 15. *Journal of American Academy of Child and Adolescent Psychiatry, 31*, 50-59.
- McLoughlin, N., Rucklidge, J., Grace, R. C., & McLean, A. P. (under review). Can Callous-Unemotional traits and aggression identify children at high-risk of anti-social behavior in a low socioeconomic group?
- McLoyd, V. (1998). Socialization and development in changing economy: The effects of paternal job and income loss on children. *American Psychologist, 44*, 293-302.
- Matthys, W., Van Goozen, H. M., Vries, H. D., Cohen-Kettenis, P. T., & Van Engeland, H. (1998). The Dominance of behavioral activation over behavioral inhibition in conduct disordered boys with or without Attention Deficit Hyperactivity Disorder. *Journal of Child Psychology and Psychiatry, 39*(5), 643-651.
- Miles, D. R., & Carey, G. (1997). The genetic and environmental architecture of human aggression. *Journal of Personality and Social Psychology, 72*, 207-217.
- Moffitt, T. (1990). Juvenile delinquency and attention deficit disorder: Developmental trajectories from age 3 to 15. *Child Development, 61*, 893-910.
- Moffitt, T. E., (1993). Adolescence-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological Review, 100*(4), 674-701.
- Mullis, R. L., Cornille, T. A., Mullis, A. K., & Huber, J. (2004). Girl juvenile offending: A review of characteristics and contexts. *Journal of Child and Family Studies, 13*(2), 205-218.
- Newman, D. L., Caspi, A., Moffitt, T. E., & Silva, P. A. (1997). Antecedents of adult interpersonal functioning: Effects of individual differences in age 3 temperament. *Developmental Psychology, 33*(2), 206-217.
- Parker, J. G., & Asher, S. R. (1987). Peer relationships and later personal adjustment: Are low-accepted children at risk? *Psychological Bulletin, 102*(3), 357-389.
- Quay, H. C. (1993). The psychobiology of undersocialised aggressive conduct disorder: A theoretical perspective. *Development and Psychopathology, 5*, 165-180.
- Patterson, G. R., & Yoerger, K. (1997). A developmental model for late-onset delinquency. In D. W. Osgood (Ed.), *Motivation and delinquency. Nebraska Symposium on motivation*. (Vol. 44, pp. 119-177): University of Nebraska Press.

- Poe-Yamagata, E., & Butts, J. A. (1996). *Girl offending in the juvenile justice system: Statistics summary (Report No. NCJ-160941)* Washington DC: Office of Juvenile Justice and Delinquency Prevention.
- Raine, A., Moffitt, T. E., Caspi, A., Loeber, R., Stouthamer-Loeber, M., & Lynam, D. (2005). Neurocognitive impairments in boys on the life-course persistent antisocial path. *Journal of Abnormal Psychology, 114*(1), 38-49.
- Rutter, M., Giller, H., & Hagell, A. (1998). *Antisocial behavior by young people*. Cambridge: Cambridge University Press.
- Silverthorn, P., & Frick, P. J.; (1999). Developmental pathways to antisocial behavior: The delayed-onset pathway in girls. *Development and Psychopathology, 11*(1), 101-126.
- Simonoff, E., Pickles, A., Meyer, J., Silberg, J. L., Maes, H. H., Loeber, R., et al. (1997). The Virginia Twin Study of Adolescent Behavioral Development: Influences of age, gender and impairment on rates of disorder. *Archives of General Psychiatry, 54*(801-8).
- Shaw, D. S., Gilliom, M., Ingoldsby, E. M., & Nagin, D. S. (2003). Trajectories leading to school-age conduct problems. *Developmental Psychology, 39*(2), 189-200.
- Tarolla, S. M., Wagner, E. F., Rabinowitz, J., & Tubman, J. G. (2002). Understanding and treating juvenile offenders: A review of current knowledge and future directions. *Aggression and Violent Behaviour, 7*, 125-143.
- Tremblay, R. E., Pihl, R. O., Vitaro, F., & Dobkin, P. L. (1994). Predicting early onset of boy antisocial behavior from preschool behavior. *Archives of General Psychiatry, 51*, 732-739.

