

**PERSONALITY DISORDER TRAITS AND ANTISOCIAL BEHAVIOUR IN
ADOLESCENTS**

by

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Abstract

In an effort to further understand the contribution of maladaptive personality characteristics to the expression of distinct forms of antisocial behaviour during adolescence, this study examined links between personality disorder traits, physical and social aggression, and nonaggressive antisocial behaviour over one year. A community sample of adolescents (n=182) completed self-reports of physical and social aggression and nonaggressive antisocial behaviour during the summer between the 10th and 11th grades. Participants' parents (n=192) completed a measure assessing the adolescents' personality disorder traits when the youths were 15 years of age in 2009, and their teachers (n=154) completed measures of the frequency of adolescents' perpetration of physical and social aggression during the following academic year. Analyses, conducted separately for boys and girls, explored the links between broad personality disorder factors and facet-level traits as predictors of teacher- and self-rated physical and social aggression, and nonaggressive antisocial behaviour. Results of a series of multiple regression analyses revealed that disagreeableness emerged as a strong predictor of teacher-rated social aggression, self-rated physical aggression and nonaggressive antisocial behaviour in girls but not boys. Broad personality disorder traits did not predict self-rated social aggression. Findings from the facet level revealed that, in contrast with previous research, associations were not found between aspects of disagreeableness, emotional instability, compulsivity and nonaggressive antisocial behaviour in boys. Further, facets within the introversion factor strongly predicted self-rated physical and teacher-rated social aggression for girls only. Findings highlight the importance of examining both higher- and lower-order maladaptive personality traits and considering gender differences in trait expression, in understanding the perpetration of distinct forms of adolescent antisocial behaviour.

Preface

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CHAPTER 1

Introduction

1.1 Overview

Personality characteristics give rise to both adaptive and maladaptive behaviour; components of personality may relate to the type and frequency of adolescents' antisocial behaviour. Antisocial behaviour encompasses an extensive range of overt and covert behaviours, including lying, stealing, truancy, crime, and different forms of aggression. Prevalence rates of antisocial behaviours in a cross-sectional community sample of adolescents have been estimated to be between 4.1% for girls and 10.4% for boys in one Canadian study (Offord, Boyle, Racine, Fleming, Cadman, Blum, et al., 1992). In other reports, prevalence rates of antisocial behaviour in youth have ranged from 5.8% (Lahey, Flagg, Bird, Schwab-Stone, Canino, Dulcan, et al., 1996) to 20% (Velhurst, Eussen, Berden, Sanders-Woudstra, & Van Der Ende, 1993), depending on the sampling time frame (Connor, 2002). Although the peak ages for antisocial behaviours, including aggression, in boys are between 10-13 years (Connor, 2002) and in girls around 16 years (Bauermeister, Canino, & Bird, 1994), there is also a proportion of adults who display antisocial behaviours. Moreover, there is remarkable stability, especially for males, in antisocial behaviour from childhood and adolescence into young adulthood in nonclinical samples (Connor, 2002). For example, Farrington (1991) showed that 49% of the most physically aggressive boys at age 8 were still aggressive at age 32.

Further, Moffitt (1993) described distinct subgroups of individuals that engage in either "life-course-persistent" or "adolescence-limited" antisocial behaviours. This dual developmental taxonomy suggests that there are individual differences in the stability of antisocial behavior, including differences in etiology and course. For example, the early-

onset or life-course-persistent individuals are less common (< 5% of the population), primarily male and are characterized by high rates of chronic aggression appearing by age 8 (Moffitt, 1993). These individuals show large stability and increasing clinical-range severity in antisocial behaviour into adolescence and adulthood. This type of antisocial and aggressive behavioural pattern may be indicative of a psychopathological syndrome and have a biological basis wherein early neuropsychological problems interact with other environmental risk factors throughout development (Caspi & Moffitt, 2006; Moffitt, 1993).

The second group shows more time-limited and situational (i.e., context-dependent) antisocial behaviours (including aggression) that may be more normative or socially adaptive during adolescence (Moffitt, 1993). In contrast to the early-onset group, individuals who begin engaging in antisocial behaviour during adolescence constitute a large subgroup wherein these behaviours are common and do not reach the levels of severity and dysfunction seen in the early-onset group. Further, these individuals desist from the behaviours as they move into early adulthood. Findings from the Dunedin Longitudinal Study (Moffitt, Caspi, Rutter, & Silva, 2001) suggest that the majority of antisocial behaviour, particularly by girls, is better conceptualized as a social (not biological) phenomenon that typically begins during puberty for the majority of adolescents and is influenced by friendships and romantic relationships. In general, the literature demonstrates that antisocial behaviour is less prevalent prior to adolescence, although boys show higher involvement with physically aggressive behaviours prior to puberty (Connor, 2002). During adolescence, however, girls' rates of enacting antisocial behaviours begin to reach that of boys (Connor, 2002).

Recent reviews of the literature have yielded estimates of the considerable monetary and societal costs associated with antisocial outcomes within the criminal justice, education,

and medical systems (e.g., Cohen, 1998; Cohen & Piquero, 2009). In documenting the cost of antisocial behaviour to society, Cohen (1998) pointed to both “external” and “social” costs, including property damage, loss of income, medical expenses, and other costs to victims as well as costs associated with criminal justice and incarceration. Many other “internal” costs are incurred by those who engage in antisocial behaviour, including loss of income while incarcerated, lack of education (e.g., high school drop-out), lower future earning potential, and healthcare costs associated with drug addiction over an individual’s lifetime (Cohen, 1998). In a recent cost-benefit analysis, Cohen and Piquero (2009) placed the value of preventing a 14-year-old high risk youth from chronic involvement in antisocial behaviour including crime and substance use at between \$2.6 to \$5.3 million dollars over a lifetime. The monetary benefits to adopting a preventive versus punitive approach to antisocial outcomes are considerable.

A vast literature describes the characteristics and outcomes of youth displaying a broad range of antisocial behaviours (see Connor, 2002). Research from multiple perspectives has addressed developmental, psychosocial and neurobiological factors underlying the development, expression and trajectories of different forms of antisocial behaviour. Considerable effort has been made to identify risk factors for antisocial behaviour and aggression in children and youth (Connor, 2002; Moffitt, 1993; Henry, Moffitt, Robins, Earls, & Silva, 1993; Petras, Schaeffer, Ialongo, Hubbard, Muthén, Lambert, Poduska, & Kellam, 2004). Risk factors, or conditions that predispose individuals towards enacting antisocial behaviour, have been described at the individual, familial, and extra-familial levels and have informed prevention and intervention efforts (Connor, 2002).

Heritable influences have been found to be important for the development of antisocial and problem behaviour, including physical aggression, in longitudinal studies of twins (Eaves, Silberg, Meyer, Maes, Simonoff, Pickles, et al., 1997). For example, temperament is a heritable or genetic factor that has been examined in relation to antisocial behaviour. Temperament, which is considered to be the basis of personality, is an individual's characteristic behavioural and emotional style (Prior, 1992). Early difficult temperament is characterized by low levels of adaptability to new situations, negative mood, and an inability to inhibit activity when needed (Thomas & Chess, 1977). A difficult temperamental style has been shown in cross-sectional studies to be associated with general psychopathology and conduct problems including antisocial behaviour across development (e.g., Merikangas, Swendsen, Preisig & Chazan, 1998).

Family or environmental influences that have been identified as important to the development of aggressive behaviour in children and adolescents include poor quality of infant-caregiver attachment (Moretti & Osbuth, 2009), coercive family processes (Patterson, 1982), child abuse and neglect (Widom, 1989) and parental psychopathology (Connor, 2002), to name a few. For example, harsh and inconsistent parental discipline has been shown to have a mutually maintaining effect on preadolescent boys' antisocial behaviour (Vuchinich, Bank, & Patterson, 1992). More recent research has examined the bidirectional effects of child characteristics and family processes on antisocial behaviour (Connor, 2002).

Overall, it appears that there is no single causal environmental or genetic factor that accounts for antisocial and aggressive outcomes. Rather, there appear to be transactional effects between heritable and environmental factors that shape the individual's behaviour over time (Connor, 2002). Extra-familial influences such as deviant peer groups or

neighborhood characteristics have also been examined, although the links between factors such as social deprivation and antisocial behaviour are complex and mediated by factors within the home (Connor, 2002). Given the complexity of the effects described above and the fact that these different confounding factors are present in several layers of the child's environment, and in the absence of long-term controlled experimental studies, protracted debates over the relative importance of the causal effects of psychosocial versus genetic factors in the etiology of antisocial behaviour including aggression continue (Connor, 2002).

1.2 Antisocial behaviour

Although aggressive and nonaggressive antisocial behaviour are often conflated conceptually and empirically (see DeMarte, 2010; Frick & Viding, 2009), there is recent evidence from correlational studies with large samples of young adults that lend support to the utility of distinguishing physical aggression and nonaggressive (i.e., rule-breaking) antisocial behaviour (Burt, Mikokajewski, & Larson, 2009). In the clinical developmental literature, there are several issues related to terminology and definitions in this area. For example, different disciplines approach the issue of antisocial children and youth differently and use various terms including conduct disorder, delinquent, aggressive, and antisocial to describe children and youth with disruptive behaviour problems (Connor, 2002). It is clear, however, that antisocial behaviour and aggression are heterogeneous constructs and have been parsed so as to create more meaningful, precise constructs. As the following review of the literature makes clear, the evidence suggests that antisocial behaviour is best described as a multidimensional construct and that physical aggression, social aggression, and rule-breaking (i.e., nonaggressive antisocial behaviour) are distinct forms of antisocial behaviour.

An underutilized approach to understanding the expression of the various components of antisocial behaviour in adolescence involves examining the associations between personality traits and specific aspects of antisocial behaviour. As demonstrated in the following literature review, there are robust links between various components of antisocial behaviour, including aggression, and normal personality traits in adolescents and adults. In particular, agreeableness and conscientiousness (or lack thereof) have clearly been linked to antisocial behaviour (Miller & Lynam, 2001). The majority of this research, however, has been conducted with adults. Less is known about the personality characteristics associated with various components of antisocial behaviour among adolescents. Moreover, research to date has focused primarily on the extent to which normal-range personality traits can adequately describe individual differences related to antisocial behaviour generally (Caspi & Shiner, 2006). Far less is known about how personality disorder characteristics are linked to specific components of antisocial behaviour among youth. Recent advances in empirically-based dimensional assessment of personality disorder traits among adolescents integrating normal-range and clinically relevant or maladaptive traits (De Clercq, De Fruyt, & Widiger, 2009) have made it possible to examine the personality disorder trait correlates and predictors of different forms of maladjustment.

Many studies have examined the association between personality traits as etiologic factors in children, adolescents and adults and general psychopathology (see Tackett & Krueger, 2005). Extending this research, the current study tested hypotheses about expected links between personality disorder traits at different levels of the personality trait hierarchy or structure and three distinct but related components of antisocial behaviour -- physical aggression, social aggression and nonaggressive antisocial behaviour -- in a nonclinical

sample of adolescents. The associations among these constructs are of interest because different forms of aggression and nonaggressive antisocial behaviour are associated with mental health problems and other adverse outcomes in adolescence and adulthood, both concurrently and prospectively (e.g., Bierman, Bruschi, Domitrovich, Fang, & Miller-Johnson, 2004; Patterson, Reid, & Dishion, 1992). For example, broad personality traits in children such as extraversion and (low) agreeableness generally appear to confer risk for externalizing problems including aggression. In turn, physically aggressive children and adolescents are over time at risk for more severe outcomes including perpetrating interpersonal violence and chronic criminal offending (Caspi & Shiner, 2006).

There is considerable comorbidity or co-occurrence among common types of externalizing psychopathology (Krueger, Hicks, Patrick, Carlson, Iacono, & McGue, 2002). Recent evidence from large-scale twin studies suggests that underlying personality traits, which are partly genetic in origin, account for some of the co-occurrence and stability of different kinds of antisocial behaviour (Krueger et al., 2007). Longitudinal studies support the idea that early personality traits such as impulsivity and novelty-seeking are causally linked with criminal and externalizing behaviour, not the other way around (Cloninger, Sigvardsson, & Bohman, 1988). As shown in the literature review to follow, prior research has been helpful in describing the predictive utility of normal personality traits in relation to some antisocial outcomes. However, there are several limitations to this work, including narrow measures of antisocial behaviour in cross-sectional samples of adults (e.g., Heaven, 1996), use of single rather than multiple informants (Connor, 2002), and inclusion of only boys in analytic samples (e.g., Le Corff & Toupin, 2009). There is also a lack of studies that

incorporate measures of personality disorder traits that assess clinically relevant personality traits in this age range.

1.3 Aim of research

The primary objective of the present study was to test whether adolescent personality disorder traits predict specific components of antisocial behaviour; namely physical aggression, social aggression and nonaggressive antisocial behaviour. Another objective was to examine whether there were gender differences in patterns of trait expression in relation to these three outcomes. The current study extended previous work by decomposing global personality disorder constructs into their constituent facet-trait components, allowing for the testing of a series of models addressing the associations between personality disorder traits, physical and social aggression, and nonaggressive antisocial behaviour. Further, this study integrated two literatures in order to better understand gender differences in maladaptive trait expression. The first literature, derived from developmental psychology and psychopathology, has established links between normal personality characteristics and antisocial behaviour (e.g., Miller & Lynam, 2001). The second literature explores the links between personality and personality disorder constructs and different forms of aggression (e.g., Ostrov & Houston, 2008). These are not competing approaches; rather, they are complementary, although to date they have not been informed by each other, as until recently it was assumed that personality disorder traits emerge and can only be meaningfully assessed in adulthood. However, recent evidence suggests that adolescent personality disorder traits can be reliably measured and the structure of personality traits in this developmental period is similar to that of adults (De Clercq, De Fruyt, & Widiger, 2009). As will be shown in the next chapter, there are likely

different personality trait patterns in adolescents that predict the outcomes in this study and that trait expression is likely to vary across gender.

CHAPTER 2

Review of the Literature

2.1 Personality and personality disorder

Within the academic psychology literature, personality refers to people's tendencies to feel, think and act in consistent ways across situations and over time (McAdams & Pals, 2006; Miller, Lynam & Leuekfeld, 2003; Shiner, 2009). Personality encompasses a broad range of individual differences in cognition, affect and behaviour that are stable and consistent over the long term (Matthews, Deary, & Whiteman, 2003). Underlying much of the research on normal personality in adults, trait theory (e.g., Costa & McCrae, 1994; John & Srivastava, 1999) has mainly involved identifying robust patterns of trait covariation for the construction of taxonomies that describe normal adult personality. There is consensus that the majority of nonclinical or normal-range traits in adults can be represented by three to seven major domains (e.g., Eysenck & Eysenck, 1985; Costa & McCrae, 1992). A widely adopted classification, known as the Five-Factor Model (FFM; Costa & McCrae, 1992; John & Srivastava, 1999), consists of the five major personality domains or higher-order factors of extraversion, agreeableness, conscientiousness, neuroticism and openness to experience (Costa & McCrae, 1992; Digman, 1990). These five factors have been identified and validated cross-culturally and emerge similarly in males and females (see John & Srivastava, 1999 for a review). These traits have also been reliably identified in children and adolescents (Caspi & Shiner, 2006; De Clercq, De Fruyt, & Widiger, 2009; Parker & Stumpf, 1998; Shiner, 2009).

Within the five-factor framework, the major domains subdivide into more specific subscales, or facet traits. For example, extraversion is defined by six facets: warmth,

gregariousness, assertiveness, activity, excitement seeking, and positive emotions (Costa & McCrae, 1992). Table 2.1 provides a list of the five factors and their corresponding facets.

Table 2.1

Factors and facets of the Five-Factor Model (Costa & McCrae, 1992)

-
1. Neuroticism
 - a. Anxiety
 - b. Hostility
 - c. Depression
 - d. Self-Consciousness
 - e. Impulsiveness
 - f. Vulnerability to Stress
 2. Extraversion
 - a. Warmth
 - b. Gregariousness
 - c. Assertiveness
 - d. Activity
 - e. Excitement Seeking
 - f. Positive Emotion
 3. Openness to experience
 - a. Fantasy
 - b. Aesthetics
 - c. Feelings
 - d. Actions
 - e. Ideas
 - f. Values
 4. Agreeableness
 - a. Trust
 - b. Straightforwardness
 - c. Altruism
 - d. Compliance
 - e. Modesty
 - f. Tendermindedness
 5. Conscientiousness
 - a. Competence
 - b. Order
 - c. Dutifulness
 - d. Achievement Striving
 - e. Self-Discipline
 - f. Deliberation
-

Personality emerges throughout childhood and adolescence, beginning with aspects of early temperament (Shiner, 2006) that are thought to be the precursors of basic and generalized tendencies in behaviour, cognition and affect (McAdams & Adler, 2006; Rothbart & Bates, 2006). Temperament is usually defined as the biological basis of behaviour (Goldsmith, Buss, Plomin, Rothbart, Thomas, Chess, et al., 1987; Thomas & Chess, 1977) and is shaped by both genetic and environmental influences (Caspi & Shiner, 2006; Saudino, 2005). Some childhood personality traits have clear counterparts in early temperament features. In particular, both temperament and personality include constructs that describe positive and negative emotions, sociability, high energy, and stress reactivity (Shiner, 2009). Children's unique qualities, including temperament, affect, and self-awareness are fundamental to the development of the self (Thompson & Goodvin, 2005). The emerging sense of self that is a critical part of personality development is shaped by experience over time and integrated into a life narrative that is the scaffolding of personality (Thompson, 2006).

Personality unfolds in the context of social environments and varies as a function of the demands and challenges of a particular developmental period (Caspi & Shiner, 2006). For example, the successful establishment of friendships, one of the most important tasks in childhood and adolescence, is predicted by four of the five broad personality traits -- neuroticism, extraversion, agreeableness, and conscientiousness (Caspi & Shiner, 2006). Adolescents who score highly on extraversion measures have been shown to experience higher levels of perceived social support from peers (Asendorpf & van Aken, 2003). Personality is also associated with social competence because adaptive social functioning

demands a broad range of social-emotional skills, including appropriate expression of affect and regulation of emotions and behaviours (Caspi & Shiner, 2006), each of which are associated with major personality traits such as extraversion and agreeableness (Asendorpf & van Aken, 2003; Branje, van Lieshout, & van Aken, 2004). Hence, the study of normal personality can inform other areas of child and adolescent development. Similarly, personality pathology may also influence developmental tasks, although the developmental outcomes associated with maladaptive personality have not been investigated to date.

The Five-Factor Model describes the adaptive dimensions of personality. Researchers have also been interested in maladaptive personality traits. Recently, research has focused on establishing and validating a developmental taxonomy of personality disorder (PD) traits in child and adolescent clinical and nonclinical samples. In understanding the association between adaptive and maladaptive personality traits, joint factor analyses of the Five-Factor Model and dimensional assessments of the DSM-IV (APA, 1994) personality disorder diagnoses have shown that the domain of personality disorder can be represented by four of the five major personality factors (De Clercq & De Fruyt, 2009; Livesley, Jang, & Vernon, 1998; Trull & Durrett, 2005). In other words, a four-factor model of maladaptive personality subsumes the five factors of normal personality.

This is not to suggest that normal and disordered traits are identical or equivalent. The Five-Factor Model has been suggested as a convenient framework that serves the purpose of describing an alternative dimensional model of personality disorder as compared with the current categorical system of DSM (APA, 1994). Further, an extreme score (positive or negative) on any given normal personality trait is not the equivalent of a personality disorder trait (e.g., Shiner, 2009). First, as Livesley (2007) suggests, trait extremity alone is

insufficient to indicate disorder. For example, it is difficult to conceptualize an individual who is extremely highly conscientious as disordered. Traits must also be expressed in a rigid, maladaptive fashion across contexts; in other words, there must also be evidence of functional impairment and distress to the individual (APA, 1994). The four major personality disorder factors provide a descriptive framework to understand the major types or kinds of personality problems. This four-factor structure has also been shown to be valid in earlier developmental periods including childhood (see De Clercq, De Fruyt, & Widiger, 2009; De Clercq & De Fruyt, 2007). In the present study, the personality disorder traits are operationalized as parent-perceived personality trait-related symptoms in adolescents that are the most likely precursors of the chronic maladaptive patterns of behaviour, feelings and thoughts that characterize adult personality disorders.

The four factors that represent personality disorder in adults, adolescents, and children include (1) emotional instability, which is primarily defined by emotional and dependent personality traits and corresponds to neuroticism, (2) disagreeableness, defined by dissocial personality traits and corresponds to low agreeableness and low conscientiousness, (3) introversion, which consists of low sociability and represents low extraversion, and (4) compulsivity, which resembles high conscientiousness. There is no personality disorder factor that represents a maladaptive variant of openness to experience in children, adolescents or adults (Caspi & Shiner, 2006; De Clercq, De Fruyt, & Widiger, 2009). These four factors are, in turn, composed of lower-order or facet traits. For example, emotional instability has nine facets, disagreeableness consists of twelve facets, and introversion and compulsivity contain three facets each, respectively, for a total of 27 facets in this personality disorder trait taxonomy. Table 2.2 lists the four major factors and their corresponding facets.

Table 2.2

Factors and facets of the Dimensional Personality Symptom Item Pool (DIPSI; De Clercq et al., 2006)

1. Disagreeableness
a. Hyperexpressive traits
b. Hyperactive traits
c. Dominance-egocentrism
d. Impulsivity
e. Irritable-aggressive
f. Disorderliness
g. Distraction
h. Risk taking
i. Narcissism
j. Affective lability
k. Resistance
l. Lack of empathy
2. Emotional Instability
a. Dependency
b. Anxiousness
c. Lack of self-confidence
d. Insecure attachment
e. Submissiveness
f. Ineffective coping
g. Separation anxiety
h. Depressive traits
i. Inflexibility
3. Introversion
a. Shyness
b. Paranoia
c. Withdrawn
4. Compulsivity
a. Perfectionism
b. Extreme achievement-striving
c. Extreme order

Within the four-factor model of personality disorder (PD) traits, the broad domains or factors of emotional instability, disagreeableness, introversion and compulsivity consist of affective and cognitive components that influence behaviour. Based on the literature on trait theory of normal personality, one objective of the present study was to explore whether

specific constellations of personality disorder traits are associated with different aggressive and antisocial outcomes. The current study extends prior work on the associations between broad dimensions of adult personality pathology and maladjustment by exploring the specific personality disorder facets that uniquely contribute to both aggression as well as nonaggressive antisocial behaviours. To understand the links between personality disorder traits, aggression and nonaggressive antisocial behaviour, definitions of the various constructs are provided and research that addresses the associations among these constructs is reviewed below.

2.2 Aggressive and nonaggressive antisocial behaviour

Much of the literature on antisocial behavior confounds multiple subcategories within this broad externalizing domain, leading to inconsistent findings and difficulties comparing results across studies (Mash & Barkley, 2003). Antisocial behaviour is not a unitary concept (e.g., Dodge, Coie, & Lynam, 2006; Heaven, 1996) and often subsumes nonaggressive but socially unacceptable behaviours such as lying, stealing, truancy, as well as more severe aggressive and criminal acts. Criminal justice definitions of antisocial behaviour include any act that violates the rules and laws of society (Connor, 2002). A closely related term in the literature, delinquency, refers to a subset of antisocial behavior that includes status offences or actions that would be legal if committed by an adult such as drinking (Connor, 2002).

Although aggressive and nonaggressive antisocial behaviours are often conflated conceptually and empirically (see DeMarte, 2010; Frick & Viding, 2009), and although the perpetration of aggressive and nonaggressive antisocial behaviour frequently co-occurs, the constructs are not synonymous (Dodge, Coie, & Lynam, 2006). Indeed, there is evidence supporting phenotypic (i.e., overt expression) and etiologic (i.e., origins) distinctions between

aggressive and nonaggressive antisocial behaviour (Achenbach & Rescorla, 2001; Connor, 2002). For example, in a study of 588 undergraduate students, Burt, Mikolajewski and Larson (2009) assessed physical aggression, rule-breaking, positive and negative affect, and hostile perceptions of others in order to determine whether physical aggression and rule-breaking would be differentially associated with interpersonal outcomes. Results demonstrated that physical aggression was moderately and positively associated with negative affect and hostile perceptions of others (i.e., the higher an individual's aggression, the more likely they were to report negative affect and hostile perceptions), but rule-breaking was not. These findings lend empirical support for the separation of physical aggression on the one hand, and rule-breaking (i.e., nonaggressive antisocial) behaviour on the other.

Physical aggression, however, is not the only form of aggression to be considered. Relatively recently, attention has focused social aggression which consists of actions that are intended to damage another's relationships, social standing, or self-esteem and can involve the perpetration of social exclusion, hostile nonverbal gestures, and spreading malicious rumours or gossip (for a review, see Underwood, 2003). Initially, social forms of aggression were thought to be more characteristic of girls, although subsequent research (to be described later) has shown that this is not the case (see Card et al., 2008 for a review). Like physical aggression, social aggression is stable over time (Crick et al., 1999). In addition, it is linked to maladjustment in both adolescents and young adults (e.g., Ostrov & Houston, 2008). Hence, social aggression is an important, independent outcome.

The evidence also supports the distinction between physical and social aggression. Only one study to date has examined the heterogeneity of antisocial behaviour involving rule-breaking, physical aggression, *and* social aggression in a community-based and a high-

risk, primarily male, adjudicated sample (DeMarte, 2010). Confirmatory factor analyses indicated that, for both samples, a three-factor model provided the best fit to the data, supporting the idea that social aggression, physical aggression, and rule-breaking behaviour are distinct (independent), but correlated types of antisocial behaviour.

Taken together, results from the literature demonstrate that antisocial behaviour is best described as a multidimensional construct, with physical aggression, social aggression, and rule-breaking (nonaggressive antisocial behaviour) being distinct forms of maladaptive behaviour. Accordingly, all three outcomes were considered in the present study, examining how each is predicted by maladaptive personality characteristics, namely personality disorder traits as well as their associated facets. Acknowledging recently established phenotypic (observable) distinctions between aggression and antisociality (Connor, 2002), nonaggressive antisocial behaviour was operationally defined as rule-breaking behaviour (e.g., stealing, fire-setting, truancy, and running away), distinct from both social and physical aggression. However, as shown in the review of literature that follows, previous research examining links between antisocial behaviour and personality has not typically distinguished these three components. In order to disentangle the associations between aggressive/nonaggressive antisocial behaviour and personality disorder, some background information is required.

2.3 Antisocial behaviour and antisocial personality disorder (ASPD)

An extensive clinical literature links antisocial personality disorder (ASPD) in adults to antisocial behaviour including aggression in childhood and adolescence (American Psychiatric Association [APA], 1994). ASPD is a psychiatric diagnosis within Cluster B (i.e., PDs characterized as “dramatic” and “erratic”) of Axis II (i.e., personality disorders) of the DSM-IV (APA, 1994). Antecedents of adult antisocial personality disorder are characterized

by several behavioural symptoms observed in children and adolescents. For example, aggressive and/or nonaggressive antisocial behaviour is one criterion for conduct disorder in children (APA, 1994). Like antisocial personality disorder, conduct disorder is characterized by a stable, repetitive pattern of behaviour wherein the rights of others or age-appropriate social norms are violated (APA, 1994). A diagnosis of conduct disorder prior to the age of 15 is required to meet diagnostic criteria for adult antisocial personality disorder (APA, 1994), and at least three of the following additional criteria must be present: failure to conform to social norms as evidenced by criminal behaviour, lying, impulsivity, irritability and aggressiveness as evidenced by physical assaults; disregard for the safety of self and others; and irresponsibility toward interpersonal obligations and remorselessness. A simplified list of diagnostic criteria for ASPD is provided in Table 2.3.

