THE STABILITY OF PSYCHOPATHIC TRAITS IN ADOLESCENT OFFENDERS

by

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ABSTRACT

Psychopathy is a personality disorder characterized by a constellation of interpersonal, affective, and behavioural traits. The growing literature on adolescent psychopathic traits suggests psychopathic traits can be assessed reliably and the traits demonstrate construct validity. Psychopathic traits in adolescents are associated with a variety of negative outcomes, including violence and criminality. However, there is considerable debate about the assessment of psychopathic traits in adolescents due to ethical and developmental concerns. Most importantly, questions remain regarding the stability of psychopathic traits in adolescents, a critical issue that has important implications for understanding the etiology and developmental course of the disorder and informing intervention strategies. Therefore, the goal of the current study was to investigate the six-month stability of the interpersonal, affective, behavioural, and antisocial traits of psychopathy in a sample of 112 male adolescent offenders. Adolescents were assessed with a modified protocol for the Psychopathy Checklist: Youth Version (PCL:YV) and the self-report Antisocial Process Screening Device (APSD). Analyses conducted with generalizability theory suggested moderate stability of psychopathic traits. The interpersonal and behavioural traits evidenced the greatest stability, followed by the antisocial and affective traits. However, it is unclear whether these findings are a function of inappropriate developmental indicators of affective deficits or whether affective deficits are normative in adolescents. The current findings have important implications for understanding the developmental manifestation of "adolescent psychopathy" and the development of appropriate intervention strategies.

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Psychopathy is a personality disorder characterized by a constellation of interpersonal, affective, and behavioural traits. Interpersonally, psychopaths are superficial and egocentric, affectively they are shallow and callous, and behaviourally they are impulsive and irresponsible (Hare, 1996; Hare, Cooke, & Hart, 1999; Hart, Hare, & Harpur, 1992). The "gold standard" for assessing psychopathy in adult forensic populations is the Psychopathy Checklist-Revised (PCL-R; Hare, 1991, 2003). A large body of research illustrates the importance of this construct in forensic settings. For example, psychopaths account for a disproportionate amount of serious crime (Hare, 1993), are more likely to commit violence (Hare, 1996; Hare, Clark, Grann, & Thornton, 2000), have a higher rate of violent and general recidivism in both correctional and psychiatric settings (Douglas, Vincent, & Edens, 2006), and are less motivated and less responsive to treatment (Harris & Rice, 2006). In general, the evidence supports psychopathy as a valid and meaningful construct in adult offenders, which has led to investigating the construct in adolescent offenders. The hope is that early identification will assist in developing intervention strategies to prevent the negative outcomes associated with the disorder and possibly determine the etiology of the disorder.

Psychopathic Traits in Adolescents

The "gold standard" for assessing psychopathic traits in adolescents is the Psychopathy Checklist: Youth Version (PCL:YV; Forth, Kosson, & Hare, 2003), a downward extension of the PCL-R (Hare, 1991, 2003). Extending an adult personality disorder downwards into adolescence may be problematic if adolescent psychopathic

traits manifest differently than adult psychopathic traits. Therefore, it is important to bear in mind that much of the research on psychopathic traits in adolescents is based on this conceptual definition of "adolescent psychopathy." The growing body of research in adolescent offenders provides preliminary evidence that psychopathic traits can be assessed reliably (e.g., Brandt, Kennedy, Patrick, & Curtin, 1997; Forth, Hart, & Hare, 1990; Loving & Gacono, 2002) and that the traits possess construct and predictive validity. Adolescent psychopathic traits have been found to be positively associated with a variety of constructs relevant to forensic settings in samples of juvenile offenders and inpatients. For example, psychopathic traits in adolescents are associated with criminal behaviour (Myers, Burket, & Harris, 1995), aggression (Campbell, Porter, & Santor, 2004; Forth et al., 1990; Rogers, Johansen, Chang, & Salekin, 1997; Spain, Douglas, Poythress, & Epstein, 2004), violent offences (Dolan & Rennie, 2006; Forth, 1995; Forth et al., 1990; Kosson, Cysterski, Steuerwald, Neumann, & Walker-Matthews, 2002; Murrie, Cornell, Kaplan, McConville, & Levy-Elkon, 2004; Salekin, Neumann, Leistico, DiCicco, & Duros, 2004), violent and non-violent institutional infractions (Hicks, Rogers, & Cashel, 2000), judgments about risk for violence (Leistico & Salekin, 2003), and general and violent recidivism (Gretton, Hare, & Catchpole, 2004; Gretton, McBride, Hare, O'Shaughnessy, & Kumka, 2001; Långström & Grann, 2000). In contrast, psychopathic traits are negatively associated with judgments about treatment amenability (Leistico & Salekin, 2003) and treatment compliance (O'Neill, Lidz, & Heilbrun, 2003a; Rogers et al., 1997).