## APPENDICES

---




*Appendix 1: Perceived Social Support Questionnaire* (McLoughlin et al., unpublished)

Instructions:




The following is a set of 4 questionnaires. Although they may seem the same, the questionnaires are about different people. Please answer all 4 questionnaires.






Think of your **parent(s) or caregiver(s)** that you live with. If you did the following would they think it was 1) funny/cool, 2) neutral, or 3) stupid/nasty (please tick the box).

		Funny or cool 	Nothing special 	Stupid or nasty 
1	Were good at sports			
2	Ate a spider			
3	Dressed up for a social function			
4	Get in fights			
5	Had body piercings			
6	Did school patrol			
7	Did things you saw on “jackass”			
8	Damaged someone else’s stuff			
9	Got told off and punished by a teacher			
10	Got high marks at school			
11	Got questioned and taken home by the police			
12	Got a rat for a pet			
13	Drink alcohol			
14	Belong to a club			
15	Smoke cigarettes			
16	Had an unusual haircut			
17	Stole something from a shop or someone else’s home			
18	Knew a lot about computers			
19	Did something crazy and got hurt			
20	Tagged the bus station			
21	Did something dangerous without caring			
22	Made mistakes on purpose or acted dumb			
23	Wore weird clothes			
24	Belong to a gang			
25	Hung out with people 5 years older than me			
26	Drove a car, exceeding the speed limit			
27	Use words or signs that teachers don’t know			
28	Became a vegetarian or vegan			
29	Play a musical instrument			
30	Was good at art			
31	Work hard at school			
32	Got a job working after school or weekends			
33	Picked up rubbish around school			
34	Did voluntary work			
35	Was in a school play or production			
36	Used drugs			
37	Wagged school for a day or more			
38	Got a tattoo			
39	Become an EMO			
40	Had a dead bird in my pocket			
41	Lied to get out of trouble			
42	Broke up a fight			




Think of one of your \_\_\_\_\_ (*insert opposite-sex*) friends you find attractive. If you did the following would he/she think it was 1) funny/cool, 2) neutral, or 3) stupid/nasty (please tick the box).

		Funny or cool 	Nothing special 	Stupid or nasty 
1	Were good at sports			
2	Ate a spider			
3	Dressed up for a social function			
4	Get in fights			
5	Had body piercings			
6	Did school patrol			
7	Did things you saw on "jackass"			
8	Damaged someone else's stuff			
9	Got told off and punished by a teacher			
10	Got high marks at school			
11	Got questioned and taken home by the police			
12	Got a rat for a pet			
13	Drink alcohol			
14	Belong to a club			
15	Smoke cigarettes			
16	Had an unusual haircut			
17	Stole something from a shop or someone else's home			
18	Knew a lot about computers			
19	Did something crazy and got hurt			
20	Tagged the bus station			
21	Did something dangerous without caring			
22	Made mistakes on purpose or acted dumb			
23	Wore weird clothes			
24	Belong to a gang			
25	Hung out with people 5 years older than me			
26	Drove a car, exceeding the speed limit			
27	Use words or signs that teachers don't know			
28	Became a vegetarian or vegan			
29	Play a musical instrument			
30	Was good at art			
31	Work hard at school			
32	Got a job working after school or weekends			
33	Picked up rubbish around school			
34	Did voluntary work			
35	Was in a school play or production			
36	Used drugs			
37	Wagged school for a day or more			
38	Got a tattoo			
39	Become an EMO			
40	Had a dead bird in my pocket			
41	Lied to get out of trouble			
42	Broke up a fight			

Think of one of your \_\_\_\_\_ (*insert same-sex*) friends. If you did the following would he/she think it was 1) funny/cool, 2) neutral, or 3) stupid/nasty (please tick the box).