Table 2.3

Simplified DSM-IV Criteria for Antisocial Personality Disorder (APA, 1994)

A. Current age at least 18

B. Evidence of Conduct Disorder with onset before age 15, as indicated at least two of the following:

1. Lying
2. Stealing without confrontation of a victim
3. Truancy

C. A pattern of irresponsible and antisocial behaviour since age 15, as indicated by at least three of the following:

1. Unable to sustain consistent work behaviour
 2. Deception, as indicated by repeatedly lying to others
 3. Irritable and aggressive
 4. Fails to conform to social norms with respect to lawful behaviour
 5. Impulsiveness or failure to plan ahead
 6. Reckless disregard for safety of self or others
 7. Lacks remorse as indicated by being indifferent to having hurt, mistreated or stolen from another
-

Clearly, there are definitional issues stemming from the conceptual and empirical link between antisocial personality disorder and antisocial behaviour. Some classification systems such as the DSM-IV (APA, 1994) view chronic patterns of antisocial behaviour and antisocial PD as synonymous (see Hare, Hart, & Harpur, 1991; Robins, 1978). Although the current study focuses on distinct antisocial outcomes in adolescents, the DSM-IV definition of antisocial personality disorder is provided here even though it is an adulthood diagnosis because prior to the current version of the DSM, antisocial personality disorder was defined in terms of behavioural patterns. The DSM-IV began to integrate intra- and interpersonal concepts related to psychopathy (Hare et al., 1991). Hence, the DSM diagnostic criteria for

antisocial personality disorder guarantees confounding of emotional symptoms with behavioural symptoms as these components are not explicitly separated, as they are in Hare's (1991) model of psychopathy.

Within the present study, antisocial personality disorder is treated as distinct from antisocial behaviour. As Frick and Viding (2009) note, not all adults who exhibit antisocial behaviour meet criteria for antisocial personality disorder; in fact, such individuals are in the minority. This is because in addition to the observable behaviours that make up the diagnostic criteria for the specific disorder, criteria for general personality disorder must also be met. These include evidence of a chronic, inflexible pattern of inner experience (e.g., feelings and thoughts) and as well as behaviour that deviates substantially from cultural norms, is stable over time, and causes impairment or distress to the individual (DSM-IV; American Psychiatric Association, 1994). Additionally, narcissistic personality disorder (NPD) shares diagnostic features associated with antisocial personality disorder, namely, being interpersonally exploitative, having an exaggerated sense of entitlement, and lacking empathy (APA, 1994). Some of these features, particularly taking advantage of others and the absence of empathy, are shared with antisocial personality disorder. This is unsurprising as both NPD and ASPD are classified in the same cluster of personality disorder diagnoses.

Given that antisocial behaviour is typically considered to be one behavioural component of personality disorders, there are no studies available that examine specific personality disorder trait taxonomies separately in relation to antisocial behaviour as an outcome. This is in part because adult and child/youth measures of personality disorders incorporate items that assess antisocial behaviours like cheating and breaking rules as well as affective components related to antisociality (e.g., dominance, lack of empathy, irritability).

In sum, although categorical diagnostic criteria for personality disorder are not generally applicable and do not have established validity in youth, adolescent personality disorder traits appear to be useful in identifying those individuals at risk for various forms of maladjustment. From the clinical literature, it is clear that there are robust links between broadly defined antisocial behaviour and personality disorders, with impulsivity and lack of empathy as core diagnostic features (Connor, 2002). Additional links between normal-range personality traits and various forms of antisocial behaviour have also been established, as described in the following section.

2.4 Antisocial behaviour and personality

The personality literature has informed the study of antisocial behaviour including aggression in adults (Miller & Lynam, 2001), adolescents (Forsman, Lichtenstein, Andershed, & Larsson, 2010; Le Corff & Toupin, 2009) and children (Fonesca & Yule, 1995). Developmental research typically investigates the antecedents of antisocial behaviour including early disruptive behaviour and poor anger regulation in childhood (Dodge, Coie, & Lynam, 2006; Moffitt, 1993; Patterson, DeBaryshe, & Ramsey, 1989; Pulkkinen, 2001). For example, in Moffitt's (1993) dual taxonomy of antisocial behaviour including aggression, child temperament is hypothesized to play a crucial role in the development of life-course persistent aggressive antisocial behaviour. That is, children who show early disruptive patterns of behaviour and affect are more likely to show continuity and increased severity of antisocial behaviour over time. This is thought to arise from an underlying dispositional (i.e., genetic) vulnerability that predisposes individuals towards the expression of aspects of temperament such as intense emotional reactivity and low behavioural inhibition (Frick & Viding, 2009; Moffitt, 1993). Temperament features are thought to give rise to emerging

personality traits (Caspi & Shiner, 2006). The strongest temperament predictors of subsequent antisocial behaviour including aggression are effortful control (or lack thereof), fearlessness, and irritability/anger/frustration (Rothbart, Ahadi, & Evans, 2000).

The Five-Factor Model has been an especially useful framework for describing associations between personality and antisocial behaviour in clinical and nonclinical samples of all ages (Tackett & Krueger, 2005). In one of two studies to date investigating the specific traits and facets of the Five-Factor model in relation to persistent delinquency (defined in this study as antisocial behaviour including aggression resulting in referral to social services), Le Corff and Toupin (2009) compared persistent delinquent male adolescents and young adults aged 15-20 years in Québec with a matched sample of normative peers in a four-year longitudinal study. Consistent with a previous meta-analysis (Miller & Lynam, 2001), they found that the traits of agreeableness (low) and neuroticism (high) were related to antisocial behaviour. Le Corff and Toupin (2009) argued that even if a link was not found between a factor/trait and antisocial behaviour, the same is not necessarily true for the facets, as (1) facets are heterogeneous (some may be positively and others negatively associated with an outcome, leading to non significant associations in regressions) and (2) facets refer to more precise personality trait descriptions (De Clercq & De Fruyt, 2003). At the facet level, the aggressive delinquent group scored significantly higher than nondelinquents on the neuroticism facets of angry hostility, depression, impulsiveness and vulnerability. For agreeableness, the facets of trust, straightforwardness, compliance, and tender-mindedness significantly differentiated the groups with the normative group scoring significantly higher. Nondelinquent peers also scored significantly higher on the values facet of openness. Contrary to expectations, given its consistent associations with antisocial behaviour,

conscientiousness did not significantly differentiate the two groups. Only lower levels of the facet of competence on this factor significantly differentiated the delinquent from the normative group.

Although the LeCorff and Toupin (2009) study demonstrated facet-level associations between normal personality and antisocial behaviour including aggression, some findings were contrary to expectations and previous studies. Most notably, conscientiousness did not differentiate the delinquent from the normative group whereas neuroticism did (Le Corff & Toupin, 2009). This may be due to the small sample size or to translation problems. Moreover, given that the study was conducted only with male participants, it is unknown whether these associations are significant for aggressive/delinquent girls. Nevertheless, results of the Le Corff and Toupin research underscore the importance of examining the links between distinct forms of antisocial behaviour and facets as well as domains of personality.

In a later longitudinal study of 144 male youth (aged 12-17) referred for social services youth care in Québec, Le Corff and Toupin (2010) investigated the predictive utility of the facets of the Five-Factor model and antisocial personality disorder symptoms in relation to future antisocial behaviour including aggression. At intake, all participants met diagnostic criteria for DSM-IV conduct disorder or had scored at the 98th percentile or higher on the Child Behavior Checklist rule-breaking scale (teacher or parent report of nonaggressive antisocial behaviour). The youths were reassessed three and five years later for antisocial personality disorder symptoms via clinical interview and completed self-report measures of personality (NEO-PI-R; Costa & McCrae, 1992) and 29 antisocial behaviours including aggression.

At the second assessment, almost 43% of the sample met criteria for antisocial personality disorder. Correlation analyses indicated that compliance, a facet of agreeableness, was negatively associated with the number of ASPD symptoms reported ($r = -.33$; $p < .01$), whereas the extraversion facets of activity and excitement-seeking were positively correlated with ASPD symptoms ($r = .25$; $p < .05$ for both), although only compliance and activity remained significant predictors in subsequent analyses. Regression analyses indicated that two facets emerged as significant predictors -- compliance and activity -- accounting for 10.5% of the variance, although (low) compliance accounted for a total of 8.7% of the unique variance in predicting antisocial behaviour including aggression after controlling for current ASPD symptoms and past antisocial behaviour.

Overall, the main normal-range personality traits associated with antisocial behaviour are those that describe hostile reactions and a tendency toward interpersonal conflict (low compliance) and a higher level of activity (a facet of extraversion). It is surprising that one facet, compliance, accounted for such a large portion of the unique variance in predicting aggressive antisocial behaviour beyond ASPD symptoms and past antisocial behaviour. In fact, the compliance facet appears to capture a component of the antisocial personality disorder category that is not accounted for by current diagnostic criteria. Nevertheless, the findings of this study lend support to patterns of personality traits as causal factors in different antisocial subtypes (e.g., Caspi & Shiner, 2006).

Although the Le Corff and Toupin (2010) study was the first to examine the prospective associations between FFM facets and broadly defined antisocial behaviour, the study had a number of limitations, including a small, all-male sample referred to social services. Moreover, and perhaps most importantly, the Le Corff and Toupin study did not

examine personality characteristics that predicted different components of antisocial behaviour, with the clinical sample identified on the basis of broad criteria for general antisocial behaviour. Finally, by utilizing the Five-Factor Model to assess personality, the study assessed only normal-range personality traits, as the NEO-PI-R does not cover the most extreme or maladaptive traits and the measure may not capture the range of trait expression that is relevant to understanding antisocial and aggressive outcomes (De Clercq, De Fruyt, & Widiger, 2009).

Very few studies to date have investigated the facets of the five-factor model in relation to different forms antisocial behaviour, and most of the studies that have been conducted have included young adult, undergraduate samples. In the subsections that follow, research examining the links between personality characteristics (traits and facets) and each of the three components of antisocial behaviour (nonaggressive antisocial behaviour, physical aggression and social aggression) is reviewed.

In a study of 216 high school students, Heaven (1996) examined the links between self-reports of broad personality traits (using the NEO-PI; Costa & McCrae, 1985) and self-reports of both physical aggression and nonaggressive, covert acts such as theft. No significant associations were observed between the personality traits of extraversion, openness and either form of antisocial behaviour across gender. Conscientiousness was negatively related to nonaggressive antisocial behaviour for boys and girls. For boys, but not girls, agreeableness was negatively related to vandalism, and neuroticism was positively related to theft (both nonaggressive antisocial behaviours). Regarding physical aggression, agreeableness was negatively related to physical aggression for boys and girls, and conscientiousness was not related to physical aggression across gender. Neuroticism was

positively related to physical aggression for girls only. No association was observed between openness and physical aggression for girls and boys. In sum, there was partial support for neuroticism, agreeableness and conscientiousness being associated with the perpetration of physical aggression. Unfortunately, Heaven only considered personality traits at the factor or trait level, relied exclusively on self-report, and assessed antisocial behaviours on the basis of a limited set of items.

In a sample of 90 male and female undergraduates, Heaven (1996) evaluated the links between personality facets (as assessed by the NEO-PI-R; Costa & McCrae, 1992) and self-reports of both interpersonal violence (i.e., physical aggression) and theft/vandalism (nonaggressive antisocial behaviour, Gold, 1970). Although gender differences were not examined, results indicated that low trust (agreeableness), low altruism (agreeableness), excitement-seeking (extraversion), and low self-discipline (conscientiousness) were significantly correlated with vandalism, together explaining 24% of the variance in nonaggressive antisocial behaviour. Regarding facet-level traits, the agreeableness facets of trust, altruism, and compliance were all significantly negatively correlated, and excitement-seeking (extraversion facet) was significantly positively correlated with physical aggression. Excitement-seeking and trust alone made significant contributions to the variance in physical aggression.

In a longitudinal study of adults investigating the links between facet-level personality traits from the Five-Factor Model and both delinquency (nonaggressive antisocial behaviour) and physical aggression, Miller, Lynam, and Leukefeld (2003) examined self-reports of the NEO-PI-R (Costa & McCrae, 1992) facets of neuroticism, agreeableness, and conscientiousness in a normative sample of 481 males and females. Outcome measures

included stability of conduct problems, delinquency, physical aggression, and antisocial personality disorder symptoms assessed by self-report and interview. Correlation analyses revealed that, for neuroticism, the facets of angry hostility, impulsiveness, and depression were significantly and positively correlated with all forms of antisocial behaviour. The agreeableness facets of trust, straightforwardness, altruism, compliance and tender-mindedness were significantly and negatively correlated with all indices of antisocial behaviour, as were the conscientiousness facets of competence, dutifulness, achievement-striving, self-discipline and deliberation. Results of regression analyses, conducted with each factor entered separately, showed that angry hostility and impulsivity (high neuroticism), trust, straightforwardness, and compliance (low agreeableness), and dutifulness and deliberation (low conscientiousness) all significantly predicted both aggressive and nonaggressive antisocial behaviour, consistent with previous findings (e.g., Miller & Lynam, 2001). The authors concluded that antisocial individuals may be described as oppositional, manipulative, and as having a tendency to act without thinking of the consequences. These personality traits (e.g., low compliance, high oppositionality, and deceitfulness) can be identified in childhood (e.g., Shiner & Caspi, 2006), and are characteristic of oppositional defiant disorder and conduct disorder which are usually diagnosed in late childhood (APA, 1994).

Finally, Miller, Lynam and Jones (2008) investigated the associations between the FFM factors and facets in a sample of 211 male and female undergraduates who completed self-reports of personality, nonaggressive antisocial behaviour (e.g., stealing), physical aggression, substance use, and risky sexual behaviour. Findings revealed that, at the factor level, agreeableness was significantly negatively correlated with all four externalizing

behaviours and conscientiousness was significantly negatively correlated with nonaggressive antisocial and physically aggressive behaviours. At the facet level, four of the six agreeableness facets (i.e., trust, straightforwardness, altruism, and compliance) were negatively associated with all four externalizing behaviours. For the conscientiousness facets, deliberation was the only facet significantly and negatively associated with three of four outcomes. The agreeableness facets were more consistently associated with externalizing problems and the variance accounted for ranged from 11% (riskier sex) to 39% (physical aggression). For conscientiousness, the facets accounted for between 7% (riskier sex) to 11% (nonaggressive antisocial behaviour) of the variance. The variance accounted for by all 12 facets together was higher than the variance accounted for by each set alone; together they accounted for between 15% (riskier sex) to 46% (physical aggression) of the variance.

In sum, the research reviewed above provides support for the theoretical and empirical associations between normal-range personality traits and both aggressive and nonaggressive antisocial behaviour. Specifically, Miller et al. (2008) demonstrated agreeableness and conscientiousness and their facets were negatively associated with nonaggressive antisocial behaviour and physical aggression. The facets of agreeableness and conscientiousness also show important conceptual and empirical associations with the constructs of adult antisocial personality disorder and psychopathy (Miller & Lynam, 2003). These traits appear to confer significant risk for a range of externalizing problems, consistent with previous work (e.g., Gleason et al., 2004; Jensen-Campbell & Graziano, 2001) that has demonstrated significant links between agreeableness (low end) and both aggressive and nonaggressive antisocial behaviour in early adolescence. The low end of agreeableness is thought to be related to nonaggressive antisocial behaviour and physical aggression through

social information processes and cognitions, such as a tendency to perceive hostility in others' actions, positive attitudes toward and expectations of rewards in perpetrating aggression and antisocial actions.

In another study investigating the contribution of normal personality characteristics to nonaggressive rule-breaking behaviour, Jensen-Campbell and Malcolm (2007) investigated the association between self-reports of conscientiousness which has its origins in the temperament construct of effortful control (Rothbart & Bates, 2006), and various aspects of externalizing problems including nonaggressive antisocial behaviour in a sample of 256 fifth to eighth grade students. Findings demonstrated low levels of conscientiousness were associated with greater externalizing difficulties including nonaggressive antisocial behaviour. Overall, the findings suggest that self-regulatory processes that are associated with normal personality traits such as conscientiousness may be implicated in the expression of nonaggressive externalizing behaviours.

The studies by Jensen-Campbell and Malcolm (2007), Miller and Lynam (2003), Miller, Lynam and Jones (2008) and by Le Corff and Toupin (2009) were built on findings from a meta-analysis by Miller and Lynam (2001) who reviewed 59 studies published between 1963-2000 that examined four models of normal personality and their links to aggressive and nonaggressive antisocial behaviour. The models were: Eysenck's Psychoticism-Extraversion-Neuroticism model (P-E-N; Eysenck & Eysenck, 1985), Tellegen's (1985) three-factor model, Cloninger's (1993) seven-factor temperament and character model, and the Five-Factor Model (Costa & McCrae, 1992). All four models are widely used in personality research and their factors are intercorrelated (Dodge et al., 2006; Miller & Lynam, 2001). Although there are differences in the number of items and factor

labels for each measure, there are also important similarities among these instruments as well as conceptual and content overlap. For example, the P-E-N model, the Five-Factor Model, and Tellegen's model all contain factors that assess extraversion, agreeableness and neuroticism. Approximately one-third of the studies reviewed in this meta-analysis were conducted with samples of children and youth, including boys and girls and only studies that used normal-range personality traits and models were considered. Regarding the Five-Factor Model, results confirmed that agreeableness (low end), neuroticism (high end), and conscientiousness (low end) were significantly correlated with aggressive and nonaggressive antisocial behaviour. The significant mean effect sizes between all forms of antisocial behaviour and agreeableness and conscientiousness were $d=-.37$ and $d=-.25$, respectively. There was also a small but significant effect size for neuroticism ($d=.09$).

In sum, research on normal personality greatly informs the study of antisocial behaviour including aggression. Table 2.4 provides a simplified summary of the literature review for ease of organization.

Table 2.4
Summary of Literature Review

Five-Factor Model FACTORS AND FACETS (Costa & McCrae, 1992)								
	GENERAL ANTISOCIAL BEHAVIOUR		NONAGGRESSIVE ANTISOCIAL BEHAVIOUR		PHYSICAL AGGRESSION		SOCIAL AGGRESSION	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
1. Neuroticism	↑L&T09		↑M&L01 ↑H96	↑M&L01	↑M&L01	↑M&L01 ↑H96	↑BH&H07 ↑CM-CW05 w/borderline ↑O&H08 w/borderline	↑CM-CW05 w/borderline ↑O&H08 w/borderline
a. Anxiety			↑ML&L03	↑ML&L03				
b. Hostility	↑L&T09 ↑ML&L03							
c. Depression	↑L&T09 ↑ML&L03							
d. Self-Consciousness								
e. Impulsiveness	↑L&T09 ↑ML&L03							
f. Vulnerability to Stress	↑L&T09							
2. Extraversion								
a. Warmth								
b. Gregariousness								
c. Assertiveness								
d. Activity	↑L&T09 ↑L&T10							
e. Excitement Seeking	↑L&T10		↑H96	↑H96				
f. Positive Emotion								
3. Openness to experience								
a. Fantasy								
b. Aesthetics								
c. Feelings								
d. Actions								
e. Ideas								
f. Values	↑L&T09							
4. Agreeableness	↓L&T09		↓M&L01 ↓H96 ↓MLJ08	↓M&L01 ↓MLJ08	↓M&L01 ↓H96 ↓MLJ08 ↓GJC&R04 ↓F98 ↓M&L03	↓M&L01 ↓H96 ↓MJL08 ↓GJC&R04 ↓F98 ↓M&L03	↓BH&H07 ↓GJC&R04	↓BH&H07 ↓GJC&R04
a. Trust	↓L&T09 ↓ML&L03		↓H96 ↓ML&L03 ↓ML&J08	↓H96 ↓ML&L03 ↓HML&J08	↓ML&L03 ↓ML&J08 ↓MLJ08	↓ML&L03 ↓ML&J08 ↓MJL08		
b. Straightforwardness	↓L&T09 ↓ML&L03		↓ML&J08	↓ML&J08	↓ML&J08 ↓MLJ08	↓ML&J08 ↓MJL08		
c. Altruism	↓ML&L03		↓H96 ↓ML&J08	↓H96 ↓ML&J08	↓ML&J08 ↓MLJ08	↓ML&J08 ↓MJL08		
d. Compliance	↓L&T09 ↓L&T10 ↓ML&L03		↓ML&L03 ↓ML&J08	↓ML&L03 ↓ML&J08	↓ML&L03 ↓ML&J08 ↓MLJ08	↓ML&L03 ↓ML&J08 ↓MJL08		
e. Modesty								
f. Tendermindedness	↓L&T09 ↓ML&L03							

Table 2.4 continued
Summary of Literature Review

Five-Factor Model FACTORS AND FACETS (Costa & McCrae, 1992)								
	GENERAL ANTISOCIAL BEHAVIOUR		NONAGGRESSIVE ANTISOCIAL BEHAVIOUR		PHYSICAL AGGRESSION		SOCIAL AGGRESSION	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
5. Conscientiousness	↓L&T09		↓M&L01 ↓H96 ↓ML&J08 ↓J-C&M07	↓M&L01 ↓H96 ↓ML&J08 ↓J-C&M07	↓M&L01 ↓ML&J08 ↓MLJ08	↓M&L01 ↓ML&J08 ↓MLJ08	↓GJC&R04	↓BH&H07 ↓GJC&R04
a. Competence	↓L&T09 ↓ML&L03							
b. Order								
c. Dutifulness	↓ML&L03		↓ML&L03	↓ML&L03	↓ML&L03	↓ML&L03		
d. Achievement Striving	↓ML&L03							
e. Self-Discipline	↓ML&L03		↓H96	↓H96				
f. Deliberation	↓ML&L03		↓ML&J08	↓ML&J08	↓ML&J08 ↓MJL08	↓ML&J08 ↓MJL08		

Note. ML&L03=Miller, Lynam & Leukefeld, 2003; L&T09=Le Corff & Toupin, 2009; L&T10=Le Corff & Toupin, 2010; H96=Heaven, 1996; M&L01=Miller & Lynam, 2001; MLJ08=Miller, Lynam & Jones, 2008; J-C&M07=Jensen-Campbell & Malcolm, 2007; F98=Frick, 1998; GJC&R04= Gleason, Jensen-Campbell & Richardson, 2004; O&H08=Ostrov & Houston, 2008; BH&H07=Burton, Hafetz, & Henninger, 2007; CM-CW05=Crick, Murray-Close & Woods, 2005.

Although the available research has been helpful in elucidating the predictive utility of personality traits, there are several limitations in the above studies. First, most studies only considered broad personality factors, with very few studies examining the contribution of personality facets. Although Le Corff and Toupin (2009) examined the contribution of facet-level personality traits to aggressive antisocial behaviour, only boys were included in their study. Despite these limitations, the Five-Factor Model appears to be a very useful framework for documenting associations between normal personality and nonaggressive antisocial outcomes. Specifically, agreeableness and conscientiousness have been shown to be negatively related to physical aggression and nonaggressive antisocial behaviour for both boys and girls, and neuroticism significantly and positively related to nonaggressive

antisocial behaviour (theft) for boys and to physical aggression for girls in one study (Heaven, 1996).

At the facet level, low trust (agreeableness), low altruism (agreeableness), excitement-seeking (extraversion), and low self-discipline (conscientiousness) have been found to be significantly correlated with nonaggressive antisocial behaviour, and low trust, low altruism, low compliance (agreeableness), and high excitement-seeking have been found to be significantly correlated with physical aggression (Heaven, 1996). From the literature on normal-range personality frameworks and different forms of antisocial behaviour, it is clear that neuroticism, agreeableness, and conscientiousness and their related facets have considerable predictive and clinical utility. Given these findings to date, in the current study it was expected that for boys and girls, the maladaptive personality trait constructs that were derived from neuroticism, agreeableness and conscientiousness; namely, emotional instability, disagreeableness, compulsivity and their associated facet traits, would predict nonaggressive antisocial behaviour.

Finally, it is important to distinguish aggressive from nonaggressive antisocial behaviour as much of the prior literature has conflated the constructs. This is problematic as there appear to be different underlying personality processes that contribute to the expression of these distinct forms of externalizing behaviour. Further, considerable effort has been made in the aggression literature to distinguish physical from more covert forms of aggression, as described in the following sections.

2.5 Physical aggression

Physical aggression, defined as the use or threat of assaultive behaviour including fighting and hitting, has received longstanding empirical and theoretical attention because it

is associated with maladjustment for both perpetrators (see Coie & Dodge, 1998) and victims (see Card, Isaacs, & Hodges, 2007, for a review). The personality literature has informed the study of physical aggression. For example, callous-unemotional traits (i.e., extreme low agreeableness) have been demonstrated to be concurrently associated with physical aggression in both boys and girls (see Frick, 1998), and (dis)agreeableness personality traits have been associated with physical aggression in adults (see Miller & Lynam, 2003).

Although several studies have investigated the associations between personality-related characteristics (not traits) such as negative emotionality and physical aggression (Connor, 2002), far fewer have considered the links between physical aggression and personality as assessed by the Five-Factor Model (Costa & McCrae, 1992) in adolescence. In one such study, Gleason, Jensen-Campbell, and Richardson (2004) examined the association between self-reported agreeableness and physical aggression in a sample of 74 youth, based on the literature on personality and temperament theory linking agreeableness to self-regulatory social and emotional processes that facilitate positive interpersonal relationships (Jensen-Campbell & Graziano, 2001). Given that temperament theory also suggests that agreeableness may be the personality trait that is the most influenced by social interactions (e.g., Kohnstamm, Halverson, Mervielde & Havill 1998), Gleason et al. (2004) hypothesized that agreeableness would be associated with maintaining positive relationships with others and with lower levels of physical aggression. For both boys and girls, agreeableness was significantly and negatively related to physical aggression, even after controlling for the other Big Five personality traits. As with all the major personality factors, personality traits such as agreeableness are the result of genetics and socialization processes (Harris, 1995; 1998/2009) that in turn influence social relations.

As noted above, studies examining the links between personality characteristics and both aggressive and nonaggressive antisocial behaviour have shown that physical aggression is negatively associated with agreeableness, an indicator of an individual's sociability and cooperativeness (Gleason et al., 2004) and conscientiousness (Jensen-Campbell & Malcolm, 2004; Miller et al., 2008). Heaven (1996) also examined gender differences in the associations between FFM traits and physical aggression in adolescents and found that agreeableness was negatively related to physical aggression in both boys and girls. However, in contrast to other studies, conscientiousness was found to be unrelated to aggression for either gender. Neuroticism was significantly and positively related to physical aggression for girls only. Although the findings are of interest as they describe links between personality and problem behaviour, Heaven's (1996) study considered personality traits at the factor level, relied exclusively on self-report, and used a narrow measure of physical aggression.

In Miller et al.'s (2008) cross-sectional study of male and female undergraduates described previously, agreeableness and conscientiousness were significantly negatively correlated with physical aggression. At the facet level, all six agreeableness facets (i.e., trust, straightforwardness, altruism, modesty, tender-mindedness and compliance) were negatively associated with physical aggression. For the conscientiousness facets, deliberation was the only facet significantly and negatively associated with physical aggression.

Although the findings described above lend some support for broad personality traits, specifically agreeableness and conscientiousness, as significant predictors of adolescents' physical aggression, the research is limited by modest sample sizes. Further, some analyses were conducted only at the factor or domain level of personality. At this level of the personality structure, factors like agreeableness can be expressed in highly heterogeneous

ways because broad personality factors are composed of a number of more specific, lower-order facets. Hence, important facet-level information that contributes to personality trait expression and interpersonal behaviour may be missing. For example, the facets within a broad personality factor such as extraversion might be differentially associated with different outcomes and examination of narrower traits may allow for the possibility of more accurate assessments for understanding the aetiology and expression specific behaviours. Last, but importantly, only adaptive (not maladaptive) personality traits were assessed.