However, the above studies are concurrent or postdictive studies of the association between psychopathic traits and relevant forensic constructs. Stronger

evidence of the potential utility of the construct is derived from prospective studies. In general, there is evidence of the predictive validity of psychopathic traits in samples of normative adolescents, adolescent inpatients, and juvenile offenders. For example, adolescent psychopathic traits predict delinquency (Toupin, Mercier, Déry, Côté, & Hodgins, 1995), violence (Skeem & Cauffman, 2003), and general and violent recidivism (Catchpole & Gretton, 2003; Corrado, Vincent, Hart, & Cohen, 2004; Gretton et al., 2004; Ridenour, Marchant, & Dean, 2001; Vincent, Vitacco, Grisso, & Corrado, 2003). Furthermore, there is evidence that psychopathic traits predict verbal and peer aggression (Stafford & Cornell, 2003) and institutional violence (Dolan & Rennie, 2006).

In an effort to understand adolescent psychopathy in the context of other forms of mental disorder, studies have examined the association between adolescent psychopathy and measures of externalizing and internalizing symptomatology. Several studies have found a positive association between psychopathy and conduct disorder symptoms (Brandt et al., 1997; Forth et al., 1990; Kosson et al., 2002; Rogers et al., 1997; Salekin et al., 2004; Toupin et al., 1995) and other disruptive behaviour disorders such as oppositional defiant disorder (Kosson et al., 2002; Salekin et al., 2004), attention deficit hyperactivity disorder (Kosson et al., 2002; Salekin et al., 2004), and impulsivity (Vitacco & Rogers, 2001). In contrast, studies have found no relationship between psychopathy and anxiety (Salekin et al., 2004; Skeem & Cauffman, 2003) and internalizing problems such as depression, withdrawal, or somatic complaints (Campbell et al., 2004; Dolan & Rennie, 2006). As such, these studies provide further evidence for the validity of adolescent psychopathic traits as distinct from other externalizing disorders.

Several studies have also examined whether psychopathic traits are associated with various psychosocial variables as they may provide insight into risk factors for the development of psychopathy. There is some evidence that maladaptive family environments, such as parental antisocial attitudes, inconsistent discipline, physical punishment, and childhood separation, are associated with high PCL:YV scores (Forth, 1995). Similarly, O'Neill, Lidz, and Heilbrun (2003b) found that higher PCL:YV scores were associated with more severe ratings of childhood abuse and neglect and Campbell et al. (2004) found that higher PCL:YV scores were associated with a history of foster placements, physical abuse, and abuse by caregivers. In contrast, Gretton et al. (2004) found no differences in physical, sexual, or emotional abuse between low, moderate, and high psychopathy groups in juvenile offenders. Therefore, the nature of the relationship between psychopathic traits and maladaptive family characteristics remains unclear.