		Funny or cool 	Nothing special 	Stupid or nasty 
1	Were good at sports			
2	Ate a spider			
3	Dressed up for a social function			
4	Get in fights			
5	Had body piercings			
6	Did school patrol			
7	Did things you saw on "jackass"			
8	Damaged someone else's stuff			
9	Got told off and punished by a teacher			
10	Got high marks at school			
11	Got questioned and taken home by the police			
12	Got a rat for a pet			
13	Drink alcohol			
14	Belong to a club			
15	Smoke cigarettes			
16	Had an unusual haircut			
17	Stole something from a shop or someone else's home			
18	Knew a lot about computers			
19	Did something crazy and got hurt			
20	Tagged the bus station			
21	Did something dangerous without caring			
22	Made mistakes on purpose or acted dumb			
23	Wore weird clothes			
24	Belong to a gang			
25	Hung out with people 5 years older than me			
26	Drove a car, exceeding the speed limit			
27	Use words or signs that teachers don't know			
28	Became a vegetarian or vegan			
29	Play a musical instrument			
30	Was good at art			
31	Work hard at school			
32	Got a job working after school or weekends			
33	Picked up rubbish around school			
34	Did voluntary work			
35	Was in a school play or production			
36	Used drugs			
37	Wagged school for a day or more			
38	Got a tattoo			
39	Become an EMO			
40	Had a dead bird in my pocket			
41	Lied to get out of trouble			
42	Broke up a fight			

Think of someone who is the same age as you but of the opposite-sex. If *they* did the following things would *you* think it was 1) funny/cool, 2) neutral, or 3) stupid/nasty (please tick the box).

		Funny or cool 	Nothing special 	Stupid or nasty 
1	Were good at sports			
2	Ate a spider			
3	Dressed up for a social function			
4	Get in fights			
5	Had body piercings			
6	Did school patrol			
7	Did things you saw on "jackass"			
8	Damaged someone else's stuff			
9	Got told off and punished by a teacher			
10	Got high marks at school			
11	Got questioned and taken home by the police			
12	Got a rat for a pet			
13	Drink alcohol			
14	Belong to a club			
15	Smoke cigarettes			
16	Had an unusual haircut			
17	Stole something from a shop or someone else's home			
18	Knew a lot about computers			
19	Did something crazy and got hurt			
20	Tagged the bus station			
21	Did something dangerous without caring			
22	Made mistakes on purpose or acted dumb			
23	Wore weird clothes			
24	Belong to a gang			
25	Hung out with people 5 years older than me			
26	Drove a car, exceeding the speed limit			
27	Use words or signs that teachers don't know			
28	Became a vegetarian or vegan			
29	Play a musical instrument			
30	Was good at art			
31	Work hard at school			
32	Got a job working after school or weekends			
33	Picked up rubbish around school			
34	Did voluntary work			
35	Was in a school play or production			
36	Used drugs			
37	Wagged school for a day or more			
38	Got a tattoo			
39	Become an EMO			
40	Had a dead bird in my pocket			
41	Lied to get out of trouble			
42	Broke up a fight			

*Appendix 2: List of criminal activities adapted from police crime categories (www.crime.co.nz)*

**1. Violence offences:**

Homicide  
Kidnapping and abduction  
Violent robbery  
Grievous assault  
Serious assault  
Minor assault  
Intimidation/threats  
Group assemblies (i.e. riot)

**2. Sexual Offences**

Sexual attacks  
Sexual affronts  
Immoral behaviour  
Indecent videos  
Sexual attacks  
Abnormal sex  
Miscellaneous

**3-1 Drugs\***

Drugs (not cannabis)  
Drugs (cannabis only)

**3-2 Antisocial behavior\***

Gaming  
Disorder  
Vagrancy offences  
Sale of liquor

**3-3 Family\***

Family offences (i.e. domestic disputes)

**4 Dishonesty offences**

Burglary  
Car conversions etc  
Theft  
Receiving  
Fraud

**5. Property damage**

Destruction of property  
Endangering

**6. Property abuse**

Trespass  
Littering  
Animals  
Postal/rail/fire service abuses  
Arms act offences

**7. Administrative offence**

Against justice  
Births/deaths and marriages  
Immigration  
Racial  
Against national interest  
By-laws breaches

**8. Suicide attempts\*\***

**9. Driving offences \*\***

\* Categories have been subdivided.

\*\* Categories have been added