The studies reviewed thus far have for the most part examined associations between aggressive and nonaggressive antisocial behaviour within a normal-range framework of personality. However, over the last decade it has become increasingly clear that personality pathology or disorder occurs in youth and has implications for later problems across multiple life domains (Shiner, 2009). With this recognition, considerable advances have been made in establishing empirically-based dimensional assessments of personality disorder traits in younger age ranges (see De Clercq, De Fruyt, & Widiger, 2009). This is in contrast to categorical clinical conceptions of personality disorders that lack empirical support and validity with adolescents (Becker, Grilo, Morey, Walker, Edell, & McGlashan, 1999).

Recent research on the prevalence of adolescent personality pathology demonstrates that the best available estimates from community and primary care samples for meeting criteria for at least one personality disorder range from 6% to 17% (Johnson, Bromley, Bornstein, & Sneed, 2006). Personality disorder diagnoses, however, do not show the same levels of consistency across development as personality disorder traits (Shiner, 2009). Personality disorder traits or symptoms that underlie personality disorders appear to be prevalent in adolescence (De Clercq et al., 2006). In terms of stability, mean-level change of

different traits (the increases or decreases in the average trait level of a population) appears to peak in early- to mid-adolescence, decline in late adolescence, and then show moderate stability in adulthood, suggesting the symptoms or traits are not temporary developmental aspects of personality (e.g., Cohen, Crawford, Johnson, & Kasen, 2005).

In light of current conceptualizations of personality pathology in adolescence and findings on prevalence and stability, it is of considerable importance to investigate the risks associated with personality disorder traits in this age range. Adolescent personality disorder traits appear to confer significant concurrent and prospective risk for the development of various forms of maladaptation and impairment, as well as comorbidity (co-occurrence) with other clinical disorders (Shiner, 2009). Research with adults suggests that personality disorders represent maladaptive variants of many of the Big Five traits (see Livesley, 2007; Trull & Durrett, 2005; Widiger & Simonsen, 2005). Specifically, the low end of the FFM trait of agreeableness resembles antisocial personality disorder and is represented by the traits within the disagreeableness factor in the current adolescent personality disorder trait framework. Similarly, FFM neuroticism resembles borderline personality disorder and is represented by traits within the emotional instability factor. Extremely low extraversion resembles schizoid personality disorder (characterized by social withdrawal and lack of emotional expressivity) and is represented by the introversion factor. Last, the positive extreme of conscientiousness resembles DSM-IV obsessive-compulsive personality disorder and is represented by the three facets within compulsivity. Recent evidence suggests that the same structure of disordered traits comprehensively describes personality disorder symptoms at all ages (De Clercq, De Fruyt, Van Leeuwen, & Mervielde, 2006; De Clercq et al., 2009).

To clarify the distinction between personality disorder features, normal personality and personality disorder facets, a feature or diagnostic criterion is part of DSM terminology. An example of a borderline personality disorder feature is a chronic pattern of intense, labile affect. A facet or lower-level personality characteristic is a component of a larger personality or personality disorder trait or factor. For example, dependency is a facet (specific, narrow characteristic) within emotional instability (broader factor/trait) in the current framework. Hence, features and facets are not equivalent. Although recent attempts at integrating personality psychology and the DSM classification of personality disorders have demonstrated that many normal personality traits “map” onto different diagnostic categories, not all normal traits are clinically relevant (e.g., openness is not associated with problems with intra- and/or interpersonal functioning; Livesley, Jang, & Vernon, 1998; Trull & Durrett, 2005). In the review of the literature to follow, the distinction is important as there are differences between clinical conceptions of personality disorder including implications regarding aetiology, definitions, and outcomes; and definitions of personality disorder as understood from the perspective of normal personality. As there is conceptual and empirical overlap between constructs related to normal and disordered personality, similar patterns of associations between personality disorder traits and components of antisocial behaviour for normal-range traits are expected in the present study. As described below, links have been demonstrated between specific personality disorders and their associated features, and different forms of antisocial behaviour.

In a study of 679 adults, Ostrov and Houston (2008) investigated the links between self-reported physical aggression (proactive and reactive subtypes) and psychopathic features (i.e., impulsive antisociality and fearless dominance), borderline personality disorder

features, and antisocial personality disorder features (i.e., three conduct disorder criteria and three antisocial personality disorder symptoms). Results indicated that reactive and proactive physical aggression were uniquely associated with antisocial personality disorder features, especially for men. Physical aggression was *not* associated with borderline personality disorder features. The findings are not surprising, as physical aggression has long been linked to antisocial personality disorder (APA, 1994), and reinforce the conceptual, theoretical and empirical links between variables related to personality and personality disorder on the one hand and distinct forms of aggression on the other.

The present study extends previous work by decomposing personality disorder traits (not diagnoses or diagnostic features) into their constituent facet components and examining the links between personality disorder trait facets and physical aggressiveness. As there are no studies to date that have examined the associations between adolescent personality disorder traits and facets in relation to specific components of antisocial behaviour, it was necessary to draw on previous research and theory on the associations between normal and maladaptive personality traits to provide guidance for hypotheses on the expected links between personality disorder trait facets and physical aggression.

There is evidence that personality traits are implicated in the development of psychopathology in childhood and adolescence (see Caspi & Shiner, 2006). For example, externalizing problems, including physical aggression, have been concurrently associated with low agreeableness and low conscientiousness across gender in both children and youth (e.g., Caspi & Shiner, 2006). This is congruent with temperament theory, which suggests that the processes underlying agreeableness have their origins in the early temperament aspect of effortful control (Ahadi & Rothbart, 1994; Rothbart, 2007). Documented

antecedents for children's perpetration of physical aggression include poor impulse control (see Tremblay, Nagin, Seguin, Zoccolillo, et al., 2004), a characteristic that is strongly associated with agreeableness (low end) in the Five-Factor Model across all ages (Caspi & Shiner, 2006). The corresponding personality disorder factor, disagreeableness, consists of the facets of hyperexpressive traits, hyperactive traits, dominance-egocentrism, impulsivity, irritable-aggressive, disorderliness, distraction, risk-taking, narcissism, resistance and lack of empathy. All facets within the disagreeableness factor capture different cognitive, affective and behavioural components that have been associated with increased likelihood of engaging in physical aggression in children, adolescents and adults (Achenbach & Rescorla, 2001). In the current study, this factor and all twelve of its associated facets were expected to be associated with and predict physical aggression for both boys and girls.

2.6 Social aggression

Several constructs describe more subtle forms of aggression that damage relationships. The constructs of indirect (Lagerspetz, Björkqvist, & Peltonen, 1988), relational (Crick & Grotpeter, 1995; Crick, 1999), nonphysical (Card et al., 2008) and social aggression (Cairns, Cairns, Neckerman, Ferguson, & Garipey, 1989; Galen & Underwood, 1997; Underwood, 2003) originated at different times, although subsequent research has demonstrated that these describe similar socially manipulative behaviours (Björkqvist, 2001; Underwood, 2003) that can be expressed directly (e.g., nonverbal gestures, turning away) or covertly (e.g., spreading malicious rumours and gossip that damage social standing and relationships). Socially aggressive behavior has been associated with adverse consequences for mental health such as depressive symptoms for both perpetrators and victims (see Archer & Coyne, 2005, for an overview; Crick, 1996; Galen & Underwood, 1997). Social aggression

has also been linked with other forms of psychological maladjustment. For example, in an early study by Crick (1997), children engaging in gender non-normative forms of aggression (i.e., boys engaging in social aggression) were described by teachers as significantly more externalizing (i.e., impulsive and defiant) than their peers (Crick, 1997).

During adolescence, peer relations, particularly close friendships and romantic relationships, become increasingly important and, within the context of these relationships, self-disclosure and intimacy appear to have both positive and negative features (Underwood, 2003). For example, Underwood proposed that personal information that is shared can be used in hurtful ways when the relationship is threatened or when conflict arises. Social aggression may be a strategy that is employed when direct confrontation is undesirable or when an individual cannot express intense emotions, particularly anger, directly.

Given this background, there are several normal personality traits that have been associated with the interpersonal, affective and behavioural aspects of social aggression. For example, in a recent study with a nonclinical adult sample, Burton, Hafetz, and Henninger (2007) investigated the five major personality factors as assessed by the NEO-Five Factor Inventory (Costa & McCrae, 1992) and their concurrent associations with enacting social aggression. Results indicated that the patterns of personality variables associated with social aggression differed for men and women. Lower agreeableness and lower conscientiousness were significant predictors of social aggression for women, whereas lower agreeableness and higher neuroticism were significantly associated with social aggression for men. These findings underscore the need to consider gender differences in the personality traits that are associated with social aggression.

In the only study that has investigated the links between normal personality as assessed by the Five-Factor model and social aggression in early adolescence, Gleason, Jensen-Campbell, and Richardson (2004) examined the association between self-reported agreeableness and social aggression in a sample of 74 adolescents in the seventh and eighth grade. Although all five personality factors were investigated, agreeableness was the primary focus of the study because of its origins in temperamental effortful control and emotional self-regulation processes that help individuals maintain positive interpersonal relationships (Jensen-Campbell & Graziano, 2001). The results indicated that both agreeableness and conscientiousness were significantly and negatively related to social aggression, even after controlling for the other big five personality traits, and these associations were not moderated by gender. Thus, for both male and female adolescents, greater social aggression was reported by teens describing themselves as less agreeable and less conscientious. Although results of this study support the impact of personality on the quality of adolescents' peer relations, the study was limited by a small sample size, concurrent design, and a lack of information on the contribution of personality facets. Moreover, the study only considered adaptive personality factors, not maladaptive ones.

Recently, given the development of more reliable measures of personality pathology in childhood and adolescence, research has documented links between personality disorder and social aggression in younger age groups. In particular, borderline personality disorder, which has been demonstrated to be related to severe interpersonal difficulties in adults (Livesley, 2003), has also been shown to be associated with social aggression in middle childhood. For example, in a short-term longitudinal study of 400 students in grades 4-6 aimed at validating a measure of borderline personality features (i.e., the Borderline

Personality Features Scale for Children), Crick, Murray-Close and Woods (2005)

demonstrated that self-reported borderline personality disorder features in middle childhood were related to teacher-reported social aggression over time.

It is clear from the preceding review that personality traits and personality disorders have been linked to social aggression at different ages. The main diagnostic categories that have shown consistent associations with social aggression are borderline, and in studies of adults, antisocial personality disorders. According to Five-Factor Model conceptualizations of personality disorders (see Trull & Durrett, 2005), borderline personality disorder resembles the maladaptive expression of traits within the neuroticism factor. Emotional instability is the corresponding factor to neuroticism in the current adolescent personality disorder trait framework. Antisocial personality disorder has been documented to be primarily associated with (low) agreeableness (Miller & Lynam, 2001) and the disagreeableness factor is the corresponding personality disorder trait assessed in the present study.

There are limitations to previous research. First, most studies to date have examined a limited number of personality disorder constructs that are often assessed exclusively via brief, self-report screening measures (e.g., Ostrov & Houston, 2008) rather than using a comprehensive assessment of clinically-relevant difficulties completed by a knowledgeable other. Second, many studies to date have collected data at a single time point (e.g., Gleason et al., 2004). Finally, gender differences are an important but neglected issue that has not always been carefully addressed.

The current study replicated previous work by examining the associations between both borderline and antisocial personality trait pathology and social aggression in a sample of adolescents. By reducing global personality disorder constructs into their specific facet-level

components, the present study extends previous research by examining the links between more specific personality disorder facets and social aggression. There is evidence that normal personality traits are implicated in the expression of social aggression in adolescence. Specifically, Gleason et al. (2004) demonstrated significant negative associations between agreeableness, conscientiousness and social aggression. There is also evidence that particular personality disorder features are associated with social aggression. Specifically, Ostrov and Houston (2008) found social aggression to be associated with antisocial and borderline personality disorder features in adults; Crick et al. (2005) found social aggression to be associated with borderline personality disorder features during middle childhood. Based on these findings, it was expected in the present study that the emotional instability and disagreeableness factors would predict later social aggression.

Given that previous research has not examined associations between personality disorder facets and social aggression (and there is no explicit theoretical rationale for *a priori* exclusion of specific facets), all facets within the emotional instability and disagreeableness factors were examined as predictors to obtain complete results. The facets within emotional instability have been found to be particularly important in producing trait-based behaviour that frequently leads to problematic relationships and social manipulation (Crick, Murray-Close, & Woods, 2005; Livesley, 2003; Werner & Crick, 1999).

2.7 Current study

The current study had two major goals. The first was to provide a comprehensive examination of the associations between and predictive utility of personality disorder factors and their associated facets, and three distinct components of antisocial behavior – nonaggressive antisocial behaviour, physical aggression and social aggression. The second

aim was to explore gender differences in these associations. This study extends previous research by examining these links within a normative adolescent longitudinal sample, using established measures and assessments by multiple informants. Although typically more difficult to obtain, the use of multiple reporters enhances the validity of assessments of maladaptive personality and indices of psychopathology (Krueger et al., 2002).

2.7.1 Research questions

Question 1. Do specific personality disorder factors and facets predict nonaggressive antisocial behaviour, physical aggression and social aggression?

Question 2. Are there significant gender differences in the associations between factor-level and facet-level traits and the outcomes?

Although the first objective was to describe the interrelations among these constructs, it was possible, based on previous theory and research, to advance several hypotheses about the nature of these associations. The personality disorder trait factors labeled disagreeableness, emotional instability and compulsivity (i.e., the corresponding maladaptive factors to the FFM domains of agreeableness, neuroticism, and conscientiousness; Miller & Lynam, 2001) were hypothesized to be significantly associated with nonaggressive antisocial behaviour. Further, it was expected that disagreeableness facets (hyperexpressive traits, hyperactive traits, dominance-egocentrism, impulsivity, irritable-aggressive, disorderliness, distraction, risk-taking, narcissistic traits, affective lability, resistance, and lack of empathy) together would be positively associated with and significantly predict nonaggressive antisocial behaviour. Based on the literature on normal-range (e.g., Gleason, Jensen-Campbell, & Richardson, 2004) and disordered personality traits (De Clercq, De Fruyt, & Widiger, 2009), gender differences were not expected. Next, emotional instability and its

facets: dependency, anxiety, lack of self-confidence, insecure attachment, submissiveness, ineffective coping, separation anxiety, depressive traits, and inflexibility were expected to positively predict nonaggressive antisocial behaviour. Gender differences were not expected. Last, the factor labeled compulsivity and its facets: perfectionism, extreme achievement-striving and extreme order were expected to negatively predict nonaggressive antisocial behavior for boys and girls.

Regarding physical aggression, on the basis of previous findings, disagreeableness and its facets (hyperexpressive traits, hyperactive traits, dominance-egocentrism, impulsivity, irritable-aggressive, disorderliness, distraction, risk-taking, narcissistic traits, affective lability, resistance, and lack of empathy), and emotional instability and its facets (dependency, anxiety, lack of self-confidence, insecure attachment, submissiveness, ineffective coping, separation anxiety, depressive traits, and inflexibility) were expected to positively predict perpetration of physical aggression for boys and girls. Another factor, compulsivity, and its facets (perfectionism, extreme achievement-striving and extreme order) were expected to negatively predict perpetration of physical aggression across gender, in agreement with Miller, Lynam, and Leukefeld (2003).

Last, regarding social aggression, based on previous research and theory, it was expected that both the emotional instability and disagreeableness factors would predict perpetration of social aggression. Facets included within the personality disorder factor of emotional instability, namely dependency, anxiousness, lack of self-confidence, insecure attachment, submissiveness, ineffective coping, separation anxiety, depressive traits, and inflexibility, together were also expected to positively predict social aggression. Disagreeableness facets, including hyperexpressive traits, hyperactive traits, dominance-

egocentrism, impulsivity, irritable-aggressive, disorderliness, distraction, risk-taking, narcissistic traits, affective lability, resistance, and lack of empathy, together were also expected to predict social aggression. Based on previous clinical research on borderline and antisocial personality pathology features in adult men and women (e.g., Werner & Crick, 1999), it was expected that facets included within the personality disorder trait of disagreeableness would show significant correlations and predict social aggression in both boys and girls. Emotional instability and its associated facets were expected to predict social aggression for girls only.

CHAPTER 3

Method

3.1 Participants

Participants were 182 typically developing adolescents, 15-16 years of age (46.5% female; $n=66$) who are part of the BlackBerry Project (see Underwood, Beron, & Rosen, 2009, for a description), an ongoing longitudinal study (2003-present) of the developmental precursors and outcomes of social aggression. Participants were recruited through classrooms via information letters to parents in 12 independent school districts in Dallas, Texas. In addition, for each subject, one parent who was most knowledgeable (PMK) about the adolescent's social life (85% mothers), and the participant's teacher participated yearly. The ethnic composition of the original sample was: 59% European American, 19% African American, 20% Mexican-American, 1% Asian-American, and 1% other. Parent report on annual family incomes indicated that 20% reported less than \$25,000, 22% reported \$26,000-\$50,000, 17% reported \$51,000-\$75,000, 31% reported \$76,000-\$100,000, 2% reported greater than \$100,000 and 8% did not disclose annual income.

3.2 Procedure

Ethics approval from the University of Texas at Dallas Behavioral Research Ethics Board was obtained prior to data collection (see Preface). Parental consent and student assent for the research was obtained from each participant. Parents provided permission for the PI (Dr. Underwood) and her research team to contact the teachers of participating students regarding the research and teachers were subsequently invited by phone to participate in the study. In keeping with the current Canadian Tri-Council Policy Statement (Ethical Conduct for Research Involving Humans, December 2010, article 2.4), separate ethics approval was not required from the UBC Behavioural Research Ethics Board since the current study

involved the secondary use of anonymous data (confirmed by Shirley Thompson, Manager, UBC Behavioural Research Ethics Board, December 6, 2010).

Participants completed family visits during the summers between the 9th and 10th (in 2009) and between the 10th and 11th (in 2010) grades, when they were 15 and 16 years of age, respectively. During these visits, student participants and their parents completed measures assessing indices of the adolescent's psychological adjustment (described below). Teachers who were nominated by the participants and knew the target adolescents well were asked to complete a set of questionnaires for each study participant who was in their class. Teachers, parents, and participants were each compensated \$50.00 for their time (approximately 1.5 to 2 hours). In addition to cash compensation, student participants also received a BlackBerry device and a free voice and data plan for one year.

3.3 Measures

3.3.1 Overview

Of interest in the present study were measures assessing maladaptive personality characteristics, physical and social aggression, and nonaggressive antisocial behaviour that were completed by participants, their parents and teachers. A measure of adolescent personality disorder traits, the Dimensional Personality Symptom Item Pool (DIPSI; De Clercq, De Fruyt, van Leeuwen, & Mervielde, 2006; Appendix A) was completed by parents; physical and social aggression were assessed by youth on the Children's Social Behavior Scale-Adolescent Form (CSBS-A; Crick, 1996; Appendix B). In addition, teachers provided ratings of participants' perceived frequency of engaging in physical and social aggression on the Children's Social Behaviour Scale-Teacher Form (CSBS-T; Crick, 1996; Appendix C). Finally, youth provided self-reports of nonaggressive antisocial behaviour on the rule-

breaking scale of the Child Behavior Checklist-Youth Self Report form (CBCL-YSR; Achenbach & Rescorla, 2001; Appendix D).

Physical and social aggression were assessed by two independent raters (self and teachers) to reduce reporter bias (nonaggressive antisocial behaviour was also assessed via self-report). Regarding validity, teacher reports of social behaviour including aggression have been shown to be valid (Archer & Coyne, 2005; Cappella & Weinstein, 2006; Henington, Hughes, Cavell, & Thompson, 1998), especially as the teachers in the current study were nominated by the target adolescents as individuals who knew the student well. Different raters yield different information. For example, teacher reports are likely to detect the frequency of students' engaging in different forms of aggression relative to other students (Crick, 1996). Self-reports, particularly in this age range, are likely to capture behaviours that are not easily observed, particularly more subtle forms of aggression that occur in contexts outside the classroom (Cappella & Weinstein, 1998). Although self-report and other informant measures of aggression do not correlate well (see Archer & Coyne, 2005), non-overlapping information among raters can be a strength as there are potential rater biases (e.g., memory recall, gender stereotypes, students' reputations) that may curtail the validity of information from one source (Tackett & Ostrov, 2010). Hence, the decision was made to include both teacher and self-reports of physical and social aggression. Each measure is described in greater detail below.

3.3.2 Assessment of adolescent personality disorder traits

Adolescent personality disorder traits were assessed by parent report on the Dimensional Personality Symptom Item Pool (DIPSI; De Clercq, De Fruyt, van Leeuwen, & Mervielde, 2006), a measure of child and adolescent maladaptive personality functioning.

Parent reports were utilized in the current study to reduce mono-informant bias (Card et al., 2008). Parent reports and not self-reports were used for two reasons. First, the maladaptive traits in the current study are often assessed in adult and adolescent samples via reports from knowledgeable others who know the target well (e.g., De Clercq et al., 2006). This is because in the case of personality pathology, individuals are often unaware of existing personality problems. That is, personality and its problems are ego-syntonic (Livesley, 2003). Hence, it is useful to obtain reports of trait-related problems from close observers such as significant others or parents. Second, it was not possible to provide another measure to the target adolescents as they already had a considerable amount of other self-report measures to complete. The DIPSI was constructed to describe trait-related symptoms in childhood and adolescence that are likely precursors of the enduring maladaptive patterns of thought, feeling and behaviour that characterize Axis II pathology (i.e., personality disorders) in adulthood. The content of the DIPSI is based on established clinical instruments that assess PD traits in adults such as the Dimensional Assessment of Personality Pathology (DAPP; Livesley & Jackson, 2009). The measure was constructed using a bottom-up approach, meaning content was generated beginning with a review of the clinical literature and soliciting expert opinion, and also concepts based on the five-factor model of normal personality wherein maladaptive trait variants were written to form scale content. This was consistent with the procedure used to identify the full range of personality disorder features in adults in the construction of similar clinical instruments (De Clercq, De Fruyt, & Widiger, 2009). The major factors described by the DIPSI— emotional instability, disagreeableness, introversion and compulsivity—show factorial correspondence with the adult DAPP measure (De Clercq, De Fruyt, & Widiger, 2009).

The factor structure of the DIPSI has been replicated in clinical (n=205) and nonclinical (n=242) samples of children via maternal report as well as adolescent self-ratings (n=453; De Clercq, De Fruyt, Van Leeuwen, & Mervielde, 2006). The measure shows concurrent validity with a measure of general psychopathology, the Child Behavior Check List (CBCL; Achenbach & Rescorla, 2001) and content validity as the four factors of the DIPSI clearly correspond to the four factors of the Dimensional Assessment of Personality Pathology (DAPP-BQ; Livesley & Jackson, 2009). The DIPSI includes maladaptive facets that assess developmental psychopathology concepts including problems with emotion regulation (e.g., hyper emotional expression) and information processing (e.g., distraction). The factor structure reported by De Clercq et al. (2006) showed eigenvalues of 7.84, 2.57, 1.56, and 1.03, respectively, from a combined sample of 1,798 referred (34.1% male; mean age 15.9 years) and 1,626 nonclinical (51.4% male; mean age 14.6 years) adolescents. Internal consistencies for these factors ranged from 0.67-0.97 in the referred sample and from 0.73-0.92 in the nonclinical sample. Regarding the 27 facets, Cronbach's alphas of .69 (perfectionism) to .88 (irritability, affective lability, and disorderliness) have been reported (De Clercq, Van Leeuwen, De Fruyt, Van Hiel, & Mervielde, 2008). Test-retest reliabilities have not been reported.

The DIPSI's four factors represent unique personality disorder constructs that are conceptually associated with but empirically distinct from the dimensions of internalizing and externalizing problem behaviour on the Child Behavior Check List (De Clercq, Van Leeuwen, De Fruyt, Van Hiel, & Mervielde, 2008). De Clercq and colleagues noted an association between the four DIPSI trait factors and the internalizing-externalizing CBCL dimensions, and revealed minor item overlap between the DIPSI-CBCL for the rule-breaking

behaviour scale: “cheats all the time; breaks rules all the time at home and school” (DIPSI items). De Clercq et al. investigated this measurement confound and concluded that, although the DIPSI and the CBCL measures both account for descriptions of pathological functioning, the results supported the distinctiveness of maladaptive personality traits (trait pathology) versus general psychopathology.

In the present study, the DIPSI was completed by parents in the summer of 2009 (n=192; 28 fathers) when participants were 15 years old. The 172 items of the DIPSI were rated on a Likert scale, ranging from 1 (barely characteristic) to 5 (highly characteristic) and these ratings were used to compute 27 personality disorder facets (i.e., primary trait dimensions), each based on 4-10 items. Consistent with previous research (as described above), in the current sample, Cronbach’s alphas for the 27 personality disorder facets ranged from .58 (insecure attachment) to .92 (irritable-aggressive) and for the four higher order personality disorder factors, alphas ranged from .89-.97.

Scores for each personality disorder factor were computed by summing all items on each facet and calculating a mean score, with higher scores indicating higher levels of maladaptive traits. The content of the four higher-order factors consists of the following primary facets. Disagreeableness is comprised of hyperexpressive traits, hyperactive traits, dominance-egocentrism, impulsivity, irritable-aggressive, disorderliness, distraction, risk-taking, narcissistic traits, affective lability, resistance, and lack of empathy. The disagreeableness factor resembles adult antisocial personality disorder and psychopathy. It is primarily defined by low FFM conscientiousness and is empirically related to the Child Behavior Check List (CBCL; Achenbach & Rescorla, 2001) scales of general aggressive behaviour, rule-breaking behaviour, attention problems, and social problems (De Clercq et

al., 2006). In terms of reliability, coefficient alpha (internal consistency) for this factor in an adolescent nonclinical sample was reported as .71 (De Clercq et al., 2006). In the current sample, the coefficient alpha for the disagreeableness factor was .97. Sample items include: “Manipulates other children repeatedly to have his/her way” and “Never takes care of his/her belongings”. Appendix E lists sample items from the 27 facets of the measure.

The emotional instability factor includes nine facets that are averaged to provide a total score: dependency, anxiousness, lack of self-confidence, insecure attachment, submissiveness, ineffective coping, separation anxiety, depressive traits, and inflexibility. Sample items include: “Often experiences intense fear”; “Needs someone around all the time”; and “Is afraid of being rejected when others get to know him/her”. This factor resembles borderline pathology in DSM-IV (APA, 1994) and neuroticism from the Five-Factor Model (De Clercq et al., 2006). In terms of concurrent validity, the emotional instability factor was found to be correlated with CBCL scales reflecting anxiety-depression, thought problems, withdrawn behaviour, and social problems (e.g., lonely, jealous, teased; De Clercq et al., 2006). Coefficient alpha for the emotional instability factor in a nonclinical adolescent sample was reported as .74 (De Clercq et al., 2006). In the current sample, coefficient alpha for the emotional instability factor was .97.

The third factor, introversion, consists of the primary facets of shyness, paranoid traits, and withdrawn traits. Sample items include: “Is very reserved toward others” and “Always hides his/her feelings”. All items on the factor were averaged to compute a total score. This factor represents the extreme low end of FFM extraversion. It also evaluates the social withdrawal component of avoidant and schizotypal personality disorders and has been found to be moderately correlated with CBCL scales withdrawn behaviour, anxiety-

depression, and social problems (De Clercq et al., 2006). Coefficient alpha for this factor, as assessed in a nonclinical sample of adolescents, has been reported at .75 (De Clercq et al., 2006). In the current sample, $\alpha=.91$ for introversion.