The Adolescent Psychopathy Debate

Despite evidence of reliability and validity, there is considerable debate about the assessment of psychopathic traits in adolescents. A major criticism of adolescent psychopathy is ethical concerns about the negative consequences of labeling. There is a reluctance to diagnose personality disorders in adolescents as this implies severity and a lack of malleability or treatability (Forth & Mailloux, 2000; Kernberg, Weiner, & Bardenstein, 2000). Furthermore, labeling an adolescent a psychopath may result in much harsher and more severe treatment. In fact, there is evidence that psychopathic traits increase support for the death penalty (Edens, Guy, & Fernandez, 2003), have been used to justify decisions to transfer adolescent offenders to adult court (Edens, Skeem, Cruise, & Cauffman, 2001; Penney & Moretti, 2005; Vincent & Hart, 2002; Zinger & Forth,

1998), and that "adolescent psychopaths" serve lengthier sentences in order to protect the public (Edens et al., 2001).

However, there are compelling arguments to continue to investigate psychopathic traits in adolescents. Most importantly, early identification of psychopathic traits may lead to early intervention and potentially, treatment of the disorder. Alternatively, failing to acknowledge the presence of psychopathic traits may lead to inappropriate intervention strategies. Second, the assessment of psychopathic traits may provide clinicians with other important information relevant to intervention, such as quality of attachment and potential for manipulation (Stafford & Cornell, 2003). Third, some argue that failing to assess psychopathic traits in adolescents may be unethical given what is known about the negative consequences of the disorder (Forth & Mailloux, 2000). In other words, psychopathic traits have important implications for the prediction of violence and risk management of juveniles in forensic settings. However, the utility for risk assessment may be limited to assessments of short-term violence risk (Vitacco & Vincent, 2006) and the assessment of psychopathic traits certainly does not constitute a comprehensive risk assessment tool (Vincent, 2006).

Although ethical concerns exist, the current body of research provides evidence for the existence of what appears to be psychopathic traits in adolescents. However, it is unclear whether these traits form a coherent syndrome to argue for the existence of psychopathy as a personality disorder in adolescents. At the core of this issue are questions regarding appropriate developmental expressions of the disorder (Johnstone & Cooke, 2004; Salekin & Frick, 2005) and whether psychopathic traits are stable in

adolescents. In essence, the question is whether psychopathy is a developmental disorder or an adult personality disorder with traits that emerge during childhood and adolescence.

Developmental Concerns

Principles of normal development and developmental psychopathology suggest that it may be difficult or even impossible to establish with any reasonable certainty the presence of fixed and maladaptive personality traits in childhood or adolescence (Edens et al., 2001; Hart, Watt, & Vincent, 2002; Seagrave & Grisso, 2002; Vincent & Hart, 2002). Furthermore, there is no consensus that personality disorders as a form of adult psychopathology exist in adolescence, which may explain why personality disorders are not typically diagnosed in adolescents. The *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-TR; American Psychiatric Association, 2000) states that personality disorders may be diagnosed in children and adolescents in rare circumstances whereby the "maladaptive personality traits appear to be pervasive, persistent, and unlikely to be limited to a particular developmental stage" (APA, 2000, p. 687).

As a personality disorder, it is assumed that psychopathic traits manifest at an early age and are stable and persistent (Forth et al., 1990; Hare, 1996; Hare, Forth, & Strachan, 1992). By definition, a personality disorder is an enduring pattern that is pervasive and inflexible (APA, 2000). However, there is no evidence that psychopathic traits are stable across adolescence. Indirect evidence for the stability of psychopathic traits may be obtained from the relationship between PCL:YV scores and age at assessment. In general, there appears to be no relationship between PCL:YV scores and age at assessment (Brandt et al., 1997; Gretton et al., 2004; Murrie et al., 2004; O'Neill et al., 2003a). Although the PCL:YV manual reports a statistically significant negative

correlation between PCL:YV total scores and age, the magnitude of the correlation was small (-.11). However, there was a difference between younger (aged 14 and under) and older (aged 15 and above) juvenile offenders in that younger juveniles had significantly higher PCL:YV scores. This suggests some psychopathic traits may be normative during adolescence, which may impact the stability of these traits across adolescence. More importantly, there is reason to question the stability of psychopathic traits in adolescents with respect to developmental concerns.