Finally, compulsivity is defined by the primary facets of perfectionism, extreme achievement-striving and extreme order. Sample items include: “Wants life to be perfectly organized” and “Feels in control by being orderly all the time”. As with the preceding factors, all items are averaged, with higher scores reflecting greater levels of maladaptive traits. The compulsivity factor has been found to be moderately correlated with the CBCL anxious-depressed scale (De Clercq, De Fruyt, Van Leeuwen, & Mervielde, 2006) and represents the high extreme end of conscientiousness from the five-factor model. Coefficient alpha for this factor was reported as .75 in a nonclinical adolescent sample (De Clercq et al., 2006). In the current sample, $\alpha=.89$.

3.3.3. Assessment of physical and social aggression

The Children’s Social Behaviour Scale-Teacher Form (CSBS-T), a 53-item, teacher rating measure that was adapted from the Children’s Social Behavior Scale-Teacher Form (Crick, 1996), was used to assess students’ engagement in social and physical aggression, as well as prosocial behavior. The social aggression subscale contains four items: “This student ignores people or stops talking to them when he/she is mad at them”, “This student gossips or spreads rumors about people to make other students not like them”, “This student gives others dirty looks, rolls her/his eyes, or uses other gestures to hurt others’ feelings, to embarrass them or to make them feel left out” and “This student tries to turn others against someone for revenge or exclusion”. The physical aggression subscale also consists of four items: “This student initiates or gets into physical fights with peers”, “This student hits or

pushes others”, “This student threatens others” and “This student tries to dominate or bully other students”. Participants responded to each item on a 5-point, Likert scale ranging from 1 (“This is never true of this student”) to 5 (“This is almost always true of this student”). For both social and physical aggression, relevant items were averaged to provide an overall index of both physical and social aggression, with higher scores reflecting greater levels of aggressive behaviour in each case.

In terms of reliability, the social and physical aggression subscales as assessed in a sample of 7th graders have been found to be internally consistent with alpha coefficients of .75 and .92, respectively (Underwood, Beron, & Rosen, 2011). In a recent study of 280 adolescents (140 female) all aged 13, Underwood, Beron, and Rosen (2009) conducted a factor analysis of all aggression items of this revised version of the CSBS-T that yielded two factors. The first included all social aggression items and accounted for 62% of the variance (loadings ranged from 0.62-0.81). The second factor accounted for 15% of the variance and contained all four physical aggression items (loadings ranged from 0.60-0.84), lending empirical support to the factorial validity of this scale. Teacher reports on the CSBS-T have been shown to correlate significantly with peer nominations (for relational aggression, $r=.63$, $p < .001$ for girls and $r = .57$, $p < .001$ for boys; for physical aggression $r = .69$, $p < .001$, for boys and $r = .74$, and $p < .001$, for girls; Crick, 1996). For the present study, the CSBS-T was completed by teachers during 2010 when the participants were 16 years of age and in the tenth grade. In the current sample, coefficient alpha for physical and social aggression was .83 for each scale, respectively.

Participants also provided self-ratings on physical and social aggression on a modified version of the CSBS (Crick, 1996). The social aggression subscale contained four

items: “I ignore people or stop talking to them when I am mad at them”, “I gossip or spread rumors”, “I give others dirty looks, roll my eyes, or use other gestures to hurt peoples’ feelings, embarrass them or to make them feel left out” and “I try to turn others against someone for revenge or exclusion”. The physical aggression subscale also consisted of four items: “I initiate or get into physical fights with peers”, “I hit or push others”, “I threaten others” and “I try to dominate or bully other people”. Participants responded to each item on a 5-point Likert scale ranging from 1 (“This is never true of me”) to 5 (“This is almost always true of me”). For both social and physical aggression, relevant items were averaged to provide an overall index of both physical and social aggression, with higher scores reflecting greater levels of aggressive behaviour in each case. The CSBS-A was completed during the summer of 2010 after completion of the tenth grade when the participants were 16 years of age. Coefficient alphas in the current sample for social aggression and physical aggression were .72 and .87, respectively.

3.3.4 Assessment of (nonaggressive) antisocial behaviour

One scale of the Child Behavior Checklist – Youth Self-Report Form (CBCL-YSR; Achenbach & Rescorla, 2001), the rule-breaking scale, was used to assess students’ nonaggressive antisocial behaviour. On the CBCL-YSR, participants were asked to rate 113 problems behaviors on a 3-point scale (0=not true, 1=sometimes true, 2=very often/often true). The rule-breaking scale contains 17 items that are summed to provide a total score, with higher scores reflecting greater nonaggressive antisocial behavior. Items assess a range of nonaggressive yet antisocial behaviors including drug use, stealing inside and outside the home, vandalism, running away, and truancy. Norms for this measure were developed with a nationally representative sample of 2,815 clinically referred students and 1,392 non-referred

students. Reliabilities have been reported to range from .72-.95 (Achenbach & Rescorla, 2001). For the rule-breaking scale, reliability (internal consistency) was reported as .81 and test-retest reliability over 8 days was .83 (Achenbach & Rescorla, 2001). The rule-breaking scale has been found to be correlated at .63 with the DSM-IV diagnosis of conduct disorder (Achenbach & Rescorla, 2001). For the present study, this measure was completed by participating adolescents at age 16, after completing the tenth grade during the summer of 2010. In the current sample, the rule-breaking scale was found to be internally consistent ($\alpha=.80$).

3.4 Summary

Data for the present study were obtained over one year within an ongoing longitudinal study of the development and outcomes associated with social aggression (see Underwood, Baron, & Rosen, 2009) and relied on multiple informants in order to minimize mono-reporter bias. For each participant, parent ratings on the DIPSI were used to compute a total of 27 facet scores and four higher-order personality disorder factor scores (i.e., disagreeableness, emotional instability, introversion and compulsivity). Both facet and factor scores were found to have satisfactory psychometric properties. Internal consistencies (Cronbach's alpha) of the facets and factors were in line and often exceeded those reported in previous research. Teacher ratings were used to compute two measures assessing the perceived frequency of students' engaging in both physical and social aggression over the school year and the scales were found to be reliable in the present sample. Finally, adolescent self-reports of nonaggressive antisocial behavior as well as physical and social aggression were found to have adequate internal consistency.

CHAPTER 4

Results

4.1 Overview

Analyses and results are presented in the following two sections. First, a description of the data screening procedures and checking of assumptions is provided. Correlational analyses are presented next, describing the associations between personality disorder factors and each of the outcome variables (i.e., nonaggressive antisocial behaviour, teacher-rated physical aggression, teacher-rated social aggression, self-reported physical aggression and self-reported social aggression) in the total sample and separately by gender. Correlations between facet-level traits from each of the four factors and the outcomes were also conducted for the entire sample. Finally, a series of regression analyses are presented that systematically address the research questions in relation to each of the five outcomes. All analyses were performed in the SPSS v. 17 software package.

4.2 Data screening

Data were entered by trained undergraduate-level research assistants and independently screened for input errors by another research assistant. Screening for outliers and extreme cases, defined as those with standardized residual values above 3.30 and less than -3.30 (Tabachnick & Fidell (2007, p. 128) using boxplots, revealed several outliers. There were four outliers in teacher-rated social aggression, thirteen for teacher rated physical aggression, four for self-reported nonaggressive antisocial behavior, five for self-reported social aggression, and fourteen for self-reported physical aggression. Regarding personality disorder factors, there were 3 (compulsivity) to 14 (introversion) outliers across the four personality disorder traits and 2 to 17 outliers across the facets. Examination of the scatterplots of the standardized residuals also revealed few outliers. All cases were retained

to avoid the loss of information and in order to assess the full range of personality disorder traits present in this sample.

4.3 Preliminary analyses

Prior to conducting the primary standard regression analyses, a series of assumptions were checked. There are a number of recommendations in the literature regarding the appropriateness of the sample size for the analyses performed in the present study. For example, Stevens (1986) suggests 15 cases per predictor; Tabachnick and Fidell (2007) recommend a sample size of $[N > 50 + 8m]$ (where m =number of independent variables)] for standard multiple regression. For the present study, with four to twelve predictors in any regression model, the sample size (maximum $n=182$) was considered adequate.

Statistical and visual inspections of the data were used to check for normality and linearity. The normal probability-plots (p-plots) and histograms with normal curves were examined. A non-linear trend was observed for teacher-rated social and physical aggression, and histograms showed a positive skew for these two variables. Nonaggressive antisocial behaviour showed a linear trend, and the histogram showed a normal distribution. Self-reported social aggression scores were found to be normally distributed, but for self-reported physical aggression, there was a non-normal distribution, with points clustering along the bottom of the scatterplot. Although all variables were log transformed to correct for non-normal distributions, the distributional patterns remained similar. Therefore, the decision was made to retain the original, untransformed variables for ease of interpretation.

The Durbin-Watson statistics were all between 1.0 and none exceeded 2.50, demonstrating the homogeneity of variances assumption (homoscedasticity) was met. The Levene's statistic was used to test equality of variances between groups (boys and girls) for

nonaggressive antisocial behaviour, teacher-rated physical aggression and teacher-rated social aggression. Results showed equality of variances for all dependent variables, with no significance value below .05. Descriptive statistics are reported in Tables 4.1 and 4.2.

Table 4.1

Means, Standard Deviations, Coefficient Alphas, Skewness and Kurtosis for all Outcomes (Total Sample)

Variable		n	M	SD	α	Skewness	Kurtosis
Social aggression	(TR)	154	1.61	0.78	.83	1.60	2.64
Physical aggression	(TR)	154	1.20	1.45	.83	3.08	10.74
Nonaggressive							
Antisocial behavior	(SR)	178	8.08	4.91	.80	1.47	3.77
Social aggression	(SR)	180	1.80	0.70	.72	0.80	-0.04
Physical aggression	(SR)	178	1.39	0.65	.87	1.83	2.68

Note. SR=Self-report, TR=Teacher report

Table 4.2

Means, Standard Deviations, Coefficient Alphas, Skewness and Kurtosis for Personality Disorder Traits (Total Sample)

	n	M	SD	α	Skewness	Kurtosis
Factors						
Disagreeableness	167	19.92	6.49	.97	1.18	1.20
Emotional instability	165	13.88	4.75	.97	1.62	2.85
Introversion	166	4.29	1.38	.91	1.62	2.15
Compulsivity	166	5.50	1.95	.89	0.95	0.63
Facets						
Disagreeableness						
Hyperexpressive	158	13.41	5.40	.85	1.20	1.03
Hyperactive	151	11.53	4.43	.79	1.28	1.45
Dominance	158	13.06	4.79	.80	1.24	1.31
Impulsivity	162	6.39	3.04	.83	1.34	1.06
Irritable-aggressive	154	14.15	6.50	.92	1.72	2.66
Disorderliness	157	16.95	6.85	.88	0.86	0.26

Table 4.2 continued	n	M	SD	α	Skewness	Kurtosis
Distraction	158	12.58	6.00	.89	1.21	1.28
Risk-taking	163	9.60	3.81	.84	1.40	1.73
Narcissism	160	14.82	5.65	.84	0.94	0.85
Affective lability	159	9.36	4.25	.88	1.85	3.45
Resistance	161	6.80	3.00	.87	2.62	7.33
Lack of empathy	158	13.72	4.95	.83	1.93	3.55
Emotional instability						
Dependency	161	7.23	3.16	.78	2.14	5.32
Anxiousness	161	10.60	4.71	.88	1.86	3.68
Lack of self-confidence	162	6.00	2.70	.78	2.05	5.03
Insecure attachment	157	7.06	2.71	.58	1.00	1.03
Submissiveness	158	13.37	5.26	.84	1.29	1.84
Ineffective coping	162	14.09	6.46	.90	1.46	2.14
Separation anxiety	161	3.78	1.82	.77	3.29	12.04
Depressive traits	162	5.71	2.50	.73	2.09	4.88
Inflexibility	153	13.70	5.59	.88	1.78	4.05
Introversion						
Shyness	160	10.38	3.40	.85	2.23	5.16
Paranoid traits	161	6.14	2.24	.85	2.81	9.35
Withdrawn traits	156	10.55	3.88	.74	0.88	0.10
Compulsivity						
Perfectionism	158	8.35	3.74	.79	1.35	1.50
Extreme achievement- striving	161	8.89	3.42	.74	0.53	-0.10
Extreme order	157	9.52	3.74	.76	1.34	1.84

Regarding assumptions of multicollinearity and singularity, correlations among the independent variables did not exceed .90 for any variable at the factor or facet level, so analyses proceeded without removing any of the predictors (Pallant, 2007, p. 149). The tolerance values were all above 0.10 and the variance inflation factor (VIF) values were under 10 in all analyses, suggesting the multicollinearity assumption was not violated.

Preliminary analyses also included examining the correlations among teacher- and self-reported physical and social aggression. Physical aggression was assessed by four items via self-report as with teacher report: “I initiate or get into physical fights with peers”, “I hit or push others”, “I threaten others”, and “I try to dominate or bully other people”. Four items were also used to assess self-reported social aggression, as in the teacher measure: “I ignore people or stop talking to them when I am mad at them”, “I gossip or spread rumors”, “I give others dirty looks, roll my eyes, or use other gestures to hurt people’s feelings, embarrass them or to make them feel left out”, and “I try to turn others against someone for revenge or exclusion”. Table 4.3 presents the correlations among the teacher-reported and self-reported measures of physical and social aggression for the entire sample, then for boys and girls.

Table 4.3

Correlations among teacher-report and self-report measures of physical aggression and social aggression

Variable	SOCAGG(TR)	PHYSAGG(TR)	SOCAGG(SR)	PHYAGG (SR)
All participants (N=148)				
Social aggression (TR)	--	.67**	.21**	.22**
Physical aggression (TR)		--	.03	.13
Social aggression (SR)			--	.71**
Physical aggression (SR)				--
Correlations by gender				
Social aggression (TR)	--	.65**	.15	.07
Physical aggression (TR)	.72**	--	-.04	.03
Social aggression (SR)	.28**	.15	--	.77**
Physical aggression (SR)	.37**	.25*	.67**	--

Note. SOCAGG=Social aggression; PHYAGG=Physical aggression, TR=teacher report, SR=self-report.

Listwise n=77 for boys (above diagonal) and listwise n = 71 for girls (below diagonal).

** $p < .01$ (1-tailed). * $p < .05$ (1-tailed).

Teacher-rated social aggression was significantly and positively correlated with self-reported social aggression in the entire sample, although the magnitude of the correlation was somewhat low ($r=.21$; $p < .01$). For boys, the correlation between teacher- and self-reported social aggression did not reach significance ($r=.14$, ns). For girls, the correlation between teacher-reported and self-reported social aggression was moderate and significant ($r=.28$, $p < .05$). Teacher-rated physical aggression was not significantly correlated with self-reported physical aggression in the entire sample ($r=.13$, ns), nor for boys ($r=.03$), when considered separately. For girls, teacher-reported physical aggression and self-reported physical aggression were significantly and positively correlated ($r=.25$; $p < .05$). Given that the teacher-report and self-report measures of physical and social aggression were not strongly correlated and there was no statistical singularity, each aggression variable was considered as a separate outcome in all subsequent analyses.

Table 4.4

Correlations among outcome measures

	SOCAGG-T	PHYAGG-T	SOCAGG-SR	PHYAGG-SR	N-ASB
<u>All participants (N=147)</u>					
SOCAGG-T	--	.65**	.22**	.22**	.25**
PHYAGG-T		--	.04	.14	.30**
SOCAGG-SR			--	.71**	.44**
PHYAGG-SR				--	.43**
N-ASB					--
<u>Correlations by gender</u>					
SOCAGG-T	--	.65**	.15	.07	.05
PHYAGG-T	.72**	--	-.04	.03	.07
SOCAGG-SR	.28**	.15	--	.78**	.46**
PHYAGG-SR	.37**	.25*	.67**	--	.53**
N-ASB	.40**	.55**	.44**	.29**	--

Note. SOCAGG-T=teacher-reported social aggression, PHYAGG-T=teacher-reported physical aggression, SOCAGG-SR= self-reported social aggression, PHYAGG-SR=self-reported physical aggression, N-ASB=nonaggressive antisocial behaviour.

Listwise $n=76$ (boys; above the diagonal); $n=71$ (girls; below the diagonal).

** $p < .01$ (1-tailed).* $p < .05$ (1-tailed).

As shown in Table 4.4, the correlations among the outcome measures were moderate in the entire sample, but varied for boys and girls. As expected, positive and significant correlations were observed between teacher-reported physical and social aggression, as well as between self-reported physical and social aggression, for the entire sample and for boys and girls separately. These associations are consistent with previous research (Crick & Grotpeter, 1995) showing these two forms of aggression to be moderately correlated (Card et al., 2008).

Regarding mean level differences, significant gender differences were not found for teacher-rated social or physical aggression. Specifically, an independent-samples t-test was conducted to compare the social and physical aggression scores for girls and boys for each type of rating. There were no significant differences in scores for girls ($M=1.61$, $SD=0.92$) and boys ($M=1.62$, $SD=0.65$) on teacher-rated social aggression, $t(173)=0.06$, $p=.12$, $d=0.01$). Similarly, there were no significant differences for teacher-rated physical aggression for boys ($M=1.25$, $SD=0.49$) and girls ($M=1.13$, $SD=0.41$), $t(151)=1.60$, $p=.07$, $d=0.27$. In terms of self-report, boys ($M=1.78$, $SD=0.71$) did not rate their levels of social aggression as significantly different from girls ($M=1.80$, $SD=0.67$), $t(175)=-0.16$, $p=0.26$, $d=-0.03$. However, in terms of self-rated physical aggression, girls ($M=1.28$, $SD=0.59$) rated themselves as significantly lower than boys ($M=1.50$, $SD=0.69$), $t(173)=2.31$, $p=.04$, $d=0.34$. For nonaggressive antisocial behaviour, boys ($M=8.40$, $SD=4.51$) did not significantly rate themselves higher than girls ($M=7.76$, $SD=5.35$), $t(174)=.87$, $p=.37$, $d=0.13$.

In addition, Fisher's Z transformation was performed to test for significant gender differences in the correlations observed between teacher-rated versus self-rated physical and social aggression. The differences between the correlation coefficients failed to reach

significance for teacher-rated and self-rated physical aggression for boys and girls. Similarly, the difference between the correlation coefficients for teacher-rated and self-rated social aggression for girls and boys was nonsignificant. The associations between physical aggression and nonaggressive antisocial behaviour were also moderate and in line with prior research (Connor, 2002). The highest correlation coefficient, between self-reported social aggression and self-reported physical aggression in boys ($r=.78$), was below .90 which would indicate statistical singularity (Pallant, 2003). Finally, teacher-reported social aggression and self-reported nonaggressive antisocial behaviour were significantly correlated for girls ($r=.40, p < .01$), but not boys ($r=.05$); Fisher's z transformation indicated a significant difference for this correlation ($z = -2.22, p < .01$, one-tailed). Overall, the correlations revealed expected patterns among the dependent variables. The results suggest that physical aggression, social aggression, and nonaggressive antisocial behaviour appear to reflect three distinct but related indices of antisocial behaviour.

Next, correlation analyses were conducted to examine the relations among the four major personality disorder factors (traits) in the entire sample and by gender (see Table 4.5). Gender differences in the correlations observed were evaluated using Fisher's z transformation. The inter-correlations observed among in the present sample were in the range reported by De Clercq et al. (2006), replicating previous findings. Results revealed significant gender differences in the correlation between disagreeableness and compulsivity, with stronger associations for boys ($r=.50, p < .01$) than girls ($r=.14, p < .01$; Fisher's $z = 2.55, p < 0.005$, one-tailed). Significant gender differences were also observed for the correlation between compulsivity and both introversion (Fisher's $z = 3.58, p = 0.0002$, one-tailed) and emotional instability (Fisher's $z = 2.59, p < 0.005$, one-tailed), with stronger relations

observed for boys, and the relations for girls being nonsignificant. No other significant differences emerged.

Table 4.5

Correlations between personality disorder factors

	DIS	INS	ITR	COMP
All participants (Listwise N=165)				
DIS	--			
INS	.75**	--		
ITR	.67**	.86**	--	
COMP	.37**	.54**	.67**	--
Correlations by gender				
DIS	--	.80**	.69**	.50**
INS	.73**	--	.80**	.52**
ITR	.67**	.85**	--	.65**
COMP	.14	.16	.20	--

Note: DIS=Disagreeableness, INS=Emotional Instability, ITR=Introversion, COMP=Compulsivity
Listwise n=93 for boys (above diagonal) and listwise n = 72 for girls (below diagonal).

** $p < .01$ (1-tailed)

Tables 4.6 (a-d) provide the correlations between the four major personality disorder factors and facets for the entire sample. The associations observed among the lower-level facet traits were as expected, with the strongest correlations between facets and the appropriate factor. Specifically, all disagreeableness facets correlated highest with the disagreeableness factor. Similarly, all facets within emotional instability, introversion, and compulsivity showed the strongest associations with their corresponding factor or broader personality disorder trait.

Table 4.6 (a) *Correlations among personality disorder factors and disagreeableness facets (N=165)*

	DISAGREE	INSTAB	INTRO	COMPULS
EXPR	.85**	.61**	.50**	.45**
ACTI	.83**	.60**	.52**	.46**
DOMI	.76**	.54**	.52**	.60**
IMPU	.86**	.64**	.49**	.09
IRRI	.85**	.67**	.55**	.22**
DISO	.76**	.61**	.52**	.07
DIST	.82**	.65**	.52**	.14**
RISK	.69**	.44**	.43**	.36**
NARC	.66**	.49**	.53**	.59**
LABI	.78**	.66**	.57**	.17**
RESI	.83**	.52**	.49**	.11
EMPA	.69**	.52**	.67**	.43**

Note: DISAGREE=disagreeableness, INSTAB=emotional instability, INTRO=introversion, COMPULS=compulsivity, EXPR=hyperexpressive traits, ACTI=hyperactive traits, DOMI=dominance/egocentrism, IMPU=impulsivity, IRRI=irritable-aggressive, DISO=disorderliness, DIST=distractibility, RISK=risk-taking, NARC=narcissism, LABI=affective lability, RESI=resistance, EMPA=lack of empathy.
 ** $p < .01$ (one- tailed).

Table 4.6 (b)
Correlations among personality disorder factors and emotional instability facets (N=165)

	DISAGREE	INSTAB	INTRO	COMPULS
DEPE	.66**	.82**	.63**	.21**
ANXI	.63**	.89**	.74**	.35**
SELF	.55**	.86**	.70**	.20**
ATTA	.47**	.68**	.50**	.37**
SUBM	.52**	.79**	.69**	.20**
STRE	.75**	.82**	.63**	.21**
SEPA	.36**	.70**	.51**	.29**
DEPR	.61**	.81**	.72**	.29**
FLEX	.78**	.78**	.75**	.48**

Note. DISAGREE=disagreeableness, INSTAB=emotional instability, INTRO=introversion, COMPULS=compulsivity, DEPE=dependency, ANXI=anxiousness, SELF=lack of self confidence, ATTA=insecure attachment, SUBM=submissiveness, STRE=ineffective coping, SEPA=separation anxiety, DEPR=depressive traits, FLEX=inflexibility. ** $p < .01$ (one- tailed).

Table 4.6 (c)

Intercorrelations among personality disorder factors and introversion facets (N=165)

	DISAGREE	INSTAB	INTRO	COMPULS
SHYN	.57**	.78**	.89**	.37**
PARA	.64**	.72**	.85**	.38**
WITH	.57**	.68**	.89**	.44**

Note: DISAGREE=disagreeableness, INSTAB=emotional instability, INTRO=introversion, COMPULS=compulsivity, SHYN=shyness, PARA=paranoid traits, WITH=withdrawn traits.
 ** $p < .01$ (one- tailed).

Table 4.6 (d)

Intercorrelations among personality disorder factors and compulsivity facets (N=165)

	DISAGREE	INSTAB	INTRO	COMPULS
PERF	.34**	.37**	.46**	.93**
ACHI	.34**	.28**	.32**	.85**
ORDE	.28**	.30**	.44**	.84**

Note: DISAGREE=disagreeableness, INSTAB=emotional instability, INTRO=introversion, COMPULS=compulsivity, PERF=perfectionism, ACHI=extreme achievement-striving, ORDE=extreme order.
 ** $p < .01$ (one- tailed).

4.4 Primary analyses

Correlational analyses were first conducted to examine the zero-order relationships between the four primary independent variables (i.e., personality disorder factors or traits) and the five dependent variables (i.e., self-reported nonaggressive antisocial behavior and physical and social aggression as rated by teachers and by self). The inter-correlations among these variables for: (i) the entire sample, (ii) for boys and (iii) for girls are shown in Table 4.7.

Table 4.7
Correlations between PD factors and outcomes

	DISAGREE	INSTAB	INTRO	COMPULS
All Participants (N = 136)_				
SA-T	0.15*	0.07	0.04	-0.08
PA-T	0.17**	0.08	-0.01	0.03
SA-SR	0.11	0.01	-0.00	-0.10
PA-SR	0.25**	0.16*	0.15*	-0.04
N-ASB	0.21**	-0.04	-0.02	-0.08
Boys (N=73)				
SA-T	-0.08	-0.17	-0.19	-0.02
PA-T	0.09	0.04	-0.05	0.13
SA-SR	0.02	-0.10	-0.08	-0.07
PA-SR	0.14	0.02	0.01	0.01
N-ASB	0.11	-0.03	0.02	0.01
Girls (N=63)_				
SA-T	0.41**	0.27*	0.26*	-0.15
PA-T	0.26*	0.14	0.04	-0.13
SA-SR	0.31**	0.12	0.10	-0.13
PA-SR	0.38**	0.37**	0.36**	-0.15
N-ASB	0.32**	-0.04	-0.07	-0.21*

Note. SA-T=teacher rated social aggression, PA-T= teacher rated physical aggression, SA-SR=self-rated social aggression, PA-SR=self-reported physical aggression, N-ASB=self-rated nonaggressive antisocial behaviour, DISAGREE=Disagreeableness, INSTAB=Emotional instability, INTRO=Introversion, COMPULS=Compulsivity. ** $p < .01$ (1-tailed). * $p < .05$ (1-tailed).

As shown in Table 4.7, the relationships observed between the four personality disorder traits and various antisocial behaviour varied as a function of gender and were evident among girls, not boys, when evaluated separately. Indeed, there were no significant correlations among the variables for boys. For girls, however, parent-reported Disagreeableness, was significantly associated with all five indices of antisocial behavior, although the magnitude of these correlations was moderate. Consistent with previous research (e.g., Miller & Lynam, 2001), both teacher- and self-rated physical and social aggression as well as nonaggressive antisocial behavior were significantly related to parent-

rated Disagreeableness. In other words, girls who were rated as disagreeable by their parents were more likely to be physically and socially aggressive, according to both self and teacher evaluations, and were also more likely to report nonaggressive antisocial behaviour. Self-rated (but not teacher-rated) physical aggression and teacher-rated (but not self-rated) social aggression were also significantly correlated with Introversion and Emotional Instability for girls. Moreover, the difference in correlations between introversion and both self- and teacher-rated physical aggression was significant in girls only (Fisher $z = -1.85$, $p < .04$, one-tailed).

Gender differences in the correlations observed for boys and girls were evaluated using Fisher's Z transformation. Significant gender differences (in favor of girls) were found comparing boys' and girls' correlations between teacher-rated social aggression and disagreeableness ($z = -2.86$, $p < .002$, one-tailed), teacher-rated social aggression and emotional instability ($z = -2.55$, $p < .005$, one-tailed), and teacher-rated social aggression and introversion ($z = -2.61$, $p < .004$, one-tailed). Significant differences were also evident between boys' and girls' correlations on self-reported physical aggression and emotional instability ($z = -2.09$, $p < .03$, one-tailed), and self-reported physical aggression and introversion ($z = -2.09$, $p < .03$, one-tailed). No other significant differences were found.

Next, a series of correlation analyses were conducted to examine the associations between the facet-level PD traits in each of the four factors and the five antisocial outcomes. Each outcome is shown in relation to facets from disagreeableness, emotional instability, introversion, and compulsivity, respectively, for the entire sample (Tables 4.8 a-d).

Table 4.8 (a)

Correlations among Disagreeableness facets and dependent variables (n=138)

	EXPR	ACTI	DOMI	IMPU	IRRI	DISO	DIST	RISK	NARC	LABI	RESI	EMPA
SA-T	.07	.06	.07	.19*	.19*	.12	.07	.18*	.07	.18*	.21**	.12
PA-T	.09	.14*	.09	.16*	.22**	.15*	.11	.14*	.07	.17*	.15*	.09
SA-SR	.11	.11	.07	.13	.04	.08	.06	.06	.13	.08	.21**	.15*
PA-SR	.13	.19*	.16*	.23*	.17*	.20*	.25**	.10	.16*	.18*	.28**	.26**
N-ASB	.16*	.12	.12	.24**	.20**	.11	.12	.16**	.18*	.16*	.28**	.23**

Note. SA-T=Teacher-rated Social aggression, PA-T= Teacher-rated physical aggression, SA-SR=self-rated social aggression, PA-SR=self-rated physical aggression, N-ASB=Nonaggressive antisocial behaviour, EXPR=hyperexpressive traits, ACTI=hyperactive traits, DOMI=dominance/egocentrism, IMPU=impulsivity, IRRI=irritable-aggressive, DISO=disorderliness, DIST=distractibility, RISK=risk-taking, NARC=narcissism, LABI=affective lability, RESI=resistance, EMPA=lack of empathy.

** $p < .01$ (1-tailed). * $p < .05$ (1-tailed).

Physical aggression as rated by teachers was highly correlated with hyperactivity, impulsivity, irritability, resistance, and emotional lability. This is in line with previous research in children and youth showing empirical and conceptual links between impulsivity and different forms of aggression (Caspi & Shiner, 2006). Similarly, self-rated physical aggression was strongly and positively correlated with parent-rated resistance, lack of empathy, distractibility, disorderliness, and impulsivity. The difference in magnitude of correlations was tested via the Fisher Z statistic across self- and teacher-reported physical aggression and social aggression for all facets. Results revealed no significant differences between the correlation coefficients.

Both teacher- and self- rated social aggression was significantly and positively correlated with the facet of resistance. That is, students whose parents described as oppositional were more likely to perpetrate social aggression, according to teachers and by their own admission. However, teacher ratings of social aggression were also significantly

related to impulsivity and irritability, although self-rated social aggression was also significantly and positively correlated with the facet of lack of empathy.

Finally, nonaggressive antisocial behaviour was correlated with hyperexpressivity, impulsivity, irritability, risk-taking, narcissism, resistance, and lack of empathy. This is also in agreement with the literature on antisocial behaviour in youth and adults demonstrating empirical and theoretical links between the affective components of personality and antisocial outcomes (Hare, 1991; Miller & Lynam, 2001).

Table 4.8 (b)

Correlations among Emotional Instability facets and dependent variables (N=136)

	DEPE	ANXI	SELF	ATTA	SUBM	STRE	SEPA	DEPR	FLEX
SA-T	-.00	.04	.07	.03	.04	.07	.04	.26**	-.02
PA-T	.03	.12	.06	.03	-.01	.12	-.02	.20**	.01
SA-SR	-.00	-.04	-.04	.15*	-.04	-.02	.07	.04	-.02
PA-SR	.11	.13	.17*	.11	.10	.13	.12	.17*	.11
N-ASB	-.00	.02	-.05	-.03	-.18*	.03	-.05	.08	-.04

Note. SA-T=Teacher-rated Social aggression, PA-T= Teacher-rated physical aggression, SA-SR=self-rated social aggression, PA-SR=self—reported physical aggression, N-ASB=Nonaggressive antisocial behaviour, DEPE=dependency, ANXI=anxiousness, SELF=lack of self confidence, ATTA=insecure attachment, SUBM=submissiveness, STRE=ineffective coping, SEPA=separation anxiety, DEPR=depressive traits, FLEX=inflexibility.

** $p < .01$ (1-tailed). * $p < .05$ (1-tailed).

Teacher-rated social and physical aggression were significantly correlated with only one facet, depression, in the emotional instability factor. A significance test of the difference between the correlation coefficients for self-and teacher-rated social aggression and depression revealed a significant difference (Fisher $z = 1.86$, $p < .04$, one-tailed). No other significantly different comparisons were found. In contrast, self-rated social aggression was significantly and positively correlated with insecure attachment and self-rated physical aggression was significantly and positively correlated with the facets, lack of self-confidence

and depression. Nonaggressive antisocial behaviour was significantly and negatively correlated with submissiveness. These links were expected as the clinical literature demonstrates that aspects of emotional instability tend to characterize internalizing (e.g., anxiety disorders) and not externalizing problems such as nonaggressive antisocial behaviour (Achenbach, 1987).

Table 4.8 (c)

Correlations among Introversion facets and dependent variables (N=137)

	SHYN	PARA	WITH
SA-T	-.02	.07	.07
PA-T	-.05	-.05	.04
SA-SR	-.01	.07	-.03
PA-SR	.11	.17*	.13
N-ASB	-.07	.08	-.04

Note. SA-T=Teacher-rated Social aggression, PA-T= Teacher-rated physical aggression, SA-SR=self-rated social aggression, PA-SR=self-rated physical aggression, N-ASB= Nonaggressive-antisocial behaviour, SHYN=shyness, PARA=paranoid traits, WITH=withdrawn traits. ** $p < .01$ (1-tailed). * $p < .05$ (1-tailed).

Table 4.8 (d)

Correlations among Compulsivity facets and dependent variables (N=137)

	PERF	ACHI	ORDE
SA-T	-.06	-.07	-.08
PA-T	-.02	.09	.01
SA-SR	-.10	-.03	-.13
PA-SR	-.04	.01	-.10
N-ASB	-.10	-.01	-.12

Note. SA-T=Teacher-rated Social aggression, PA-T=Teacher-rated physical aggression, SA-SR=self-rated social aggression, PA-SR=self-rated physical aggression, N-ASB=Nonaggressive - antisocial behaviour, PERF=perfectionism, ACHI=extreme achievement-striving, ORDE=extreme order. ** $p < .01$ (1-tailed). * $p < .05$ (1-tailed).

As can be seen in Tables 4.8 (c) and (d), only paranoia from the introversion factor correlated significantly and positively with self-reported physical aggression. Comparing the correlations for significant differences via Fisher's z revealed a significant difference

between self- and teacher-reported physical aggression and paranoia ($z = -1.82, p < .04$, one-tailed). No other facets from introversion and compulsivity were correlated with any outcomes. This was in line with the personality literature in adults that demonstrates that personality traits related to social avoidance (i.e., introversion) and to aspects of conscientiousness (i.e., compulsivity) are unassociated with indices of aggression and antisocial behaviour (De Clercq, De Fruyt, & Widiger, 2009).

A series of standard multiple regressions was conducted to systematically explore the links between personality disorder traits (factors) and facets and different types of antisocial behaviour. Of initial interest was whether patterns of personality disorder traits predicted self-rated nonaggressive antisocial behavior, as well as self- and teacher-rated social and physical aggression. This had not been previously examined in the literature within an age-appropriate, dimensional personality disorder trait taxonomy. Of interest was determining in a typically developing sample which factor and facet-level traits were most useful in terms of predictive utility. The last question asked whether the associations between factor-level and facet-level traits and the outcomes varied by gender. Hence, these analyses were largely exploratory, with an emphasis on theory-building and as such, a strict hypothesis-testing approach was not adopted.

For the regression analyses, a two-part analytic strategy was adopted in which the broad factors, then facet-level relations were tested for each outcome separately. All regression models were tested: (i) in the entire analytic sample, and (ii) in boys only and (iii) in girls only. Where regression models reached significance, a model reduction strategy using standard multiple regression was used to clarify the results. Specifically, the standardized Betas from the original regression equation were examined and only those predictors with

significant Betas were entered into a reduced model. Due to the number of analyses conducted, a conservative alpha was adopted at .01 to reduce the likelihood of finding significant results due to chance.

In order to determine the relative importance of the predictors in the regression equations, the Relative Pratt Index (RPI; Thomas, Hughes, & Zumbo, 1998) was used where significant results were obtained and there were multiple significant predictors. The Relative Pratt Index is a way to determine the relative importance of variables in a regression analysis. The formula for the Relative Pratt Index is $d_j = [\beta * r]/R^2$ (Thomas et al., 1998). Regarding interpretation, a RPI is the proportion of the variance in the regular R^2 accounted for by each variable. Where positive RPI values were found, all predictors were simply listed in relative order of importance and not by absolute magnitude. Negative Pratt Index values likely indicate a suppressor effect wherein the inclusion of a given predictor increases the predictive validity of one or more independent variables by its inclusion in the regression equation (e.g., Paulhus, Robins, Trezesniewski, & Tracy, 2004). It is important to note that in these cases of suppression one (or more) of the RPI values could be negative, while others may be greater than 1.0. When this happens, it is a diagnostic sign of a possible suppressor variable(s), because the RPI is structured such that it will always sum to 1.0. Hence, the findings are interpreted in the context of suppressor situations where appropriate and the relative importance of the predictors that emerged.

The first series of three regression models evaluated all four personality disorder factors - disagreeableness, emotional instability, introversion and compulsivity -- for each of the five dependent variables (teacher- and self-rated social and physical aggression, and self-reported nonaggressive antisocial behaviour). This was initially done with the entire sample

then by separately for boys and girls for teacher-rated social aggression (see Table 4.9), self-rated social aggression (Table 4.10), teacher-rated physical aggression (Table 4.11), self-rated physical aggression (Table 4.12), and nonaggressive rule-breaking behaviour (Table 4.13).

Table 4.9

Regression Analysis Predicting Teacher-rated Social Aggression from Personality Disorder Factors

Total Sample (N=177)						
PD Factor	R ²	adj.R ²	F	df	p	
Disagreeableness	.04	.02	1.89	4, 172	.12	
Emotional Instability						
Introversion						
Compulsivity						
Boys (N=96)						
PD Factor	R ²	adj.R ²	F	df	p	
Disagreeableness	.05	.01	1.13	4, 91	.35	
Emotional Instability						
Introversion						
Compulsivity						
Girls (N=80)						
PD Factor	R ²	adj.R ²	F	df	p	β
Disagreeableness	.17	.12	3.70	4, 75	.008*	.42*
Emotional Instability						-.15
Introversion						.11
Compulsivity						-.18
						<u>Reduced model</u>
						R ² β
						.13 .36

Note. * $p < .01$. ** $p < .001$.

Results of the first regression (see Table 4.9) indicated that personality disorder factors, particularly disagreeableness, significantly predicted teacher-rated social aggression for girls only. Thus, girls (but not boys) who were viewed by parents as high in disagreeableness were significantly more likely to be rated by teachers as engaging in more social aggression. In contrast, as seen in Table 4.10, self-reported social aggression was not predicted from the four broad personality disorder factors in the entire sample or by gender, although a trend toward significance was found for girls ($p=.05$).

Table 4.10

Regression Analysis Predicting Self-rated Social Aggression from Personality Disorder Factors

Total Sample (N=183)					
PD Factor	R ²	adj.R ²	F	df	p
Disagreeableness	.04	.02	1.92	4,178	.11
Emotional Instability					
Introversion					
Compulsivity					
Boys (N=98)					
PD Factor	R ²	adj.R ²	F	df	p
Disagreeableness	.04	-.00	0.89	4,93	.47
Emotional Instability					
Introversion					
Compulsivity					
Girls (N=82)					
PD Factor	R ²	adj.R ²	F	df	p
Disagreeableness	.12	.07	2.55	4,77	.05
Emotional Instability					
Introversion					
Compulsivity					

Note. * $p < .01$. ** $p < .001$.

The same analytical approach was adopted for teacher-rated physical aggression. As shown in Table 4.11, the four personality disorder factors significantly predicted teacher-rated physical aggression in the total sample and for boys. For girls, the model did not reach significance ($F=2.01$, adj. $R^2=.05$, $p=.10$). In the total sample, the largest predictor of teacher-rated physical aggression was disagreeableness, whereas for boys the largest positive predictor was emotional instability. Thus, boys who were rated as higher on traits related to emotional instability or reactivity by parents were found to be more likely to engage in physical aggression.

For self-reported physical aggression (Table 4.12), the four broad personality disorder factors significantly predicted self-reported physical aggression in the entire sample ($p < .01$) and in girls ($p < .01$). The model reduction strategy indicated that disagreeableness was the largest (sole) predictor of self-reported physical aggression for girls.

Table 4.11

Regression Analysis Predicting Teacher-rated Physical Aggression from Personality Disorder Factors

Total Sample (N=177)									
PD Factor	R ²	adj.R ²	F	df	p	β	<u>Reduced model</u>		
	.09	.07	4.20	4,172	.003*		R ²	β	RPI
Disagreeableness						.27*		.36	1.05
Emotional Instability						.26			
Introversion						-.39*		-.23	-.05
Compulsivity						.04			
Boys (N=96)									
PD Factor	R ²	adj.R ²	F	df	p	β	<u>Reduced model</u>		
	.13	.09	3.39	4,91	.01*		R ²	β	RPI
Disagreeableness						.11			
Emotional Instability						.42*		.49	.96
Introversion						-.57*		-.40	.04
Compulsivity						.24			
Girls (N=80)									
PD Factor	R ²	adj.R ²	F	df	p				
	.10	.05	2.01	4,75	.10				
Disagreeableness									
Emotional Instability									
Introversion									
Compulsivity									

Note. * $p < .01$. ** $p < .001$.

Table 4.12

Regression Analysis Predicting Self-rated Physical Aggression from Personality Disorder Factors

Total Sample (N=183)								
PD Factor	R ²	adj.R ²	F	df	p	β	<u>Reduced model</u>	
	.09	.07	4.25	4,178	.003*		R ²	β
Disagreeableness						.38*	.07	.26
Emotional Instability						-.16		
Introversion						.07		
Compulsivity						-.11		
Boys (N=98)								
PD Factor	R ²	adj.R ²	F	df	p			
	.08	.04	2.01	4,93	.10			
Disagreeableness								
Emotional Instability								
Introversion								
Compulsivity								
Girls (N=82)								
PD Factor	R ²	adj.R ²	F	df	p	β	<u>Reduced model</u>	
	.22	.17	5.26	4,77	.001*		R ²	β
Disagreeableness						.31*	.16	.40
Emotional Instability						-.11		
Introversion						.30		
Compulsivity						-.19		

Note. * $p < .01$. ** $p < .001$.

Table 4.13

Regression Analysis Predicting Nonaggressive Antisocial Behaviour from Personality Disorder Factors

PD Factor	Total sample (N=182)						<u>Reduced model</u>	
	R ²	adj.R ²	F	df	p	β	R ²	β
	.12	.10	5.96	4,177	.000**			
Disagreeableness						.49**	.09	.29
Emotional Instability						-.22		
Introversion						-.01		
Compulsivity						-.10		
PD Factor	Boys (N=98)							
	R ²	adj.R ²	F	df	p			
	.06	.02	1.36	4,93	.25			
Disagreeableness								
Emotional Instability								
Introversion								
Compulsivity								
PD Factor	Girls (N=82)						<u>Reduced model</u>	
	R ²	adj.R ²	F	df	p	β	R ²	β
	.23	.19	5.86	4,77	.000**		.15	
Disagreeableness						.67**		.39
Emotional Instability						-.33		
Introversion						-.05		
Compulsivity						-.11		

Note. * $p < .01$. ** $p < .001$.

Table 4.13 reports results of the regression analysis examining the prediction of nonaggressive antisocial behaviour from disagreeableness, emotional instability, introversion and compulsivity. As before, results are presented for the entire sample, then by gender. Results indicated that in the total sample, nonaggressive antisocial behaviour was predicted significantly from the four personality disorder factors, accounting for 10% of the variance. Further investigation of the predictors using the model reduction strategy revealed that disagreeableness was the most salient predictor, with the other factors showing low contributions to the proportion of variance accounted for in nonaggressive antisocial behavior. For boys, the model did not reach significance, whereas for girls the model was highly significant. As in the total sample, the disagreeableness factor emerged as the largest single predictor of nonaggressive antisocial behaviour in girls. In other words, girls who parents rated as being more disagreeable were more likely to report engaging in nonaggressive antisocial behaviour.

Next, a series of standard multiple regression analyses were conducted at the facet level of the trait structure. The major domains or factors and their associated facets that were of interest included disagreeableness, emotional instability, and introversion, and compulsivity. First, teacher-rated social aggression was regressed on disagreeableness facets in the total sample, and separately by gender (see Table 4.14). None of the disagreeableness facets as a whole or separately significantly predicted social aggression in the total sample or separately by gender, although a trend toward significance was found for girls.

Table 4.14

Regression Analysis Predicting Teacher-rated Social Aggression from Disagreeableness Facets

Total sample (N=177)				
R ²	adj.R ²	F	df	p
.08	.02	1.26	12,164	.25
<hr/>				
Boys (N=96)				
R ²	adj.R ²	F	df	p
.10	-.04	.73	12,83	.72
<hr/>				
Girls (N=80)				
R ²	adj.R ²	F	df	p
.24	.11	1.80	12,67	.07

The next set of analyses examined the facets of emotional instability as predictors of teacher-rated social aggression in the total sample and by gender (Table 4.15). Results were significant only for girls, but not for the full sample nor boys (see Table 4.15). Although no *a priori* predictions were made regarding which facets would be the strongest predictors, one trait, depression, emerged as the single largest predictor of social aggression among girls ($\beta=.96$). Thus, girls who were rated by parents as more depressed were more likely to be viewed by teachers as engaging in more social aggression.

Table 4.15

Regression Analysis Predicting Teacher-rated Social Aggression from Emotional Instability Facets

Total sample (N=177)									
	R ²	adj.R ²	F	df	p				
	.08	.03	1.54	9,167	.14				
Boys (N=96)									
	R ²	adj.R ²	F	df	p				
	.07	-.03	0.70	9,86	.71				
Girls (N=80)									
	R ²	adj.R ²	F	df	p	β	<u>Reduced model</u>		
	.34	.25	3.95	9,70	.000**		R ²	β	RPI
Emotional Instability Facets							.27		
Depression						.96**		.85	1.29
Anxiousness						-.47*		-.53	-.29
Dependency						.04			
Insecure attachment						.01			
Ineffective coping						-.42			
Inflexibility						.15			
Lack of self-confidence						.14			
Separation anxiety						-.25			
Submissiveness						.15			

Note. * $p < .01$. ** $p < .001$.

Table 4.16

Regression Analysis Predicting Teacher-rated Social Aggression from Introversion Facets

Total sample (N=177)							
	R ²	adj.R ²	F	df	p		
	.02	-.00	0.91	3,173	.44		
Boys (N=96)							
	R ²	adj.R ²	F	df	p		
	.03	-.01	0.85	3,92	.47		
Girls (N=80)							
	R ²	adj.R ²	F	df	p	β	RPI
Introversion Facets	.17	.14	5.20	3,76	.003*		
Withdrawn						.40*	.71
Paranoid traits						.40*	.55
Shyness						-.52*	-.26

Note. * $p < .01$. ** $p < .001$.

As seen in Table 4.16, facets from Introversion did not emerge as significant predictors of teacher-rated social aggression in the total sample or for boys. The three introversion facets significantly predicted social aggression in girls, however. That is, girls who parents rated as higher on personality traits related to restricted affect were more likely to be rated by teachers as engaging in higher levels of social aggression. The Relative Pratt Index was calculated as there were multiple significant predictors in the regression equation. Examination of the RPI values for the three introversion facets revealed that withdrawn traits (a marker of restricted range of emotional expressivity) was the most salient predictor of social aggression (RPI=.70), followed by paranoid traits, defined as a general distrust of others, and shyness (RPI= -.26).

Regarding the facets from compulsivity as predictors of teacher-rated social aggression, the facets taken together did not reach significance in the overall sample ($F=0.36$, $\text{adj.}R^2 = -0.01$, $df=3,173$, $p=.78$), nor for analyses for boys ($F=0.17$, $\text{adj.}R^2 = -0.03$, $df=3,92$, $p=.92$) or girls ($F=0.82$, $\text{adj.}R^2 = -0.01$, $df=3,76$, $p=.49$).

Regarding self-rated social aggression, the facets from disagreeableness did not predict this outcome in the total sample ($F=1.18$, $\text{adj.}R^2=0.01$, $df=12,170$, $p=.30$), nor boys ($F=1.01$, $\text{adj.}R^2 = 0.00$, $df=12,85$, $p=.45$), although there was a trend toward significance for girls ($F=1.95$, $\text{adj.}R^2 = 0.12$, $df=12,69$, $p=.04$). Parent-rated emotional instability facets did not predict self-rated social aggression in the overall sample ($F=1.03$, $\text{adj.}R^2 = 0.00$, $df=9,173$, $p=.42$), for boys ($F=01.86$, $\text{adj.}R^2 = 0.07$, $df=9,88$, $p=.07$), or girls ($F=1.31$, $\text{adj.}R^2 = 0.03$, $df=9,72$, $p=.25$). Similarly, the facets from introversion did not reach significance in predicting self-rated social aggression, in the overall sample ($F=1.66$, $\text{adj.}R^2 = 0.01$, $df=3,179$, $p=.18$), boys ($F=0.74$, $\text{adj.}R^2 = -0.01$, $df=3,94$, $p=.53$), or girls ($F=2.64$, $\text{adj.}R^2 = 0.06$, $df=3,78$, $p=.06$). Finally, the compulsivity facets did not predict self-rated social aggression in the total sample ($F=0.31$, $\text{adj.}R^2 = -0.01$,

df=3,179, $p=.82$), boys ($F=0.32$, adj. $R^2 = -0.02$, df=3,94, $p=.81$), or girls ($F=0.52$, adj. $R^2 = -0.02$, df=3,78, $p=.67$). In short, none of the personality disorder facets significantly predicted self-rated social aggression.

The next series of regression analyses examined teacher-rated physical aggression predicted from the facets within disagreeableness, emotional instability, introversion and compulsivity. Again, each set of analyses was conducted with the entire sample, then across gender. Table 4.17 reports disagreeableness facets predicting teacher-rated physical aggression. Interestingly, results of the regression analyses with all facets entered simultaneously did not emerge as significant in the entire sample ($F=1.23$, adj. $R^2=.02$, df=12,164, $p=.27$), but was significant for both boys ($F=2.29$, adj. $R^2=0.14$, $p < .01$) and girls ($F=2.39$, adj. $R^2=0.17$, $p < .01$). For boys, the facet lack of empathy emerged as the sole significant predictor ($\beta = -.43$) when all facets were entered into the regression equation. For girls, the facet affective lability ($\beta = -.53$) was the only significant (albeit negative) predictor of teacher-rated physical aggression when all facets were examined as predictors. In other words, boys who parents rated as showing less empathy toward others were less likely and girls who parents rated as experiencing more rapid and dramatic mood changes were more less likely to be perceived by teachers as perpetrating physical aggression.

Table 4.17

Regression Analysis Predicting Teacher-rated Physical Aggression from Disagreeableness Facets

Boys (N=96)							<u>Reduced model</u>		
	R ²	adj.R ²	F	df	p	β	R ²	β	p
Disagreeableness Facet	.25	.14	2.29	12,83	.01*		.01		.40
Lack of empathy						-.43*		-.09	
Hyperexpressive traits						.15			
Hyperactive traits						.35			
Dominance-egocentrism						.33			
Impulsivity						-.27			
Irritable-aggressive						-.01			
Disorganized						.14			
Distractibility						-.32			
Risk-taking						.10			
Narcissism						-.25			
Affective lability						.34			
Resistance						.02			
Girls (N=80)							<u>Reduced model</u>		
	R ²	adj.R ²	F	df	p	β	R ²	β	p
Disagreeableness Facet	.30	.17	2.39	12,67	.01*		.01		.29
Affective lability						-.53*		.12	
Hyperexpressive traits						.11			
Hyperactive traits						-.09			
Dominance-egocentrism						-.36			
Impulsivity						.23			
Irritable-aggressive						.23			
Disorganized						-.09			

Table 4.17 continued

Regression Analysis Predicting Teacher-rated Physical Aggression from Disagreeableness Facets

Distractibility	.17
Risk-taking	-.01
Narcissism	.11
Resistance	.30
Lack of empathy	.22

Note. * $p < .01$. ** $p < .001$.

Table 4.18

Regression Analysis Predicting Teacher-rated Physical Aggression from Emotional Instability Facets

Total sample (N=177)								
	R ²	adj.R ²	F	df	p			
	.06	.01	1.17	9,167	.32			
Boys (N=96)								
	R ²	adj.R ²	F	df	p			
	.12	.02	1.24	9,86	.28			
Girls (N=80)								
Emotional Instability Facet	R ²	adj.R ²	F	df	p	β	<u>Reduced model</u>	
	.33	0.24	3.77	9,70	.001**		R ²	β
Depression						.99**	.14	.38
Anxiousness						-.09		
Dependency						.17		
Insecure attachment						-.02		
Ineffective coping						-.42		
Inflexibility						-.08		
Lack of self-confidence						-.24		
Separation anxiety						.19		
Submissiveness						.06		

Note. * $p < .01$. ** $p < .001$.

As shown in Table 4.18, facets from emotional instability did not predict teacher-rated physical aggression in the entire sample or for boys. For girls, the facets related to emotional instability predicted teacher-rated physical aggression. The reduced model revealed that girls who parents rated as showing more depressive traits were more likely to be perceived by teachers as perpetrating physical aggression.

The introversion facets did not predict teacher-rated physical aggression in the overall sample ($F=0.47$, adj. $R^2=-0.01$, $df=3,173$, $p=.71$), for boys ($F=0.29$, adj. $R^2=-0.02$, $df=3,92$, $p=.84$), or girls ($F=0.53$, adj. $R^2=-0.02$, $df=3,76$, $p=.67$). Similarly, the compulsivity facets did not predict physical aggression as reported by teachers in the total sample ($F=0.96$, adj. $R^2=-0.00$, $df=3,173$, $p=.41$), in boys ($F=1.73$, adj. $R^2=0.02$, $df=3,92$, $p=.17$), or girls ($F=0.47$, adj. $R^2=-0.02$, $df=3,76$, $p=.70$).

The next set of regression analyses tested facets from disagreeableness, emotional instability, introversion and compulsivity as predictors of self-reported physical aggression in the overall sample and by gender (Tables 4.19-4.21).

Table 4.19

Regression Analysis Predicting Self-rated Physical Aggression from Disagreeableness Facets

Total sample (N=183)									
	R ²	adj.R ²	F	df	p				
	.13	.07	2.12	12,170	.02				
Boys (N=98)									
	R ²	adj.R ²	F	df	p				
	.14	.01	1.11	12,85	.36				
Girls (N=82)									
	R ²	adj.R ²	F	df	p	β	<u>Reduced model</u>		
	.45	.35	4.65	12,69	.000**		R ²	β	RPI
							.35		
Distractibility						.53**		.47	.66
Resistance						.60**		.39	.52
Disorganized						-.33*		-.35	-.23
Narcissism						.35*		.07	.05
Hyperexpressive traits						-.31			
Hyperactive traits						.08			
Dominance-egocentrism						-.32			
Impulsivity						-.27			
Irritable-aggressive						-.13			
Risk-taking						.09			
Affective lability						.29			
Lack of empathy						-.03			

Note. * $p < .01$. ** $p < .001$.