Adolescence is viewed as a period of change and development. There is evidence that skills, such as future orientation, awareness of long-term consequences, and perspective taking, increase and develop during adolescence (Edens et al., 2001). Furthermore, there is evidence of other developmental changes, such as increases in abstract thinking, information processing, and regulation of moods and emotions (Westen & Chang, 2000). Specific traits, such as arrogance, the inability to take another's perspective, impulsivity, and sensation-seeking, may be normative during adolescence, in which case these traits may not differentiate psychopathic youth from normative adolescents. In other words, it is unclear whether psychopathic adolescents possess more symptoms of the disorder than normative adolescents (Edens et al., 2001). Finally, changes and stressors associated with adolescence may affect how traits manifest. For example, biological changes associated with puberty and maturational changes of taking on more adult-like roles and responsibilities may affect traits such as stimulation seeking, impulsivity, and irresponsibility. This raises the question of whether issues relevant to adolescent development may impact the presentation and assessment of psychopathic traits. If certain traits are particular to the adolescent developmental stage, and therefore

are transient and unstable, there is a serious risk of falsely identifying adolescents as psychopathic.

A second issue of concern is whether personality is fully crystallized during adolescence (Vincent & Hart, 2002; Kernberg et al., 2000). Principles from developmental psychopathology, such as equifinality, multifinality (Cicchetti & Rogosch, 1996), and heterotypic continuity (Vitacco & Vincent, 2006) have important implications for understanding adolescent psychopathy and raise concerns about the stability of psychopathic traits across adolescence. Equifinality asserts that multiple pathways may lead to the same outcome. For example, the emergence of psychopathic traits may be due to genetics or environmental factors such as abuse. Multifinality asserts that the same pathway may result in many different outcomes. In other words, individuals who exhibit psychopathic traits in adolescence will not necessarily become adult psychopaths. If many of the traits are normative in adolescence, desistence is highly likely as adolescents move into adulthood. In fact, desistence across adolescence is well documented for antisocial behavior (Moffitt, 1993) and conduct disorder (Burke, Loeber, & Lahey, 2003; Frick & Loney, 1999). Finally, heterotypic continuity refers to developmental changes that affect how psychopathology is expressed. In other words, the way psychopathic traits are expressed in adults may be very different from the way psychopathic traits are expressed in adolescents.

Stability of Psychopathic Traits in Adults

The few studies that have examined the stability of psychopathy in adults[1] have found moderate to high stability of psychopathy scores at different time intervals. Alterman, Cacciola, and Rutherford (1993) found one-month reliability correlations of .76 for the interpersonal/affective factor, .80 for the behavioural factor, and .89 for the PCL-R Total score. Similarly, Rutherford, Cacciola, Alterman, and McKay (1996) found one-month reliability correlations of .75 for the interpersonal/affective factor, .73 for the behavioural factor, and .79 for the PCL-R Total score. Lastly, Rutherford, Cacciola, Alterman, McKay, and Cook (1999) found the two-year stability of PCL-R Total scores to be .60 and .65 among men and women, respectively. However, these studies examined groups of substance-dependent adults rather than samples of criminal offenders, which may reflect the stability of drug-related symptoms rather than stability of psychopathic traits (Salekin, 2006). Harpur and Hare (1994) conducted a cross-sectional analysis of psychopathy scores in a sample of male inmates and forensic psychiatric patients, and found similar mean interpersonal/affective factor scores across age groups whereas behavioural scores declined with age. However, this was not a longitudinal study. Schroeder, Schroeder, and Hare (1983) found the ten-month stability of PCL Total scores to be .89 in a sample of incarcerated male offenders.