As seen in the above table, disagreeableness facets significantly predicted self-reported physical aggression in girls, with the largest predictors as indicated by the Pratt Index being distractibility (RPI=.66), resistance (RPI=.52), disorganized (RPI= -.23), and narcissism (RPI=.05). The facets were nonsignificant in the overall sample ($p=.02$) and boys ($p=.36$).

Table 4.20

Regression Analysis Predicting Self-rated Physical Aggression from Emotional Instability Facets

Total sample (N=183)							
	R ²	adj.R ²	F	df	p		
	.03	-.02	0.61	9,173	.79		
Boys (N=98)							
	R ²	adj.R ²	F	df	p		
	.09	-.00	0.96	9,88	.48		
Girls (N=82)							
Emotional Instability Facet	R ²	adj.R ²	F	df	p	β	<u>Reduced model</u> R ² β
	.30	.21	3.39	9,72	.002*		.15
Depression						.52**	.39
Dependency						-.22	
Anxiousness						-.39	
Lack of self-confidence						.41	
Insecure attachment						.09	
Submissiveness						.22	
Ineffective coping						-.34	
Separation anxiety						-.20	
Inflexibility						.34	

Note. * $p < .01$. ** $p < .001$.

As seen in Table 4.20, the emotional instability facets significantly predicted self-reported physical aggression in girls only, with the strongest predictor being depression ($\beta=.39$ in the reduced model) accounting for 15% of the variance.

Table 4.21

Regression Analysis Predicting Self-rated Physical Aggression from Introversion Facets

	Total sample (N=183)							
	R ²	adj.R ²	F	df	p			
	.03	.01	1.75	3,179	.16			
	Boys (N=98)							
	R ²	adj.R ²	F	df	p			
	.01	-.02	0.40	3,94	.75			
	Girls (N=82)					Reduced model		
	R ²	adj.R ²	F	df	p	β	R ²	β
	.17	.14	5.39	3,78	.002*		.17	
Introversion Facets								
Paranoid traits						.44*		.41
Shyness						-.08		
Withdrawn						.06		

Note. * $p < .01$. ** $p < .001$.

As shown in Table 4.21, the introversion facets significantly predicted self-reported physical aggression in girls only ($p < .01$) and the only significant facet predictor was paranoia ($\beta = .41$ in the reduced model) that accounted for 17% of the variance. Thus, girls who were rated by parents as having a tendency to be suspicious of others' motivations reported greater levels of physical aggression.

The last set of facets that were considered in relation to self-reported physical aggression were those from compulsivity. Results indicated that the compulsivity facets did not predict self-rated physical aggression in the total sample ($F = 0.12$, $\text{adj.}R^2 = -0.02$, $df = 3, 179$, $p = .95$), in boys ($F = 0.16$, $\text{adj.}R^2 = -0.03$, $df = 3, 94$, $p = .92$), or girls ($F = 0.63$, $\text{adj.}R^2 = -0.01$, $df = 3, 789$, $p = .60$).

In a final series of regression analyses, nonaggressive antisocial behaviour was predicted from each set of personality disorder facets. Disagreeableness facets as well as emotional instability facets were expected to be positively associated with nonaggressive antisocial behaviour, and compulsivity facets were hypothesized to negatively predict this outcome. Gender differences were not predicted in any of these associations. Results are displayed in Tables 4.22-4.23.

As shown in Table 4.22, the disagreeableness facets as a whole significantly predicted nonaggressive antisocial behaviour in the entire sample ($p < .01$) and in girls ($p < .01$). In both cases, examination of the significant Betas indicated that the facet labeled resistance emerged as the single significant predictor ($\beta = .33$ in the overall sample and $\beta = .51$ for girls in the reduced model), accounting for 26% of the variance for girls. Thus, girls who parents rated as being resistant (i.e., oppositional) were more likely to engage in nonaggressive antisocial behaviour.

Table 4.22

Regression Analysis Predicting Nonaggressive Antisocial Behaviour from Disagreeableness Facets

	Total sample (N=182)						Reduced model	
	R ²	adj.R ²	F	df	p	β	R ²	β
Disagreeableness Facets	.15	.09	2.51	12,169	.005*		.11	
Resistance						.29*		.33
Hyperexpressive traits						-.11		
Hyperactive traits						-.04		
Dominance-egocentrism						-.10		
Impulsivity						-.00		
Irritable-aggressive						.17		
Disorganized						-.16		
Distractibility						.06		
Risk-taking						.13		
Narcissism						.20		
Affective lability						-.14		
Lack of empathy						.10		
	Boys (N=98)							
	R ²	adj.R ²	F	df	p			
	.10	-.03	0.78	12,85	.67			

Table 4.22 continued

Regression Analysis Predicting Nonaggressive Antisocial Behaviour from Disagreeableness facets

Disagreeableness Facet	Girls (N=82)						Reduced model	
	R ²	adj.R ²	F	df	p	β	R ²	β
	.35	.24	3.11	12,69	.001*		.26	
Resistance						.58*	.51	
Hyperexpressive traits						.12		
Hyperactive traits						.07		
Dominance-egocentrism						-.30		
Impulsivity						-.05		
Irritable-aggressive						.11		
Disorganized						-.29		
Distractibility						.00		
Risk-taking						.16		
Narcissism						.20		
Affective lability						-.18		
Lack of empathy						.11		

Note. * $p < .01$. ** $p < .001$.

Emotional instability facets, as the maladaptive trait counterpart of FFM neuroticism, were expected to predict nonaggressive antisocial behaviour in all analyses and no gender differences were expected. However, the model did not reach significance in the total sample ($F=1.42$, adj. $R^2=0.02$, $df=9,172$, $p=.18$) nor for boys ($F=0.77$, adj. $R^2=-0.02$, $df=9,88$, $p=.65$). For girls, the model showed a trend toward significance ($F=2.00$, adj. $R^2=0.10$, $df=9,72$, $p=.05$).

Table 4.23 reports results of regression analyses predicting nonaggressive antisocial behaviour from introversion facets in the total sample and by gender. Although no specific hypotheses were made, introversion facets were found to be highly significant predictors in the total sample ($F=4.38$, adj $R^2=.05$, $p < .01$). However, results only approached significance for both boys ($F=2.65$, adj $R^2=.05$, $p=.05$) and girls ($F=2.54$, adj $R^2=.05$, $p=.06$). In the total sample, paranoia was the most salient predictor of self-rated nonaggressive antisocial behaviour.

Table 4.23

Regression Analysis Predicting Nonaggressive Antisocial Behaviour from Introversion Facets

Introversion Facet	Total sample (N=182)						Reduced model	
	R ²	adj.R ²	F	df	p	β	R ²	β
Paranoid traits	.07	.05	4.38	3,178	.005*	.37*	.05	.21
Shyness						-.11		
Withdrawn traits						-.13		
Boys (N=98)								
	R2	adj.R2	F	df	p			
	.08	.05	2.65	3,94	.05			
Girls (N=82)								
	R2	adj.R2	F	df	p			
	.09	.05	2.54	3,78	.06			

Note. * $p < .01$. ** $p < .001$.

The last set of regressions tested facets from compulsivity in relation to nonaggressive antisocial behaviour in the total sample and across gender. These traits were expected to be negatively associated with this outcome. Unexpectedly, the facets from this factor did not predict this outcome in the total sample ($F=0.56$, adj. $R^2=-0.01$, $df=3,178$, $p=.64$), for boys ($F=0.98$, adj. $R^2= -0.00$, $df=3,94$, $p=.41$), nor for girls ($F=0.41$, adj. $R^2= -0.02$, $df=3,78$, $p=.75$).

CHAPTER 5

Discussion

5.1 Summary

The primary objective of the present study was to explore whether specific personality disorder traits and facets predicted adolescents' perpetration of physical and social aggression and nonaggressive antisocial behaviour. The secondary objective was to investigate whether there were gender differences in patterns of trait expression across the outcomes. A major strength of the current study was the use of multiple informants providing information over one year. The findings are interpreted below within this context. Table 5.1 provides an overview of the findings obtained in the present study, at the personality disorder trait factor and facet level for each outcome by gender. There were some expected and unexpected findings at both levels of the personality disorder trait structure, as discussed below.

Table 5.1

Summary of findings

Personality Disorder TRAITS AND FACETS						
	NONAGGRESSIVE ANTISOCIAL BEHAVIOUR		PHYSICAL AGGRESSION		SOCIAL AGGRESSION	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
1. Disagreeableness		✓ (SR)		✓ (SR)		✓ (TR)
a. Hyperexpressive traits						
b. Hyperactive traits						
c. Dominance-egocentrism						
d. Impulsivity						
e. Irritable-aggressive						
f. Disorderliness				✓ (SR)		
g. Distraction				✓ (SR)		
h. Risk taking						
i. Narcissism				✓ (SR)		
j. Affective lability						
k. Resistance		✓ (SR)		✓ (SR)		
l. Lack of empathy						
1. Emotional Instability			✓ (TR)			
a. Dependency						
b. Anxiousness						✓ (TR)
c. Lack of self-confidence						
d. Insecure attachment						
e. Submissiveness						
f. Ineffective coping						
g. Separation anxiety						
h. Depression				✓ (SR,TR)		✓ (TR)
i. Inflexibility						
2. Introversion			✓ (TR)			
a. Shyness						✓ (TR)
b. Paranoia				✓ (SR)		✓ (TR)
c. Withdrawn						✓ (TR)
3. Compulsivity						
a. Perfectionism						
b. Extreme achievement-striving						
c. Extreme order						

Note. ✓ =significant association, TR=teacher-rated; SR=self-rated

Results of the present study clearly demonstrated that the links between antisocial behaviour and personality disorder traits and their associated facets vary depending on the type of antisocial behaviour considered as well as the gender of the individual. For example, following from previous research, the personality disorder trait of disagreeableness was expected to be associated with all three forms of antisocial behavior for both male and female adolescents. However, significant relations were found between disagreeableness and all three outcomes for girls only and varied by informant. As another example, emotional instability facets were expected to be associated with social aggression for girls only. Results confirmed this hypothesis, but only for teacher-rated (not self-rated) social aggression. In discussing the present findings, we consider findings for each of the three types of antisocial behavior, in turn.

5.2 Nonaggressive antisocial behaviour

For self-rated, nonaggressive antisocial behaviour, significant associations were expected with the personality disorder traits of disagreeableness, emotional instability, and compulsivity (negatively), and their associated facets for both male and female adolescents. Results of the present study confirmed few of these hypotheses. Specifically, at the factor level, parent reports of disagreeableness among girls (but not boys) were significantly associated with later nonaggressive antisocial behaviour, accounting for 15% of the variance. This is not surprising given previous research demonstrating that low agreeableness (from various personality models including the Five-Factor Model) is consistently associated with nonaggressive antisocial behaviour in males and females (Miller & Lynam, 2001). Gender differences were not expected but were found, which contradicts previous research. Given that many studies have demonstrated robust links between the negative end of agreeableness

and this outcome in boys as well as girls (e.g., Heaven, 1996), some explanation is warranted. As noted in the introductory chapter, the peak ages for antisocial behaviour in boys are between 10-13 years (Connor, 2002) and in girls around 16 years (Bauermeister, Canino, & Bird, 1994). It may be the case that associations were not found for boys because a threshold was not met as the sample was normative and there were generally low endorsement rates for nonaggressive antisocial behaviour. An alternative explanation may be that, although adolescent girls and boys are both engaging in nonaggressive antisocial behaviour, girls are rapidly catching up to the levels seen in boys. Findings from the Dunedin Longitudinal Study (Moffitt et al., 2001) demonstrate that girls rarely show the life-course-persistent pattern seen in some boys wherein increasingly severe antisocial and aggressive behaviours are thought to constitute a biologically-based, psychopathological syndrome. Rather, girls' nonaggressive antisocial behaviour in particular can be seen as more normative in the context of peer and romantic relationships and characteristic of normal development (Moffitt, 1993). It may be the case that girls are engaging in more nonaggressive antisocial behaviour as a way to adapt to social contexts in which these activities are common.

At the facet level, among girls (but not boys), only one disagreeableness facet, resistance (defined by oppositionality or general disobedience to parents), emerged as a significant predictor of self-reported nonaggressive antisocial behaviour, accounting for 24% of the variance (reduced model). Given that a number of facets within this factor were significantly correlated with nonaggressive antisocial behaviour (e.g., lack of empathy, risk-taking, impulsivity) the finding that one facet accounted for a considerable proportion of the variance was surprising. However, the findings are in line with the literature, specifically Le Corff and Toupin's (2010) study of adolescent males. One facet from the Five-Factor Model,

(low) compliance, alone accounted for almost 9% of the variance in predicting antisocial personality disorder in conduct disordered youth. The findings from Le Corff and Toupin (2010) suggest that low compliance captures an element of antisocial personality disorder (including rule-breaking) that current diagnostic criteria do not. Similarly, the current findings point to one facet within disagreeableness, namely resistance, as having significant predictive utility for nonaggressive antisocial behaviour in girls.

Although it was expected that disagreeableness facets would be associated with nonaggressive antisocial behaviour, no gender differences were predicted. A significance test of mean levels of endorsement of rule-breaking behaviour for boys and girls did not reveal significant differences. Further, regarding the personality disorder factor, there were no significant differences in the mean levels of parent-rated disagreeableness for boys and girls. The current results contradict previous research (e.g., Miller, Lynam, & Leukefeld, 2003). Some reasons for the discrepant findings across gender described previously may apply to this level of the trait hierarchy; specifically, girls may be enacting more externalizing behaviours at this stage of development and reaching levels comparable to those of boys. Parent-rated personality characteristics may have shown stronger links with this outcome because the behaviour is generally considered to be gender non-normative. That is, from the developmental psychopathology literature, antisocial behaviour has largely been investigated in boys due to its prevalence in males generally and in this developmental stage specifically (Connor, 2002). When girls enact nonaggressive antisocial behaviour, in contrast, they may exhibit more difficult, externalizing types of personality traits prior to moving on to enacting more severe antisocial behaviours such as arson, stealing, and substance use. Hence there

may be an increased sensitivity and perception on the part of parents as close observers of their adolescent daughters to the presence of more traits related to disagreeableness.

However, other disagreeableness facets were expected to predict nonaggressive antisocial behaviour, particularly traits related to attention problems (e.g., hyperactivity, impulsivity, distractibility). As well, other facets defined by affective components related to general antisocial behaviour in adults and youth, especially narcissism, lack of empathy, and dominance, that have strong links with psychopathy (Hare, 1991) and antisocial personality disorder (APA, 1994) were also expected to have been predictive of nonaggressive antisocial behaviour. However, none of these hypotheses were supported. It may be that these findings did not emerge because the present facet scales were defined differently than in previously examined personality models.

In previous studies, only normal-range personality traits were examined as predictors of rule-breaking. The scale content in the present measure does correspond—but not perfectly—with the Five-Factor Model. That is, the FFM was constructed atheoretically using factor analytic methods and has its origins in the lexical hypothesis (Paunonen & Ashton, 2001). Essentially, the broad factors and narrow traits in the FFM were derived from studies of everyday language that is assumed to be a repository of information about important individual differences between people and social judgments; in other words, personality descriptors. The personality disorder trait measure was constructed based on a content analysis of reviews of the clinical literature, soliciting expert opinion on prototypical features of personality disorder, and creating maladaptive variants of the Five-Factor Model items (see De Clercq et al., 2006). This may account for some of discrepant and null findings in the present study.

Continuing with the hypotheses, contrary to expectations, the personality disorder traits emotional instability and compulsivity and their associated facets did not emerge as significant predictors of nonaggressive antisocial behaviour for either boys or girls. This contrasts with previous findings in samples of adolescents and young adults (e.g., Heaven, 1996; Miller, Lynam, & Jones, 2008) showing consistent negative links between conscientiousness, and positive links between neuroticism and nonaggressive antisocial behaviour. It may be the case that associations were not found in the current study due to a modest sample size and overall low rates of endorsement by parents of severe personality disorder traits. Another reason for the discrepant findings is that the current sample consisted of typically developing adolescents, whereas some studies (e.g., Le Corff & Toupin, 2009; 2010) employed all-male samples with histories of severe conduct problems as inclusion criteria. A third possible explanation for the inconsistent results is that previous studies have examined relations between normal personality traits (i.e., neuroticism, agreeableness, and conscientiousness; Miller & Lynam, 2001) and nonaggressive antisocial behaviour, whereas in the present study, personality disorder traits and facets were considered and these are defined somewhat differently. Specifically, Miller, Lynam, and Jones (2008) examined antisocial behavior in relation to neuroticism and conscientiousness (as well as agreeableness). Although the scale content of emotional instability in the current personality disorder trait measure overlaps with some facets of neuroticism (e.g., anxiety) within the Five-Factor Model, they are not identical. Moreover, the personality disorder trait of compulsivity as assessed in the present study reflects a similar but more extreme and narrow conceptualization of conscientiousness than in the Five Factor Model.

In sum, few hypotheses were confirmed regarding the predictive utility of personality disorder traits in relation to nonaggressive antisocial behaviour. The current hypotheses were based on the normal personality literature that has largely examined these associations in males with and without histories of various conduct problems. As described in the literature review, there were no previous studies that examined nonaggressive antisocial behaviour separately as an outcome because most assessment instruments tend to incorporate items measuring these types of behaviours. Although many associations were not confirmed in the present study, from the literature is clear that it is useful for future studies to distinguish nonaggressive from aggressive antisocial behaviours in order to provide conceptual clarity (Connor, 2002). One future direction that may help to elucidate the associations between maladaptive personality in adolescence and maladjustment is to identify individuals who may occasionally engage in rule-breaking behaviour as part of normal development versus those adolescents for whom involvement in such behaviour is causing harm to themselves and/or others and causing significant impairment in educational and social settings (APA, 1994; Connor, 2002). Another useful avenue will be to obtain self-reports of personality disorder traits from youth in order to more accurately assess intrapersonal processes that may not be as reliably measured by parent report such as perceptions of and attitudes toward others.

5.3 Physical aggression

Regarding self- and teacher-rated physical aggression for boys and girls, the personality disorder traits of disagreeableness, emotional instability, and compulsivity (negative) and their associated facets were expected to predict this outcome. Few of these hypothesized associations were found. Specifically, at the factor level, links were not confirmed between parent ratings of disagreeableness and teacher ratings of physical

aggression in neither girls nor boys. However, disagreeableness was a significant predictor of self-rated physical aggression in girls only, accounting for 17% of the variance. Although an examination of the mean-level differences revealed that girls rated themselves as perpetrating significantly lower levels of physical aggression than boys, the disagreeableness factor was highly significant in predicting this outcome. This is in agreement with the literature showing a robust link between (low) agreeableness and physical aggression that has been replicated in different age groups and across gender (e.g., Miller & Lynam, 2001). The finding did not emerge for boys, however. It has been suggested that girls at this age may engage in more physical aggression than boys within the context of romantic or dating relationships that may not be readily observable by adults (Feiring, Deblinger, Hoch-Espada, & Haworth, 2002). It would be useful in future studies to examine differences in perpetrating physical aggression in different contexts (e.g., at home, at school, in dyadic same-sex or opposite-sex friendships or with romantic partners) as well as victimization in obtaining a more complete understanding of the nature of this type of interpersonal aggression during adolescence.

Regarding teacher-rated physical aggression, emotional instability and introversion did emerge as significant factor-level predictors for boys (but not girls), together accounting for 9% of the R^2 variance (.96 was the proportion of variance accounted for by emotional instability and .04 accounted for by introversion in the reduced model). The standardized Beta for introversion was negative, however, which may be indicative of a suppressor effect. Recently, Paulhus et al. (2004) discussed suppressor situations such as these in personality research in which a predictor that is not correlated with the dependent variable nevertheless improves prediction when added to the regression model. The operational definition of suppressor situation adopted here follows Paulhus et al. (2004) wherein the concurrent

inclusion of two predictors improves one or more Beta weights. The pattern can occur when a second predictor that is correlated with the first is entered into the regression equation, thereby suppressing (removing) criterion-irrelevant variance from the first predictor (Horst, 1941; in Paulhus et al., 2004). In other words, by including the second predictor, the error in the first predictor that is unrelated to the criterion variable is accounted for (suppressed), creating a stronger initial predictor. Paulhus et al. (2004) suggest that in the context of personality research, suppressor situations are far more common than originally assumed and that a more systematic search for suppressor situations is warranted because they have implications for variable selection and theory. The current study did not adopt a strict hypothesis-testing approach; rather the study was more exploratory in nature. Recognizing the distinct roles of suppressor situations in variable selection and theoretical model testing contexts (Paulhus et al., 2004), the current research questions focused on identifying predictors that would be of theoretical interest in relation to the different outcomes, not in selecting the most optimal predictors of the outcomes. In terms of next steps, the identification of suppressors can lead to the examination of novel associations (e.g., interactions) among the predictors of interest (Paulhus et al., 2004).

Hence there are theoretical implications in the context of suppressor situations. In this case, the shared variance in emotional instability and introversion could indicate the possibility there may be common underlying affective and cognitive processes across these domains contributing to the suppressor situation. Specifically, components of introversion, namely shyness and paranoia, are theoretically and conceptually related to aspects of emotional instability, particularly those defined by anxiety and a rigid or inflexible cognitive style (De Clercq et al., 2006).

Although emotional instability and introversion were not significantly correlated with teacher-rated physical aggression across gender (see Table 4.7), these factors nonetheless predicted this outcome when entered together in the regression equation. The standardized Beta for emotional instability also increased after entering introversion into the regression equation. As Paulhus et al. (2004) suggested, there are several implications that follow from identifying suppressor situations: it may be worthwhile in future studies to examine the predictive utility of “purified” measures of personality disorder traits generally and emotional instability and introversion specifically in relation to different forms of aggression. An examination of the personality disorder trait measure reveals that there appears to be a mixture of behavioural, cognitive, and affective facets that, although conceptually related, do not perfectly correspond to each other within each higher-order factor. Further, the preliminary analyses showed that each facet was at least somewhat correlated with each factor. Another implication raised by Paulhus et al. (2004) is that there may be an important (although unidentified) personality disorder trait captured by the shared variance between emotional instability and introversion, whose elimination increases the validity of emotional instability (Table 4.11). Last, it may be the case that the suppressor situation is simply artifactual (Paulhus et al., 2004).

The combined domains of emotional instability and introversion essentially describe individuals who tend to be anxious, have a rigid cognitive style, and tend to be distrustful of others’ motivations, explaining why these two factors together predicted teacher-rated physical aggression in boys. Further, because the DIPSI is an empirically-based, dimensional measure constructed via factor analytic methods (De Clercq et al., 2006), the factors are inter-correlated. These factors contain cognitive components of personality that have been

demonstrated to be related to physical aggression (Jensen-Campbell & Graziano, 2001). It may be that due to the similar roles of the informants (parents and teachers as adult authority figures), associations emerged between teacher but not self-ratings of physical aggression. Rater bias may have contributed to the findings in that boys may be perceived in school settings as more overtly aggressive than girls. This is not to suggest that self-reports are free from bias, however.

Regarding the personality disorder *facets* that were expected to predict physical aggression, the observed associations with disagreeableness facets differed for boys and girls, contrary to expectations of no gender differences, and varied as a function of the informant considered. Together, the twelve disagreeableness facets accounted for 14% (boys) and 17% (girls) of the variance in teacher-rated physical aggression. However, in subsequent analyses (reduced models), these predictors were not significant, and accounted for only 1% of the variance in teacher perceptions of physical aggression. It is also important to remember that no disagreeableness facets were found to predict self-rated physical aggression in boys. For girls, parent perceptions of greater distractibility, narcissism, and resistance, and lower disorderliness were predictive of higher self-rated physical aggression, with these four facets accounting for 35% of the regular R^2 variance (reduced model). The suppressor situation is likely due to the specific items within the facets; specifically, disorganization and distractibility contain items related to persistence or the tendency to continue working toward goals when faced with difficulties. The disorganization facet likely suppressed some criterion-irrelevant variance in distractibility, improving its predictive validity. This grouping of facets together resembles the core features of conduct disorder in children and youth (APA, 1994). Thus, girls who had greater numbers of cognitive features that are known to be

associated with physical aggression (e.g., attention problems) and were generally disobedient and showed little regard for others reported engaging in more physically aggressive behaviours, consistent with the literature.

The above findings varied according to the type of informant. There is some debate in the literature as to the validity of reports from different informants on adolescent problem behaviour including aggression (Archer & Coyne, 2005). In assessing physical and social aggression, both teacher and self-reports were used; however there was considerable inconsistency across raters in relation to the findings. Although previous studies have reported inter-rater agreement on peer- and teacher-reports at approximately the .60 level for social aggression and .70 for physical aggression (Crick, 1996), in the present study teacher- and self-reports of physical and social aggression were investigated separately due to low inter-rater agreement. Indeed, the low correlations were interpreted to mean that, rather than any type of rater being unreliable, although the constructs being assessed were the same, the variables may have been different across situations or contexts (Achenbach, McConaughy, & Howell, 1987). This may mean that self-reports may not be substituted for other informants' reports and vice-versa as each provides unique information.

Interestingly, the majority of the literature has documented the links between personality traits and maladjustment for males. Hence, the lack of association between self-rated physical aggression and disagreeableness facets for boys was unexpected, and may be attributable to measurement issues. Specifically, there may be potential biases in the information offered by different informants that can limit validity (Tackett & Ostrov, 2010). Parent ratings of adolescents' personality disorder traits may be influenced by the gender of the informant, beliefs held by informants about normative gender patterns for the behaviours

or traits under investigation, and individual differences in person perception (Tackett & Ostrov, 2010). It may be that girls who were rated as higher on personality disorder traits by parents were perceived by parents, teachers and themselves as engaging in greater levels of physical and social aggression as well as nonaggressive antisocial behaviour, thereby explaining the greater number of associations between personality disorder traits and facets and each component of antisocial behaviour. Girls may also be narrowing the gender gap and reaching a peak prior to declining levels of perpetrating different antisocial behaviours (e.g., Connor, 2002), so there may be more variability in the outcomes that accounted for the greater number of associations favouring girls. There is also bias inherent in self-ratings of aggression. For example, youth may under- or over-report behaviour that is outside social norms (social desirability bias), they may not recognize certain behaviours as aggressive (Underwood, 2003), or recall may be inaccurate.

With one exception, the emotional instability facets did not predict subsequent physical aggression. For both teacher- and self-rated physical aggression (as well as social aggression, as described below), depression was the only significant personality disorder facet predicting teacher-rated physical aggression among girls, accounting for 14% of the variance and 15% of the variance in self-rated physical aggression (reduced models). This finding is surprising because the literature on emotion regulation and aggression in girls has indicated that more externalizing aspects of emotion, particularly anger, is typically associated with physical aggression (Bell, Foster, & Mash, 2005). However, it is consistent with previous research that has examined predictors of trajectory group membership from elementary through middle school (e.g., Harachi, Fleming, White, Ensminger, Abbott, Catalano, & Haggerty, 2006). Specifically, depression in the second grade predicted

moderate and high physical aggression group membership during the ninth grade for girls only. The finding may also have emerged because of the nature of the personality disorder facet that was assessed: overt depressive symptoms (e.g., loss of interest in activities, lethargy) are easily observable and identifiable by parents. In contrast, other facets within this factor such as separation anxiety may not be as readily recognized or adolescents' expression of the traits assessed may have been interpreted differently by parents. Hence, the other facets within emotional instability that were expected to significantly contribute to outcomes related to physical aggression, particularly anxiousness and lack of self-confidence, which have been linked to physical aggression in youth (LeCorff & Toupin, 2010) may not have reached the required endorsement levels to detect associations.