Although these studies suggest psychopathy may be stable in adults, evidence that adolescence is a period marked by change and development raise questions as to whether psychopathic traits are stable in adolescents. Furthermore, the research with adults is not strong evidence that stability of the construct would be expected in adolescents. First,

[1] Although antisocial personality disorder is associated with psychopathy, the current review will focus on the stability of adult psychopathy as originally conceptualized by Cleckley.

some argue that personality traits are entrenched by adulthood (Caspi & Roberts, 2001), which should result in moderate to high stability of psychopathic traits in adults. Second, the nature of PCL-R assessments may lead to an overestimation of stability. Because the PCL-R relies heavily on historical information in assessing psychopathy, findings of stability may simply be due to a reliance on mostly historical information. Finally, PCL-R assessments are based on functioning across the lifespan, making it virtually impossible to assess changes over time. In other words, the follow-up assessment of psychopathy would be based largely on overlapping information with the initial assessment. Therefore, high stability would be expected by virtue of the fact that similar information would be used to assess psychopathy at both time points. This concern has led many to conclude that the PCL-R is inappropriate for assessing symptom change across time (Farrington, 2005; Frick, Kimonis, Dandreaux, & Farell, 2003).

Stability of Psychopathic Traits in Adolescents

To date, there has been very little research examining the stability of psychopathic traits in adolescents. One exception is a recent study by Frick et al. (2003) that examined the four-year stability of psychopathic traits, as assessed by parent reports on the Antisocial Process Screening Device (APSD), in a sample of community children in grades three to six. Stability estimates (ICC_2) were quite high across two years (.88), three years (.87), and four years (.80). Similarly, stability estimates across the years for the callous-unemotional (.76, .86, .71), narcissism (.88, .84, .77), and impulsivity (.86, .73, .72) factors were quite high. Finally, overall stability estimates for total scores were comparable for youth who were in grades 3 and 4 (.93) and those in grades 5 and 6 (.91) at the first assessment.

Frick et al.'s (2003) study also found that most youth who were rated low on the callous-unemotional dimension at baseline were consistently rated low at follow-up. Similarly, a substantial proportion of youth who were rated high on the callous-unemotional dimension at baseline were rated high at follow-up. Interestingly, the more common type of change that occurred was for children who were initially rated high on callous-unemotional traits to score low at follow-up, rather than for children who were initially rated low to be rated high at follow-up. These findings demonstrate that psychopathic traits appear to be stable in those groups at the extreme ends of the spectrum. However, there was also evidence of instability whereby some youth who were high on psychopathic traits improved over time.

Frick et al.'s (2003) study provides preliminary evidence for the stability of psychopathic traits, however the stability of adolescent psychopathic traits remains an issue. First, the study examined the stability of psychopathic traits in children. Second, the use of the APSD as a measure of psychopathic traits is questionable as it does not appear to adequately capture the interpersonal and affective features of psychopathy in a manner analogous to the PCL:YV (Lee, Vincent, Hart, & Corrado, 2003; Murrie & Cornell, 2002). Finally, the base rate of psychopathy in community samples is likely very low (Frick et al., 2003), which raises doubts as to whether the stability of psychopathy per se has been examined.

Two more recent studies have also begun to address the issue of stability. Lynam and colleagues (Lynam & Gudonis, 2005) examined the stability of psychopathic traits in a sample of boys aged 7 to 17 years, as assessed by the self-report Childhood Psychopathy Scale (CPS). They found moderate to high stability coefficients across six

months (.74), one year (.72), two years (.67), five years (.56), and nine years (.46). However, the issues raised above regarding the APSD also apply to the CPS, raising questions about the validity of these findings. Skeem and Cauffman (2003) examined the one-month test-retest reliability of the PCL:YV in a sample of adolescent offenders. They found fair test-retest reliability of the Total (.58), Factor 1 (.55), Factor 2 (.44), and Factor 3 (.45) scores. However, the study examined test-retest reliability for those cases whereby the same rater completed both the baseline and follow-up assessments. This raises concerns as to whether their findings overestimate test-retest reliability as raters may potentially recall the youth's original ratings. Despite this concern, the test-retest reliability estimates are low given that both PCL:YV assessments were based on lifetime functioning. At the very least, these findings provide an important foundation for examining the stability of adolescent psychopathic traits in that reliability of a measure must be taken into account when addressing questions of stability.

A Context for the Stability of Adolescent Psychopathic Traits

At present, there is limited research directly examining the stability of adolescent psychopathic traits. Despite important issues raised suggesting instability of psychopathic traits across adolescence and potential problems with the studies noted above, it is unlikely that personality disorders spontaneously develop in adulthood. It may be that traits related to the disorder begin to emerge in childhood and adolescence, resulting in a vulnerability to developing the disorder in adulthood. Therefore, this section reviews research on the stability of related concepts, including normal personality, externalizing symptomatology, and other forms of personality disorder in adolescents.

Stability of Personality in Adolescents

Research on the stability of personality traits may provide important information regarding the stability of psychopathic traits to the extent that personality disorder traits are thought of as extreme end-points on the continuum of personality traits. Evidence of differential relationships between broad personality traits and psychopathy illustrates the relevance of personality traits in understanding psychopathic traits. For example, Lynam et al. (2005) found that agreeableness was uniquely negatively associated with the interpersonal/affective dimension of the CPS. In contrast, conscientiousness was uniquely negatively associated and neuroticism was uniquely positively associated with the behavioural dimension of the CPS. Similarly, Salekin, Leistico, Trobst, Schrum, and Lochman (2005) found that psychopathy was negatively associated with agreeableness and conscientiousness and positively associated with the cold and arrogant-calculating quadrants of the interpersonal circumplex. Furthermore, examination of "normal" personality traits may provide important information about when personality traits become abnormal, as reflected in the developmental approach to examining psychopathology whereby studying normal behaviour is essential to understanding abnormal development (Cicchetti & Cohen, 1995; Geiger & Crick, 2001). In general, research on the stability of personality traits suggests little evidence of dramatic changes across adolescence and a moderate to high level of continuity from childhood through to adulthood (Caspi & Roberts, 2001; Caspi, Roberts, & Shiner, 2005). However, there is evidence for a positive relationship between the magnitude of stability coefficients and age of participants (Caspi & Bem, 1990; Costa & McCrae, 1994; Fraley & Roberts, 2005), suggesting that stability may not be as high in adolescents as in adults.

Various studies have examined the stability of the five-factor model of personality and other traits related to the five-factor model in samples of adolescents using both other- and self-reports. Personality traits that evidence modest stability include diligence, confidence, warmth, deliberateness, and conscientiousness (Cohen, 1999; Guiganino & Hindley, 1982; Haan, Millsap, Hartka, 1986; Stein, Newcomb, & Bentler, 1986). In contrast, lower stability estimates are found for traits such as invulnerable, ambitious, neurotic, anxious, timid, energetic, and bold/lacks caution (Carmichael & McGue, 1994; Giuganino & Hindley, 1982; Stein et al., 1986). Finally, inconsistent results are found for traits such as extraversion and anger (Carmichael & McGue, 1994; Cohen, 1999; Guiganino & Hindley, 1982; Haan et al., 1986; Stein et al., 1986). However, there is evidence of lower stability correlations between late adolescence and early adulthood compared to correlations obtained between early and late adolescence, suggesting that adolescence is characterized by stability whereas the transition from late adolescence to early adulthood is characterized by the least stability (Haan et al., 1986).

Meta-analyses generally mirror the findings from individual studies. A meta-analysis of self- and other-reports, and projective tests of personality by Roberts and DelVecchio (2000) found that trait consistency among adolescents was moderate, with an estimated population correlation of .47. Similarly, Bazana and Stelmack's (2004) meta-analysis of the five-factor model of personality found the mean stability across the five factors was .48 among adolescents. However, Roberts and DelVecchio (2000) found that trait consistency increased with age, which suggests that personality traits may be somewhat fluid during adolescence.

In general, studies examining the stability or consistency of various personality traits suggest moderate to high stability in adolescents, regardless of whether the traits are assessed through other- or self-ratings. However, there is some evidence that traits assessed through self-report demonstrate higher stability estimates. Despite evidence of moderate to high stability, some traits evidenced lower stability estimates, in the range of .20 to .30, suggesting that specific traits may be unstable across adolescence.