Facets within the compulsivity factor had been expected to be negatively associated with teacher- and self-reported physical aggression. Given the strong links in the literature (e.g., Miller & Lynam, 2001) between (low) conscientiousness and physically aggressive behaviours, the finding was surprising. However, an examination of the factor composition in the current measure reveals that the three compulsivity facets—perfectionism, extreme achievement-striving, and extreme order—do not encompass the same breadth as the measure of normal-range traits that have been previously investigated. Specifically, the Five-Factor Model conscientiousness factor consists of six facets. The additional facets, namely dutifulness, deliberation, and self-discipline tap aspects of personality related not to external achievement and cognitive features related to compulsivity but rather are personality features related to constraint and tendencies to delay gratification. The absence of these characteristics on the personality disorder trait measure may account for some of the lack of significant associations with this outcome.

Finally, and consistent with hypotheses, neither teacher- nor self-ratings of physical aggression were predicted by introversion facets for either boys or girls. However, for self-rated physical aggression, the introversion facet of paranoia emerged as a significant predictor for girls, but not boys. As paranoia is a cognitive component of personality pathology defined as a mistrust of others and a tendency to perceive others' intentions as hostile (De Clercq et al., 2006) this was unsurprising. However, it is not clear why this association was only observed for girls and only for self-rated and not teacher-rated physical aggression. This may relate to the question of cross-situational stability of both traits and behaviours. Specifically, parents are able to closely observe adolescents' characteristic ways of behaving and feeling in the home and may simply have greater agreement with self versus teacher ratings of overt aggression for daughters.

5.4 Social aggression

For social aggression, significant associations were expected with the personality disorder factors and facets associated with both disagreeableness (for both male and female youth), and emotional instability (for girls). With few exceptions, these hypotheses were not confirmed. Specifically, at the trait or factor level, parent reports of disagreeableness among girls (but not boys) was significantly related to teacher-rated, but not self-rated social aggression, accounting for 12% of the variance. However, for both boys and girls, none of the disagreeableness facets were significantly associated with social aggression as rated by teachers or self. As Paunonen and Ashton (2001) note, facets do not correlate perfectly with one another or their higher-order factor, they are distinct, and each has some amount of specific, reliable variance. It may simply be the case, statistically but not conceptually, that disagreeableness facets are unrelated to social aggression as assessed in the present study.

In contrast to expectations, parent evaluations of emotional instability were not significantly related to girls' social aggression, although the emotional instability facet of depression was positively associated in conjunction with anxiety (negative) with teacher-rated, but not self-rated social aggression. It is interesting that only one of the nine emotional instability facets – depression - would account for the largest portion of the variance in self-reported social aggression, when anxiety and other facets defined by affect tend to be related in the clinical literature to depression (Caspi & Shiner, 2006). It appears that when entered into the regression equation, anxiety eliminated criterion-irrelevant variance from depression, thereby revealing a stronger association between depression and teacher-rated social aggression. Closer examination of the scale items reveals that both the anxiety and depression facets contain items pertaining to rumination, or the tendency to repetitively think about past events, explaining the suppressor situation. The exact mechanisms by which depression would lead to engaging in socially aggressive behaviours remain unclear. However, one possibility is that some forms of socially aggressive behaviour, such as ignoring people when angry at them, could be related to intrapersonal experiences of depression, particularly apathy (Green, 1993). There may also be differences in the ways that emotions are socialized by parents and peers across development in boys and girls that change the affective components underlying different forms of antisocial behaviour. For example, on average, girls tend to show greater interdependency with others, show more restraint of strong negative emotions, and show more empathy and guilt (Zahn-Waxler & Polanichka, 2004). It has been suggested that the generally stronger interpersonal orientation common to girls may have some negative consequences. Specifically, efforts to create and maintain positive relationships, and the related emotional regulation processes that

accompany these efforts, can create interpersonal contexts that discourage assertiveness, direct confrontation, and overt expressions of anger, thereby contributing to the risk of developing depression in girls (e.g., Zahn-Waxler & Polanichka, 2004). The need to avoid direct confrontation and restrict negative affect may lead to girls engaging in more socially aggressive behaviours.

Teacher-rated social aggression among girls (but not boys) was also significantly predicted by introversion facets of withdrawal and paranoia, with withdrawn traits (defined by a lack of emotional expressivity) as the largest predictor. Self-reported social aggression was not associated with any personality disorder factor or facet.

Regarding the inconsistent findings obtained across informants and type of aggression, one possible explanation is that teacher- and self-reports of aggression simply provide different information. For example, the perceived frequency of students' engaging in various types of aggression can be reliably assessed by knowledgeable adults (teachers) who can distinguish different forms of aggression. Self-reports, in contrast, may reflect lower mean levels of a given behaviour due to lack of insight or impression management (Underwood, 2003). Archer and Coyne (2005) suggest that self-reports of social aggression may be appropriate for adults but not adolescents. Another basic measurement problem concerns establishing validity for different raters. Specifically, it is difficult to establish concurrent validity of different informants' reports as there is currently no established "gold standard" for these outcome measures, particularly for social aggression (Tackett & Ostrov, 2010). However, this is an ongoing empirical question. Hence, adult reports of youths' social aggression in the school context may more accurately reflect youths' social reality than self-reports of the same construct.

Overall, personality disorder traits and facets showed few or no associations with the three antisocial behaviour outcomes considered in the present study, although there were more associations found for girls than boys. In addition, expected links, particularly between emotional instability, its facets and antisocial behavior did not emerge. Further, there may have been insufficient variability within the factor and facet level trait scores to detect associations between various personality disorder traits and the different outcomes.

Another unexpected finding was the complete lack of association between any personality disorder factors or facets and self-rated social aggression. Social aggression has been linked with a wide range of psychopathology including externalizing (e.g., conduct disorder; Keenan, Coyne, & Lahey, 2008) and internalizing problems (e.g., Murray-Close, Ostrov, & Crick, 2007) at different ages. Theoretically and conceptually, there are strong associations between the core features of borderline pathology (negative affect, relationship problems) and social aggression (see Underwood, 2003). However, it may be the case that socially aggressive behaviours are not considered to be harmful or even as aggression as activities such as gossip and social exclusion commonly occur in this age range and typically do not involve direct interpersonal confrontation. It may also be possible that students did not accurately recognize or report their involvement in this subtle type of aggression.

The present study examined two different *forms* of aggression. A further useful distinction in the literature concerns the *functions* of aggression - proactive versus reactive – that were not examined in the present study. Given evidence that different aspects of cognition (e.g., hostile attributional biases) and emotion (callousness) are differentially linked to proactive/reactive social aggression (e.g., Ostrov & Houston, 2008), future research

may benefit from consideration of the links between personality and the functions of aggression.

As suggested in previous research, there may be difficulty in obtaining valid information or there may be reporter bias via other informants (parents) regarding boys' personality pathology and other indices of psychopathology (e.g., Tackett & Ostrov, 2010). Specifically, parents may underestimate emotional, behavioural, self- and interpersonal symptoms in boys that accompany the types of personality disorder traits that were assessed one year prior to the self-ratings of aggression. This, in turn, may limit the potential for confirming links between personality pathology and maladjustment. It may also be the case that, as participants were typically developing adolescents, there were insufficient rates of endorsement by parents for the types of personality problems captured by the DIPSI.

5.5 Strengths and limitations

The present study has a number of strengths, including (a) the use of multiple informants (self, parents, teachers), (b) consideration of three distinct forms of antisocial behaviour (nonaggressive antisocial behavior, physical aggression and social aggression), (c) consideration of both teacher- and self- ratings of physical and social aggression, and (d) collection of measures over time (i.e., over one year), examining a cohort of typically developing adolescents. There are, however, some limitations that should be recognized.

First, although the data were collected over a period of one year and temporally the personality disorder trait measure predicted various antisocial outcomes, the data are correlational and no causal inferences may be made from the present results.

Second, reports on childhood personality pathology were unavailable and it was not possible to test or control for the influence of earlier personality disorder traits on later personality variables or antisocial and aggressive behaviour in the current study. That is, it was not possible to identify those participants with earlier-onset personality problems that may have led to more severe and frequent levels of aggression and nonaggressive antisocial behaviour (e.g., Moffitt, 1993). This seems an important consideration in future research.

Third, parent reports of adolescents' personality disorder traits are clinically useful as parents are knowledgeable informants regarding many aspects of their children's personality (De Clercq et al., 2006). However, it would be useful in future research to also obtain self-reports of personality pathology in order to check for inter-rater agreement as there may be components of individuals' inner experience (e.g., thoughts and feelings versus perceived thoughts and feelings) that are not as reliably rated by others as concrete behaviours.

Last, a large number of regression analyses were performed. To reduce the likelihood of obtaining significant results by capitalizing on chance, a conservative alpha was set at $p < .01$. However, the current findings warrant replication with a larger sample to increase power.

5.6 Applied and theoretical implications

It is important to understand the extent to which adolescent personality disorder traits predispose individuals to subsequent forms of maladjustment in order to develop targeted interventions. For example, efforts to clarify the links between personality pathology, different forms of aggression and nonaggressive antisocial behaviour have etiological implications that may serve to identify gender-specific, personality-related, cognitive and/or affective mechanisms in the development of the types of maladjustment investigated here. It

is of considerable theoretical and clinical interest to identify and validate in clinical and nonclinical samples of youth personality profiles that show predictive utility for homogeneous types of problem behaviour (Shiner, 2009).

Regarding specific aggression subtypes, recent work has begun to integrate social aggression into broader models of psychopathology (e.g., Keenan et al., 2008). It is currently unclear, however, whether social aggression should be included within various diagnostic categories or conceptualized as a distinct form of psychopathology (Keenan et al., 2008). The present study contributes to the growing literature on the utility of dimensional conceptualizations of adolescent personality pathology in understanding maladjustment. The results suggest that a minority of the personality disorder traits considered account for modest amounts of the variance in the outcomes across gender and therefore a more fine-grained conceptualization of physical and social aggression to include not only the forms but also the functions need to be considered in future research.

The current findings also have implications for universal social-emotional interventions in educational settings. For example, while much is known about negative outcomes including aggression and severe antisocial behaviour associated with some general student characteristics including lower IQ and early difficult temperament (Bierman et al., 2010), the present study suggests further approaches for prevention. Specifically, the finding that traits related to depression and especially introversion (as opposed to more externalizing aspects of personality such as disagreeableness) are related to all forms of maladjustment considered here suggests the need for social and relationship skills development in order to modulate trait expression, particularly for girls (e.g., Underwood & Coie, 2004).

Finally, to date very little is known about prospective associations between maladaptive personality constructs, especially their specific affective and cognitive components, and social aggression across development. This is important because the majority of the literature has tended to examine categorical personality disorders as outcomes of physical and social aggression, with little consideration of the ways in which pre-existing personality traits give rise to aggressive and antisocial outcomes (Frick & Viding, 2009; Shiner, 2009). Based on the literature on psychopathic personality traits in childhood and adolescence, the stability of such traits across development appears to confer significant risk for maladjustment in early adulthood, even controlling for other childhood risk factors (see Frick & Viding, 2009). An understanding of the ways in which other domains of personality pathology (i.e., emotional instability, introversion, and compulsivity) relate to adverse outcomes across gender adds to the substantial literature on aggressive and nonaggressive antisocial behaviour. As described in the literature, a critical avenue of research involves the study of youth with risk factors related to personality to identify the underlying mechanisms, especially lack of guilt/empathy and poorly regulated affect, that are thought to underlie aggressive and antisocial outcomes (Frick & Viding, 2009).

5.7 Future directions

The present study involved a longitudinal community cohort and personality disorder traits were assessed by parents when students were 15 years of age. In terms of next steps, it is important for the field of personality assessment to continue to identify specific behavioural expressions of personality pathology in distinct populations. For example, it would be useful to obtain self-assessments of adolescent personality pathology in clinical samples and examine whether personality disorder trait patterns are similar to those found

here across aggressive and antisocial outcomes. It may be that different factors and facets show predictive utility when more severe levels of personality pathology are assessed, facilitating identification of personality-related constructs for assessment and intervention. For example, a goal in many structured treatments of individuals with personality pathology is not focused on changing the individual's traits but rather on changing the way in which traits are expressed so as to facilitate more adaptive self- and interpersonal functioning (see Livesley, 2003).

Another useful avenue for future research is an investigation of the cognitions that may mediate the link between personality disorder traits and aggressive/antisocial behaviours. Although there has been work that has examined some aspects of social cognition, especially hostile attributional biases (Schwartz, Dodge, Coie, Hubbard, Cillessen, Lemerise, & Bateman, 1998), a more comprehensive assessment of thoughts and beliefs related to both the self and others in relation to the perceived benefits, motivations, and consequences of engaging in these forms of problem behaviours will enhance our understanding of the development of specific components of antisocial behaviour.

In sum, it is important to recognize that this was the first study to examine the predictive utility of the DIPSI factors and facets in relation to the current outcomes. The hypotheses in the present study were based on the literature on normal-range personality characteristics and were largely exploratory. The current study is of considerable value in that it was the first to use the current adolescent personality disorder trait measure as an assessment instrument and provided a comprehensive examination of the personality disorder traits that appear to confer risk for multiple antisocial behaviours across gender. In order to fully understand the links between personality and behavior, consideration of both positive

and maladaptive (disordered) personality traits in normative, at-risk and clinical samples is clearly needed.

REFERENCES

- Achenbach, T. M., & Rescorla, L. A. (2001). *Manual for the ASEBA school-age forms and profiles*. Burlington: University of Vermont, Research Center for Adolescents, Youth, and Families.
- Achenbach, T. M., McConaughy, S. H., & Howell, C. T. (1987). Child/adolescent behavioural and emotional problems: Implications of cross-informant correlations for situational specificity. *Psychological Bulletin*, 101, 213-232.
- Ahadi, S. A., & Rothbart, M. K. (1994). Temperament, development, and the Big Five. In C. F. Halverson, G. A. Kohnstamm, & R. P. Martin (Eds.), *The developing structure of temperament and personality from infancy to adulthood* (pp. 189-208). Hillside, NJ: Lawrence Erlbaum.
- Archer, J., & Coyne, S.M. (2005). An integrated review of indirect, relational, and social aggression. *Personality and Social Psychology Review*, 9, 212-230.
- American Psychiatric Association. (1994). *The diagnostic and statistical manual for mental disorders, fourth edition (DSM-IV)*. Washington, DC: American Psychiatric Association Press Inc.
- Asendorpf, J. B., & van Aken, M.A.G. (2003). Personality-relationship transaction in adolescence: core versus surface personality characteristics. *Journal of Personality*, 71, 629-666.
- Bauermeister, J.J., Canino, G., & Bird, H. (1994). Epidemiology of disruptive behavior disorders. *Child and Adolescent Psychiatric Clinics of North America*, 3, 177-194.
- Becker, D.F., Grilo, C.M., Morey, L.C., Walker, M.L., Edell, W.S., & McGlashan, T.H.

- (1999). Applicability of personality disorder criteria to hospitalized adolescents: Evaluation of internal consistency and criterion overlap. *Journal of the American Academy of Child and Adolescent Psychiatry*, 38, 200-205.
- Bierman, K.L., Bruschi, C., Domitrovich, C., Fang, G.Y., Miller-Johnson, S., & Conduct Problems Prevention Research Group. (2004). Early disruptive behaviors associated with emerging antisocial behavior among girls. In M. Putallaz & K.L. Bierman (Eds.), *Aggression, antisocial behavior, and violence among girls: A developmental perspective* (pp. 137-161). New York, NY, US: Guilford Publications.
- Björkqvist, K. (2001). Different names, same issue. *Social Development*, 10, 272-274.
- Bowlby, J. (1969). *Attachment and loss: Vol. I. Attachment*. New York: Basic Books.
- Branje, S.J. T., van Lieshout, C. F. M., & van Aken, M. A. G. (2004). Relations between Big Five personality characteristics and perceived support in adolescents' families. *Journal of Personality and Social Psychology*, 86, 615-628.
- Burt, S. A., Mikolajewski, A.J., & Larson, C. L. (2009). Do aggression and rule-breaking have different interpersonal correlates? A study of antisocial behavior subtypes, negative affect, and hostile perceptions of others. *Aggressive Behavior*, 35, 453-461.
- Burton, L.A., Hafetz, J., & Henninger, D. (2007). Gender differences in relational and physical aggression. *Social Behavior and Personality*, 35, 41-50.
- Cairns, R. B., Cairns, B. D., Neckerman, H. J., Ferguson, L. L., & Gariepy, J. (1989). Growth and aggression: 1. Childhood to early adolescence. *Developmental Psychology*, 25, 320-330.
- Card, N.A., Isaacs, J., & Hodges, E.V. E. (2007). Correlates of school victimization:

- Implications for prevention and intervention. In J.E. Zins, M.J. Elias, & C.A. Maher (Eds.), *Bullying, victimization, and peer harassment: A handbook of prevention and intervention* (pp. 339-366). New York, NY, US: Haworth Press.
- Card, N. A., Stucky, B. D., Sawalani, G.M., & Little, T.D. (2008). Direct and indirect aggression during childhood and adolescence: A meta-analytic review of gender differences, intercorrelations, and relations to maladjustment. *Child Development, 79*, 1185-1229.
- Caspi, A., & Shiner, R.L. (2006). Personality development. In N. Eisenberg, W. Damon, & R.M. Lerner, (Eds.), *Handbook of child psychology: vol. 3, Social, emotional and personality development* (pp. 300-365). Hoboken, NJ: John Wiley & Sons Inc.
- Caspi, A., & Moffitt, T.E. (2006). Gene–environment interactions in psychiatry: Joining forces with neuroscience. *Nature Reviews, 7*, 583-590.
- Chanen, A.M., McCutcheon, L.K., Jovev, M., Jackson, H.J., & McGorry, P.D. (2007). Prevention and early intervention for borderline personality disorder. *Medical Journal of Australia, 187*, S18–S21
- Cloninger, C. R., Svrakic, D.M., & Przybeck, T.R. (1993). A psychobiological model of temperament and character. *Archives of General Psychiatry, 50*, 975-990.
- Coie, J. D. & Dodge, K. A. (1998). Aggression and antisocial behavior. In N. Eisenberg (Ed.), *Handbook of child psychology* (pp. 779–862). New York: Wiley.
- Cohen, M.A. (1998). The monetary cost of saving a high-risk youth. *Journal of Quantitative Criminology, 14*, 5-33.
- Cohen, M. A. & Piquero, A. R. (2009). New evidence on the monetary value of saving a high risk youth. *Journal of Quantitative Criminology, 25*, 25-49.

- Cohen, P., Crawford, T.N., Johnson, J.G., & Kasen, S. (2005). The Children in the Community Study of developmental course of personality disorder. *Journal of Personality Disorders, 19*, 466-486.
- Connor, D.F. (2002). *Aggression and antisocial behavior in children and adolescents*. New York: Guilford Press.
- Costa, P. T. & McCrae, R. R. (1985). *Manual for the NEO Personality Inventory (NEO-PI)*. Odessa, FL: Psychological Assessment Resources.
- Costa, P. T., & McCrae, R. R. (1992). *The Revised NEO Personality Inventory (NEO-PI-R) and the NEO Five-factor Inventory (NEO-FFI) Professional Manual*. Odessa, FL: Psychological Assessment Resources.
- Costa, P.T., & Widiger, T.A. (Eds.). (1994). *Personality disorders and the five factor model of personality*. APA: Washington, D.C.
- Crick, N.R., & Grotpeter, J.K. (1995). Relational aggression, gender, and social psychological adjustment. *Child Development, 66*, 710-722.
- Crick, N.R. (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.R. (1997). Engagement in gender normative versus nonnormative forms of aggression: Links to social-psychological adjustment. *Developmental Psychology, 33*, 610-617.
- Crick, N.R., Werner, N.E., Casas, J.F., O'Brien, K.M., Nelson, D.A., Grotpeter, J.K., &

- Markon, K. (1999). Childhood aggression and gender: A new look at an old problem. In D. Bernstein (Ed.), *Gender and motivation* (pp. 75-141). Lincoln, NE, US: University of Nebraska Press.
- Crick, N.R., Murray-Close, D., & Woods, K. (2005). Borderline personality features in childhood: A short-term longitudinal study. *Development and Psychopathology, 17*, 1051-1070.
- De Clercq, B., & De Fruyt, F. (2003). Personality disorder symptoms in adolescence: A five-factor model perspective. *Journal of Personality Disorders, 17*, 269-292.
- De Clercq, B., De Fruyt, F., Van Leeuwen, K., & Mervielde, I. (2006). The structure of maladaptive personality traits in childhood: a step toward an integrative developmental perspective for *DSM-V*. *Journal of Abnormal Psychology, 115*, 639-657.
- De Clercq, B., & De Fruyt, F. (2007). Childhood antecedents of personality disorder. *Current Opinion in Psychiatry, 20*, 57-61.
- De Clercq, B., Van Leeuwen, K., De Fruyt, F., Van Hiel, A., & Mervielde, I. (2008). Maladaptive personality traits and psychopathology in childhood and adolescence: The moderating effect of parenting. *Journal of Personality, 76*, 357-383.
- De Clercq, B., De Fruyt, F., & Widiger, T.A. (2009). Integrating a developmental perspective in dimensional models of personality disorders. *Clinical Psychology Review, 29*, 154-162.
- DeMarte, J.A. (2010). The heterogeneity of antisocial behaviour: Evidence for distinct dimensions of physical aggression, rule-breaking, and social aggression. Unpublished doctoral dissertation, Michigan State University.

- Digman, J.M. (1990). Personality structure: Emergence of the Five-Factor model. *Annual Review of Psychology*, 41, 417-440.
- Dodge, K.A., Coie, J.D., & Lynam, D. (2006). Aggression and antisocial behavior in youth. In N. Eisenberg, W. Damon & R.M. Lerner (Eds.), *Handbook of child psychology: Vol. 3, Social, emotional, and personality development (6th ed.)* (pp. 719-788). Hoboken, NJ, US: John Wiley & Sons Inc.
- Eaves, L. J., Silberg, J. L., Maes, H.H., Simonoff, E., Pickles, A., Rutter, M., Neale, M. C., Reynolds, C.A., Erikson, M.T., Heath, A.C., Loeber, R., Truett, K.R., & Hewitt, J.K. (1997). Genetics and developmental psychopathology: 2. The main effects of genes and environment on behavioral problems in the Virginia Twin Study of Adolescent Behavioral Development. *Journal of Child Psychology and Psychiatry*, 38, 965-980.
- Eysenck, H. J. & Eysenck, S. B. G. (1985). *Manual for the Eysenck Personality Questionnaire (EPQ)*. Educational and Industrial Testing Service, San Diego, CA.
- Farrington, D.P. (1991). Childhood aggression and adult violence: Early precursors and later life outcomes. In D.J. Pepler & H.K. Rubin (Eds.), *The development and treatment of childhood aggression* (pp. 5-29). Hillsdale, NJ: Erlbaum.
- Feiring, C., Deblinger, E., Hoch-Espada, A., and Haworth, T. (2002). Romantic relationship aggression and attitudes in high school students: The role of gender, grade, and attachment and emotional styles. *Journal of Youth and Adolescence*, 31, 373-386.
- Forsman, M., Lichtenstein, P., Andershed, H., & Larsson, H. (2010). A longitudinal twin study of the direction of effects between psychopathic personality and antisocial behaviour. *Journal of Child Psychology and Psychiatry*, 51, 39-47
- Fonesca, A.C., & Yule, W. (1995). Personality and antisocial behavior in children and

- adolescents: An enquiry into Eysenck's and Gray's theories. *Journal of Abnormal Child Psychology*, 23, 767-781.
- Frick, P.J. (1998). Conduct disorders. In T.H. Ollendick & M. Hersen (Eds.), *Handbook of child psychopathology (3rd ed.)* (pp. 213-237). New York, NY, US: Plenum Press.
- Frick, P.J., & Viding, E. (2009). Antisocial behavior from a developmental psychopathology perspective. *Development and Psychopathology*, 21, 1111-1131.
- Galen, B. R. & Underwood, M. K. (1997). A developmental investigation of social aggression among children. *Developmental Psychology*, 33, 589-600.
- Gleason, K.A., Jensen-Campbell, L.A., & Richardson, D.S. (2004). Agreeableness as a predictor of aggression in adolescence. *Aggressive Behavior*, 30, 43-61.
- Gold, M. (1970). *Delinquent behavior in an American city*. Belmont, CA: Brooks/Cole.
- Goldsmith, H. H., Buss, A.H., Plomin, R., & Rothbart, M.K. (1987). What is temperament? Four approaches. *Child Development*, 58, 505-529.
- Green, A.H. (1993). Child abuse, neglect and depression. In H.S. Koplewicz & E. Klass (Eds.), *Depression in children and adolescents: Monograph in clinical paediatrics vol 6* (pp. 55-62). Philadelphia, PA: Harwood Academic Pub.
- Harachi, T.W., Fleming, C.B., White, H.R., Ensminger, M.E., Abbott, R.D., Catalano, R.F., & Haggerty, K.P. (2006). Aggressive behavior among girls and boys during middle childhood: Predictors and sequelae of trajectory group membership. *Aggressive Behavior*, 32, 279-293.
- Hare, R.D. (1991). *The Hare Psychopathy Checklist-Revised*. Toronto: Multi-Health Systems.
- Hare, R.D., Hart, S.D., & Harpur, T.J. (1991). Psychopathy and the DSM-IV criteria for

- antisocial personality disorder. *Journal of Abnormal Psychology*, 100, 391-398.
- Harris, J.R. (1995). Where is the child's environment? A group socialization theory of development. *Psychological Review*, 102, 458-489.
- Harris, J.R. (1998). *The nurture assumption: Why children turn out the way they do*. New York, NY: Free Press.
- Harris, J.R. (2009). *The nurture assumption: Why children turn out the way they do* (2nd ed). New York, NY: Free Press.
- Heaven, P.C.L. (1996). Personality and self-reported delinquency: Analysis of the "Big Five" personality dimensions. *Personality and Individual Differences*, 20, 47-54.
- Henington, C., Hughes, J. N., Cavell, T. A., & Thompson, B. (1998). The role of relational aggression in identifying aggressive boys and girls. *Journal of School Psychology*, 36, 457-477.
- Henry, B., Moffitt, T.E., Robins, L.N., Earls, F., & Silva, P.A. (1993). Early family predictors of child and adolescent antisocial behavior: Who are the mothers of delinquents? *Criminal Behavior and Mental Health*, 3, 97-118.
- Horst, P. (1941). The role of the predictor variables which are independent of the criterion. *Social Science Research Council*, 48, 431-436.
- Jensen-Campbell, L.A., & Graziano, W.G. (2001). Agreeableness as a moderator of interpersonal conflict. *Journal of Personality*, 69, 323-362.
- Jensen-Campbell, L.A., & Malcolm, K.T. (2007). The importance of conscientiousness in adolescent interpersonal relationships. *Personality and Social Psychology Bulletin*, 33, 368-383.
- John, O.P., & Srivastava, S. (1999). The big five trait taxonomy: History, measurement, and

- theoretical perspectives. In L.A. Pervin, & O.P. John (Eds.), *Handbook of personality*, (pp. 102-138). New York, NY: Guilford.
- Johnson, J.G., Bromley, E., Bornstein, R.F., & Sneed, J.R. (2006). Personality disorders. In D.A. Wolfe & E.J. Mash (Eds.), *Behavioral and emotional disorders in adolescents: Nature, assessment, and treatment* (pp. 436-484). New York, NY, US: Guilford Publications.
- Keenan, K., Coyne, C., & Lahey, B. B. (2008). Should relational aggression be included in the DSM-V nosology of disruptive behavior disorders? *Journal of the American Academy of Child and Adolescent Psychiatry*, 47, 86–93.
- Kohnstamm, G., Halverson, C.F., Mervielde, I., & Havill, V. (1998). *Parental description of child personality: Developmental antecedents of the Big Five?* Mahwah, NJ: Erlbaum.
- Krueger, R.F., Hicks, B.M., Patrick, C.J., Carlson, S.R., Iacono, W.G., & McGue, M. (2002). Etiologic connections among substance dependence, antisocial behavior, and personality: Modeling the externalizing spectrum. *Journal of Abnormal Psychology*, 111, 411-424.
- Lagerspetz, K. M. J., Björkqvist, K., & Peltonen, T. (1988). Is indirect aggression typical of females? Gender differences in aggressiveness in 11- to 12-year-old children. *Aggressive Behavior*, 14, 403–414.
- Lahey, B.B., Flagg, E.W., Bird, H.R., Schwab-Stone, M.E., Canino, G., Dulcan, M.K., Leaf, P.J., Davies, M., Brogan, D., Bourdon, K., Horwitz, S.M., Rubio-Stipec, M., Freeman, D.H., Lichtman, J.H., Shaffer, D., Goodman, S.H., Narrow, W.E., Weissman, M.M., Kandel, D.B., Jensen, P.S., Richters, J.E., & Regier, D.A. (1996). The NIMH

- Methods for the Epidemiology of Child and Adolescent Mental Disorders (MECA) study: Background and methodology. *Journal of the American Academy of Child and Adolescent Psychiatry*, 35, 855-864.
- Le Corff, Y., & Toupin, J. (2009). Comparing persistent juvenile delinquents and normative peers with the Five-Factor Model of Personality. *Journal of Research in Personality*, 43, 1105-1108.
- Le Corff, Y., & Toupin, J. (2010). The Five-Factor Model of personality at the facet level: Association with antisocial personality disorder symptoms and prediction of antisocial behavior. *Journal of Psychopathology and Behavioral Assessment*, 32, 586-594.
- Livesley, W. J., Jang, K. L., & Vernon, P.A. (1998). Phenotypic and genetic structure of traits delineating personality disorder. *Archives of General Psychiatry*, 55, 941-948.
- Livesley, W.J. (2003). *Practical management of personality disorder*. New York: Guilford Press.
- Livesley, W.J. (2007). A framework for integrating dimensional and categorical classifications of personality disorder. *Journal of Personality Disorders*, 27, 199-224.
- Livesley, W. J. & Jackson, D. N. (2009). *Manual for the dimensional assessment of personality problems-basic questionnaire (DAPP)*. Sigma Assessment Systems, London, ON.
- McAdams, D.P., & Pals, J.L. (2006). A new Big Five: Fundamental principles for an integrative science of personality. *American Psychologist*, 61, 204-217.
- Marsee, M. A., Barry, C. T., Childs, K. K., Frick, P. J., Kimonis, E. R., Muñoz, L. C.,

- Aucoin, K. J., Fassnacht, G. M., Kunimatsu, M. M., & Lau, K. S. L. (18 April 2011). Assessing the forms and functions of aggression using self-report: Factor structure and invariance of the Peer Conflict Scale in youths. *Psychological Assessment*, advance online publication. doi: 10.1037/a0023369
- Mash, E.J., & Barkley, R.A. (Eds.) (2003). *Child psychopathology* (2nd ed.). New York, NY, US: Guilford Press.
- Matthews, G., Deary, I., & Whiteman, W. (2003). *Personality traits* (2nd ed.). Cambridge, England: Cambridge University Press.
- Merikangas, K.R., Swendsen, J.D., Preisig, M.A., & Chazan, R.Z. (1998). Psychopathology and temperament in parents and offspring: Results of a family study. *Journal of Affective Disorders*, 51, 63-74.
- Miller, J.D., & Lynam, D. (2001). Structural models of personality and their relation to antisocial behavior: A meta-analytic review. *Criminology*, 39, 765-798.
- Miller, J.D., Lynam, D., & Leukefeld, C. (2003). Examining antisocial behavior through the lens of the Five Factor Model of personality. *Aggressive Behavior*, 29, 497-514.
- Miller, J.D., Lynam, D.R., & Jones, S. (2008). Externalizing behavior through the lens of the five-factor model: A focus on agreeableness and conscientiousness. *Journal of Personality Assessment*, 90, 158-164.
- Moffitt, T.E. (1993). Adolescence-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological Review*, 100, 674-701.
- Moffitt, T.E., Caspi, A., Rutter, M., & Silva, P.A. (2001). *Sex differences in antisocial behaviour: Conduct disorder, delinquency, and violence in the Dunedin Longitudinal Study*. Cambridge, UK: Cambridge University Press.

- Moretti, M., & Osbuth, I. (2009). Effectiveness of an attachment-focused manualized intervention for parents of teens at risk for aggressive behaviour: The Connect Program. *Journal of Adolescence*, 32, 1347–1357.
- Murray-Close, D., Ostrov, J. M., & Crick, N. R. (2007). A short-term study of growth of relational aggression during middle childhood: Associations with gender, friendship intimacy, and internalizing problems. *Development and Psychopathology*, 19, 187-203.
- Offord, D.R., Boyle, M.H., Racine, Y. A., Fleming, J.E. (1992). Outcome, prognosis, and risk in a longitudinal follow-up study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 31, 916-923.
- Ostrov, J.M., & Houston, R.J. (2008). The utility of forms and functions of aggression in emerging adulthood: Association with personality disorder symptomatology. *Journal of Youth and Adolescence*, 37, 1147-1158.
- Ostrov, J.M., & Godleski, S.A. (2009). Impulsivity-hyperactivity and subtypes of aggression in early childhood: An observational and short-term longitudinal study. *European Child and Adolescent Psychiatry*, 18, 477-483.
- Pallant, J. (2003). *SPSS survival manual (3rd ed)*. New York, NY: Open University Press, McGraw-Hill.
- Paris, J. (2003). *Personality disorders over time: precursors, course and outcome*. Washington, DC: American Psychiatric Publishing, Inc.
- Parker, W. D., & Stumpf, H. (1998). A validation of the five-factor model of personality in academically talented youth across observers and instruments. *Personality and Individual Differences*, 28, 1005-1025.

- Patterson, G.R. (1982). *Coercive family process*. Eugene, OR: Castalia.
- Patterson, G.R., Reid, J.B., & Dishion, T.J. (1992). *Antisocial boys*. Eugene, OR: Castalia.
- Patterson, G. R., DeBaryshe, B. D., & Ramsey, E. (1989). A developmental perspective on antisocial behavior. *American Psychologist*, *44*, 329-335.
- Paulhus, D., Robins, W., Trezesniewski, K.H., & Tracy, J.L. (2004). Two replicable suppressor situations in personality research. *Multivariate Behavioral Research*, *39*, 303-328.
- Paunonen, S.V., & Ashton, M.C. (2001). Big Five factors and facets and the prediction of behavior. *Journal of Personality and Social Psychology*, *81*, 524-539.
- Petras, H., Schaeffer, C., Ialongo, N., Hubbard, S., Muthen, B., Lambert, S., Poduska, J., & Kellam, S. (2004). When the course of aggressive behavior in childhood does not predict antisocial outcomes in adolescence and young adulthood: An examination of potential explanatory variables. *Development and Psychopathology*, *16*, 919-94.
- Prior, M. (1992). Childhood temperament. *Journal of Child Psychology and Psychiatry*, *33*, 249-279.
- Pulkkinen, L. (2001). Reveller or striver? How childhood self-control predicts adult behavior. In A.C. Bohart & D.J. Stipek (Eds.), *Constructive & destructive behavior: Implications for family, school, & society* (pp. 167-185). Washington, DC, US: American Psychological Association.
- Robins, L.N. (1978). Sturdy childhood predictors of adult antisocial behavior: Replicaitons from longitudinal studies. *Psychological Medicine*, *8*, 611-622.
- Rothbart, M. K., & Bates, J. E. (2006). Temperament. In N. Eisenberg, W. Damon, & R.M.

- Lerner (Eds.), *Handbook of child psychology: Vol 3. Social, emotional, and personality development* (5th ed.), (pp. 99-166). Hoboken, NJ, US: John Wiley & Sons Inc.
- Rothbart, M.K., Ahadi, S.A., & Evans, D.E. (2000). Temperament and personality: Origins and outcomes. *Journal of Personality and Social Psychology*, 78, 122-135.
- Rothbart, M.K. (2007). Temperament, development, and personality. *Current Directions in Psychological Science*, 16, 207-212.
- Saudino, K.J. (2005). Behavioral genetics and child temperament. *Journal of Developmental and Behavioral Pediatrics*, 26, 214-223.
- Schwartz, D., Dodge, K. A., Coie, J.D., Hubbard, J. A., Cillessen, A. H. N., Lemerise, E.A., & Bateman, H. (1998). Social-cognitive and behavioral correlates of aggression and victimization in boys' play groups. *Journal of Abnormal Child Psychology*, 26, 431-440.
- Shiner, R.L. (2006). Temperament and personality in childhood. In D.K. Mroczek & T.D. Little (Eds.), *Handbook of personality development* (pp. 213-230). Mahwah, NJ: Lawrence Erlbaum Associates.
- Shiner, R.L. (2009). The development of personality disorders: Perspectives from normal personality development in childhood and adolescence. *Development and Psychopathology*, 21, 715-734.
- Stevens, J. (1986). *Applied multivariate statistics for the social sciences*. Hillsdale, New Jersey, Lawrence Erlbaum Associates.
- Tabachnick, B.G., & Fidell, L.S. (2007). *Using multivariate statistics* (5th ed.). Boston, MA: Allyn & Bacon/Pearson Education.

- Tackett, J.L., & Krueger, R.F. (2005). Interpreting personality as a vulnerability for psychopathology: A developmental approach to the personality-psychopathology relationship. In B.L. Hankin & J.R.Z. Abela (Eds.), *Development of psychopathology: A vulnerability-stress perspective* (pp. 199-214). Thousand Oaks, CA, US: Sage Publications, Inc.
- Tackett, J.L., & Ostrov, J.M. (2010). Measuring relational aggression in middle childhood in a multi-informant multi-method study. *Journal of Psychopathology and Behavioral Assessment*, 32, 490-500.
- Tellegen, A. (1985) Structures of mood and personality and their relevance to assessing anxiety, with an emphasis on self-report. In A.H. Tuma & J.D. Maser (Eds.), *Anxiety and the anxiety disorders* (pp. 681-706). Hillsdale, NJ, England: Lawrence Erlbaum Associates, Inc.
- Thomas, A., & Chess, S. (1977). *Temperament and development*. New York: Brunner/Mazel.
- Thomas, D. R., Hughes, E., & Zumbo, B. D. (1998). On variable importance in linear regression. *Social Indicators Research: An International and Interdisciplinary Journal for Quality-of-Life Measurement*, 45, 253-275.
- Thompson, R.A., & Goodvin, R. (2005). The individual child: Temperament, emotion, self, and personality. In M.H. Bornstein & M.E. Lamb (Eds.), *Developmental science: An advanced textbook* (5th ed.) (pp. 391-428). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.
- Thompson, R.A. (2006). The development of the person: Social understanding, relationships,

- conscience, self. In N. Eisenberg, W. Damon, & R.M. Lerner (Eds.), *Handbook of child psychology: Vol. 3, Social, emotional, and personality development* (6th ed.) (pp. 24-98). Hoboken, NJ, US: John Wiley & Sons Inc.
- Trull, T.J., & Durrett, C.A. (2005). Categorical and dimensional models of personality disorder. *Annual Review of Clinical Psychology*, 1, 355-380.
- Underwood, M.K. (2003). *Social aggression among girls*. New York: The Guilford Press.
- Underwood, M.K., & Coie, J. D. (2004). Future directions and priorities for prevention and intervention. In M. Putallaz & K.L. Bierman (Eds.), *Aggression, antisocial behavior, and violence among girls: A developmental perspective* (pp. 289-301). New York, NY, US: Guilford Press.
- Underwood, M. K., Beron, K. J., & Rosen, L.H. (2009). Continuity and change in social and physical aggression from middle childhood through early adolescence. *Aggressive Behavior*, 35, 357-375.
- Underwood, M. K., Beron, K. J., & Rosen, L.H. (2011). Joint trajectories for social and physical aggression as predictors of adolescent adjustment: Internalizing symptoms, rule-breaking behaviors, and borderline and narcissistic personality features. *Developmental Psychopathology*, 23, 659-678.
- Velhurst, F.C., Eussen, M.L.J.M., Berden, G.F.M.G., Sanders-Woudstra, J., & Van Der Ende, J. (1993). Pathways of problem behaviors from childhood to adolescence. *Journal of the American Academy of Child and Adolescent Psychiatry*, 31, 924-931.
- Vuchinich, S., Bank, L., & Patterson, G.R. (1992). Parenting, peers, and the stability of antisocial behavior in preadolescent boys. *Developmental Psychology*, 28, 510-521.
- Werner, N.E., & Crick, N.R. (1999). Relational aggression and social-psychological

- adjustment in a college sample. *Journal of Abnormal Psychology*, 108, 615-623.
- Widiger, T.A., & Simonsen, E. (2005). Alternative dimensional models of personality disorder: Finding a common ground. *Journal of Personality Disorders*, 19, 110-130.
- Widom, C.S. (1989). Child abuse, neglect, and adult behavior: Research design and findings on criminality, violence, and child abuse. *American Journal of Orthopsychiatry*, 59, 355-367.
- Zahn-Waxler, C., & Polanichka, N. (2004). All things interpersonal: socialization and female aggression. In M. Putallaz & K.L. Bierman (Eds.), *Aggression, antisocial behavior, and violence among girls: A developmental perspective* (pp. 48-68). New York, NY, US: Guilford Publications.

Appendices

Appendix A: CSBS-adolescent report

We would like to know about your everyday interactions with your peers. Please think carefully about the following statements, and decide if this is never true of you, almost always true of you, or somewhere in between.

1. Compared to other teens, I am well liked.

This is never true
of me

This is almost
always true of me

1	2	3	4	5
---	---	---	---	---

2. I know how to get along with others.

This is never true
of me

This is almost
always true of me

1	2	3	4	5
---	---	---	---	---

3. I say supportive things to other people.

This is never true
of me

This is almost
always true of me

1	2	3	4	5
---	---	---	---	---

4. I know how to talk others into taking my side or into doing what I want.

This is never true
of me

This is almost
always true of me

1	2	3	4	5
---	---	---	---	---

5. I know how to upset others.

This is never true
of me

This is almost
always true of me

1	2	3	4	5
---	---	---	---	---

6. I am a good leader.

This is never true
of me

This is almost
always true of me

1	2	3	4	5
---	---	---	---	---

7. I ignore people or stop talking to them when I am mad at them.

This is never true
of me

This is almost
always true of me

1	2	3	4	5
---	---	---	---	---

8. I can guess the feelings of others, even when they try to hide them.

**This is never true
of me**

**This is almost
always true of me**

1	2	3	4	5
---	---	---	---	---

9. How disliked am I compared to other teens?

Not at all disliked

Very disliked

1	2	3	4	5
---	---	---	---	---

10. I tell secrets or share personal information.

**This is never true
of me**

**This is almost
always true of me**

1	2	3	4	5
---	---	---	---	---

11. I always get my way.

**This is never true
of me**

**This is almost
always true of me**

1	2	3	4	5
---	---	---	---	---

12. I do nice things for other people and am kind to peers.

**This is never true
of me**

**This is almost
always true of me**

1	2	3	4	5
---	---	---	---	---

13. I yell and call people mean names.

**This is never true
of me**

**This is almost
always true of me**

1	2	3	4	5
---	---	---	---	---

14. I gossip or spread rumors.

**This is never true
of me**

**This is almost
always true of me**

1	2	3	4	5
---	---	---	---	---

15. I can tell when others are lying.

**This is never true
of me**

**This is almost
always true of me**

1	2	3	4	5
---	---	---	---	---

16. I try to include everyone in activities or when making plans.

**This is never true
of me**

**This is almost
always true of me**

1	2	3	4	5
---	---	---	---	---

17. I initiate or get into physical fights with peers.

**This is never true
of me**

**This is almost
always true of me**

1	2	3	4	5
---	---	---	---	---

18. I try to resolve conflicts directly and positively.

**This is never true
of me**

**This is almost
always true of me**

1	2	3	4	5
---	---	---	---	---

19. I hit or push others.

**This is never true
of me**

**This is almost
always true of me**

1	2	3	4	5
---	---	---	---	---

20. I am unpopular compared to other kids.

**This is never true
of me**

**This is almost
always true of me**

1	2	3	4	5
---	---	---	---	---

21. I listen well to others' and try to take others' perspectives.

**This is never true
of me**

**This is almost
always true of me**

1	2	3	4	5
---	---	---	---	---

22. I fight frequently with my friends.

**This is never true
of me**

**This is almost
always true of me**

1	2	3	4	5
---	---	---	---	---

23. I know how to make others laugh.

**This is never true
of me**

**This is almost
always true of me**

1	2	3	4	5
---	---	---	---	---

**24. I give others dirty looks, roll my eyes, or use other gestures to hurt
people's feelings, embarrass them or to make them feel left out.**

**This is never true
of me**

**This is almost
always true of me**

1	2	3	4	5
---	---	---	---	---

25. I try to cheer up other people when they are sad or upset about something.

**This is never true
of me**

**This is almost
always true of me**

1	2	3	4	5
---	---	---	---	---

26. I imitate others behind their back.

**This is never true
of me**

**This is almost
always true of me**

1	2	3	4	5
---	---	---	---	---

27. I leave people out or exclude them on purpose.

**This is never true
of me**

**This is almost
always true of me**

1	2	3	4	5
---	---	---	---	---

28. I am sincere, genuine, and thoughtful.

**This is never true
of me**

**This is almost
always true of me**

1	2	3	4	5
---	---	---	---	---

29. I threaten others.

**This is never true
of me**

**This is almost
always true of me**

1	2	3	4	5
---	---	---	---	---

30. I avoid engaging in mean talk or malicious gossip about others.

**This is never true
of me**

**This is almost
always true of me**

1	2	3	4	5
---	---	---	---	---

31. I try to turn others against someone for revenge or exclusion.

**This is never true
of me**

**This is almost
always true of me**

1	2	3	4	5
---	---	---	---	---

32. I defend others from mean or bullying behavior.

**This is never true
of me**

**This is almost
always true of me**

1	2	3	4	5
---	---	---	---	---

33. I am critical of others' clothing, appearance, personality or other characteristics.

**This is never true
of me**

**This is almost
always true of me**

1	2	3	4	5
---	---	---	---	---

34. I am popular compared to other kids.				
This is never true of me			This is almost always true of me	
1	2	3	4	5
35. I try to dominate or bully other people.				
This is never true of me			This is almost always true of me	
1	2	3	4	5
36. I try to embarrass others in public.				
This is never true of me			This is almost always true of me	
1	2	3	4	5
37. I send anonymous notes about or to others.				
This is never true of me			This is almost always true of me	
1	2	3	4	5
38. I like to tease people.				
This is never true of me			This is almost always true of me	
1	2	3	4	5
39. I work to find positive solutions to others' conflicts.				
This is never true of me			This is almost always true of me	
1	2	3	4	5
40. I befriend others for revenge.				
This is never true of me			This is almost always true of me	
1	2	3	4	5
41. I engage in mean pranks or practical jokes.				
This is never true of me			This is almost always true of me	
1	2	3	4	5
42. I work well in group activities or projects.				
This is never true of me			This is almost always true of me	
1	2	3	4	5

43. I am involved in mean or hurtful behavior online or in text messaging.

**This is never true
of me**

**This is almost
always true of me**

1

2

3

4

5

44. I try to interfere with others' boyfriend/girlfriend relationships.

**This is never true
of me**

**This is almost
always true of me**

1

2

3

4

5

45. I show interest and concern for others.

**This is never true
of me**

**This is almost
always true of me**

1

2

3

4

5

46. I try to manipulate adults to set up my peers or get them into trouble.

**This is never true
of me**

**This is almost
always true of me**

1

2

3

4

5

47. I welcome outsiders and befriend new people.

**This is never true
of me**

**This is almost
always true of me**

1

2

3

4

5

48. I am mature and responsible.

**This is never true
of me**

**This is almost
always true of me**

1

2

3

4

5

Appendix B

The Blackberry Project: CSBS Teacher Survey

We would like to know about the everyday behaviors of this student with her or his peers. Please think carefully about the following statements and decide if this is never true of the student, almost always true of the student, or somewhere in between.

1. This student is well liked by other students.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

2. This student knows how to get along with others.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

3. This student says supportive things to other students.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

4. This student knows how to talk others into taking his/her side or into doing what they want.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

5. This student knows how to upset others.

This is never true of this student					This is almost always true of this student	
1	2	3	4	5		

6. This student speaks his/her mind as soon as the thought enters his/her head.

This is never true of this student					This is almost always true of this student	
1	2	3	4	5		

7. This student is a good leader.

This is never true of this student					This is almost always true of this student	
1	2	3	4	5		

8. This student ignores people or stops talking to them when he/she is mad at them.

This is never true of this student					This is almost always true of this student	
1	2	3	4	5		

9. This student can guess the feelings of others, even when they try to hide them.

This is never true of this student					This is almost always true of this student	
1	2	3	4	5		

10. The student is disliked by other students.

This is never true of this student				This is almost always true of this student
1	2	3	4	5

11. This student tells others' secrets or shares personal information.

This is never true of this student				This is almost always true of this student
1	2	3	4	5

12. This student always gets his/her way.

This is never true of this student				This is almost always true of this student
1	2	3	4	5

13. This student does nice things for others and is kind to peers.

This is never true of this student				This is almost always true of this student
1	2	3	4	5

14. This student yells and calls others mean names.

This is never true of this student				This is almost always true of this student
1	2	3	4	5

15. This student gossips or spreads rumors about people to make other students not like them.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

16. This student can tell when others are lying.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

17. This student tries to include everyone in activities or when making plans.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

18. This student initiates or gets into physical fights with peers.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

19. This student tries to resolve conflicts directly and positively.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

20. This student hits or pushes others.

This is never true of this student				This is almost always true of this student
1	2	3	4	5

21. This student is unpopular with other students.

This is never true of this student				This is almost always true of this student
1	2	3	4	5

22. It takes a while for this student to figure out how to express himself/herself in class.

This is never true of this student				This is almost always true of this student
1	2	3	4	5

23. This student listens well to others and tries to take others' perspectives.

This is never true of this student				This is almost always true of this student
1	2	3	4	5

24. This student fights frequently with his or her friends.

This is never true of this student				This is almost always true of this student
1	2	3	4	5

25. This student knows how to make others laugh.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

26. This student gives others dirty looks, rolls his/her eyes, or uses other gestures to hurt others' feelings, embarrass them or to make them feel left out.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

27. This student tries to cheer up other students when they are sad or upset about something.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

28. This student imitates others behind their back.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

29. This student leaves people out or excludes them on purpose.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

30. This student is sincere, genuine, and thoughtful.

This is never true of this student				This is almost always true of this student
1	2	3	4	5

31. This student threatens others.

This is never true of this student				This is almost always true of this student
1	2	3	4	5

32. This student avoids engaging in mean talk or malicious gossip about others.

This is never true of this student				This is almost always true of this student
1	2	3	4	5

33. This student never has a problem saying what he/she thinks.

This is never true of this student				This is almost always true of this student
1	2	3	4	5

34. This student tries to turn others against someone for revenge or exclusion.

This is never true of this student				This is almost always true of this student
1	2	3	4	5

35. This student defends others from mean or bullying behavior.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

36. This student is critical of others' clothing, appearance, personality or other characteristics.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

37. This student is popular with other students.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

38. This student tries to dominate or bully other students.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

39. This student tries to embarrass others in public.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

40. If this student has something to say, they don't hesitate to say it.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

41. This student sends anonymous notes about or to others.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

42. This student likes to tease others.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

43. This student works to find positive solutions to others' conflicts.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

44. This student befriends others for revenge.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

45. This student engages in mean pranks or practical jokes.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

46. This student works well in group activities or projects.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

47. This student is involved in mean or hurtful behavior online or in text messaging.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

48. This student tries to interfere with others' boyfriend/girlfriend relationships.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

49. This student shows interest and concern for others.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

50. This student tries to manipulate adults to set up their peers or get them into trouble.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

51. This student welcomes outsiders and befriends new students.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

52. This student is mature and responsible.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

53. This student always says what is on his/her mind.

This is never true of this student					This is almost always true of this student
1	2	3	4	5	

Appendix C

Youth self-report of nonaggressive antisocial behaviour (CBCL; Achenbach & Rescorla, 2001)

Rule-breaking behavior scale items

1. I drink alcohol without my parents' approval
2. I don't feel guilty after doing something I shouldn't
3. I break rules at home, school or elsewhere
4. I hang around with kids who get in trouble
5. I lie or cheat
6. I would rather be with older kids than kids my own age
7. I run away from home
8. I set fires
9. I think about sex too much
10. I steal at home
11. I steal from places other than home
12. I swear or use dirty language
13. I smoke, chew, or sniff tobacco
14. I cut classes or skip school
15. I use drugs for nonmedical purposes (not including alcohol or tobacco)
16. I vandalize things that do not belong to me
17. Sex problems

Appendix D

Sample items from the 27 facets of the Dimensional Personality Symptom Item Pool (De Clercq et al., 2006)

<u>Facet</u>	<u>Sample items</u>
Hyperexpressive traits	Talks all the time about his/her own experiences Always tries to be the center of attention
Hyperactive traits	Can never sit still Needs activity at all times
Dominance-egocentrism	Wants to assert him/herself all the time Always imposes his/her opinion
Impulsivity	Constantly acts without thinking of consequences Always interrupts other people
Irritable-aggressive	Gets easily irritated Gets frequently out of control when angry
Disorderliness	Never takes care of his/her belongings Always makes a big mess of everything
Distraction	Can only be focused for a few moments Never finishes his/her work
Risk-taking	Is very attracted to dangerous situations Likes to take risks
Narcissism	Fantasizes all the time about being admired by others Considers himself/herself more worthy than others
Affective lability	His/her feelings toward others are very changeable Has frequent changes in mood from one extreme to the other
Resistance	Disobeys rules all the time Always refuses to do what is asked
Lack of empathy	Feels no emotions when others get hurt

	Is never interested in others' problems
Dependency	Needs someone around all the time Can never undertake something without help
Anxiousness	Worries all the time Panics very easily
Lack of self-confidence	Always has doubts about himself/herself Feels less worthy than others
Insecure attachment	Wants to have his/her parents always around Clings to other people
Submissiveness	Obeys other people all the time Always submits to others
Ineffective coping	Is very sensitive to stress Is easily overwhelmed by his/her emotions
Separation anxiety	Constantly fears being on his/her own Often fears abandonment
Depression	Often feels empty inside Too often regrets things that happened in the past
Inflexibility	Cannot adjust to sudden changes in plans Frequently feels forced to repeat behavioural acts in a certain order
Shyness	Fears contact with others Always feels uncomfortable when others are around
Paranoid traits	Is very suspicious of others Thinks that others want to cheat him/her all the time
Withdrawn traits	Always hides his/her feelings Cannot express feelings of affection
Perfectionism	Wastes a lot of time by doing things too perfectly Wants life to be perfectly organized

Extreme achievement striving

Always demands that he/she be the best

Wants to shine at everything

Extreme order

Is obsessed by cleaning

Feels in control by being orderly all the time