Stability of Attention Deficit Hyperactivity Disorder

Research examining the stability of attention deficit hyperactivity problems, aggression, and conduct problems may also be relevant to the stability of psychopathic traits in adolescents as these are closely linked with psychopathy and may be particularly informative with respect to the behavioural traits of psychopathy. The majority of studies examining attention deficit hyperactivity disorder (ADHD) have examined the stability of diagnoses. Studies using clinical samples generally report high diagnostic stability. For example, Barkley, Fischer, Edelbrock, and Smallish (1990) found that 72% of their sample of hyperactive children continued to meet criteria for ADHD at an eight-year follow-up. Similarly, Hart, Lahey, Loeber, Applegate, and Frick (1995) found that 77% of outpatient boys continued to meet criteria for ADHD in a four-year prospective longitudinal study. Finally, Biederman et al. (1996) found that 85% of their sample of males from psychiatric and non-psychiatric settings continued to meet full or sub-threshold criteria for ADHD at a four-year follow-up. In contrast, studies using normative samples tend to report more modest stability of diagnoses, ranging from 34% (Offord et al., 1992) to 38% (August, Braswell, & Thuras, 1998) across four years.

Stability of Aggression and Conduct Problems

Relatively few studies have examined the stability of aggression in samples of adolescents. A comprehensive review by Olweus (1979) found considerable stability of aggression in males across a variety of studies that utilized different methods of assessment (i.e., observation, teacher ratings, clinical ratings, and peer nominations), different ages at the first assessment (ranging from 2 to 18 years), and different intervals between assessments (ranging from half a year to 21 years). Among the studies that examined the period of adolescence, stability coefficients corrected for attenuation ranged from .67 to .98. More recent studies have found lower stability estimates, although these may be due to the fact that Olweus (1979) reported coefficients corrected for attenuation. Studies examining other-rated aggression report stability estimates ranging from .34 to .59 across six months to three years (Adams, Bukowski, & Bagwell, 2005; Kokko & Pulkkinen, 2005; Moskowitz, Schwartzman, & Ledingham, 1985; Pulkkinen & Pitkänen, 1993). Studies examining self-reported aggression tend to report relatively higher stability estimates, ranging from .61 across one year (Reitz, Deković, & Meijer, 2005), .72 across two years (Botha & Mels, 1990), and .47 across four years (Ferdinand, Verhulst, & Wiznitzer, 1995). In general, the evidence suggests aggression is moderately stable in normative adolescents. However, it may be that stability estimates are higher in samples of high-risk youth as they typically engage in greater levels of aggression.

Several reviews have concluded that there is considerable continuity or stability of externalizing behaviours between childhood, adolescence, and early adulthood (e.g., Frick & Loney, 1999; Loeber, 1982; Loeber & Farrington, 1997; McMahon, 1994),

despite differences in the definition of externalizing problems, which include conduct problems and antisocial behaviour. The few studies that have examined the stability of conduct disorder diagnoses have found stabilities ranging from 31% across two years (Mattanah, Becker, Levy, Edell, & McGlashan, 1995) to 45% across four years (Offord et al., 1992).

The majority of studies examining the stability of conduct problems have investigated self-reported stability of a variety of externalizing problems in normative samples of adolescents. Across one, two, and four years, there is evidence of high stability of externalizing problems: .63 across one year (Deković, Buist, & Reitz, 2004), .51 to .68 across two years (Deković et al., 2004; Storvoll & Wichstrøm, 2003; Verhulst & van Wattum, 1993), and .56 across four years (Ferdinand et al., 1995). Similar results are found for the stability of delinquency, although the stability estimates are more moderate in size, ranging from .50 across one year (Reitz et al., 2005) to .41 across four years (Ferdinand et al., 1995).

Stability of Personality Disorders in Adolescents

The final area, and arguably the most relevant, to provide a context for the stability of psychopathic traits in adolescents are studies examining the stability of personality disorder diagnoses and traits in adolescents. The majority of studies have examined the stability of specific personality disorder diagnoses, such as histrionic, narcissistic, and borderline personality disorders. Bernstein et al. (1993) reported a stability estimate of 23% for histrionic personality disorder across two years in their community sample whereas Grilo, Becker, Edell, and McGlashan (2001) reported an estimate of .38 across two years in a psychiatric sample. In contrast, studies of

narcissistic personality disorder report more similar stability estimates across two years despite different samples of adolescents. Bernstein et al. (1993) reported a stability estimate of 31% in a community sample and Grilo et al. (2001) reported an estimate of .29 in a sample of psychiatric inpatients.

Finally, numerous studies have investigated the stability of borderline personality disorder and it appears the disorder is not very stable in either community or inpatient samples. Across two years in samples of normative adolescents, Mattanah et al. (1995) reported a stability of 23%, Bernstein et al. (1993) reported a stability of 24%, and Garnet, Levy, Mattanah, Edell, and McGlashan (1994) reported a stability of 33%. Across three years, Meijer, Goedhart, and Treffers (1998) found that only 2 of 14 inpatients (14%) retained the diagnosis.

In contrast to studies examining diagnostic stability, studies of the stability of personality disorder traits report relatively higher estimates of stability, although the estimates still suggest moderate stability in adolescents. Crawford, Cohen, and Brook (2001) found moderate to high stability of Cluster B personality symptoms (borderline, histrionic, and narcissistic) in male adolescents across two (.73) and eight years (.63). Similarly, de Vito, Ladame, and Orlandini (1999) found high stability of self-reported borderline traits (.68) across one year whereas there was moderate stability of narcissistic traits (.54). Finally, Johnson et al. (2000) found stability estimates of .57 for narcissistic traits and .37 for borderline traits across two years.

Taken together, research investigating the stability of general personality traits, externalizing problems, and other personality disorders in adolescents may provide a context for examining the stability of adolescent psychopathic traits. In general, the

evidence suggests moderate to high stability across adolescence, with relatively higher stability of the behavioural aspects of personality. However, research on the stability of personality disorders suggests a more conservative conclusion with relatively low stability of personality disorder diagnoses. It may be that personality disorder traits are fluid across adolescence, with some traits reflecting normative aspects of adolescent development and other traits indicating the emergence of a personality disorder. However, it is important to remember that these findings provide a limited context for the stability of psychopathic traits, as broad personality traits and externalizing problems are moderately associated with psychopathy.

The Current Study

A growing body of research supports the reliability and validity of psychopathic traits in adolescents. It appears that assessments are capturing traits similar to adult manifestations of the disorder in that the relationship between psychopathic traits and various negative outcomes in adolescents mirror research with adults. However, a debate continues over the "adolescent psychopathy" construct due to developmental concerns about the expression of the disorder during adolescence, a period characterized by growth and development.

As a personality disorder, psychopathic traits are presumed to emerge at an early age and the disorder is thought to be stable. Although a few studies have begun to address the issue of stability in samples of adolescents, to date, no studies have examined the stability of psychopathic traits in adolescent offenders as assessed with the PCL:YV *and* in a manner that can estimate stability taking into consideration unreliability of the measure and raters. The critical issue of the stability of psychopathic traits in adolescents

has important implications for understanding the etiology and developmental course of the disorder and informing intervention strategies.

The current study investigated the six-month stability of psychopathic traits in a sample of incarcerated male adolescent offenders. The research questions of interest were as follows: First, can a protocol be developed to assess changes in psychopathic traits that does not rely on overlapping information across assessments and therefore, an inflated estimate of stability? Second, how stable are the interpersonal, affective, behavioural, and antisocial traits of psychopathy? Third, are there factors that influence the stability of psychopathic traits?

Method

Overview

The current study was part of a larger research project examining gender and aggression in high-risk youth. Semi-structured interviews and self-report measures were administered to a sample of incarcerated juveniles and adolescents from a provincial assessment centre to examine various psychosocial factors that may contribute to the prediction and developmental course of aggression and violence.

Participants

Participants were 112 male adolescent offenders incarcerated in minimum (36%) and maximum (64%) security youth custody centres in British Columbia, Canada. They were recruited from the population of juveniles who were detained between the years of 2004 and 2005. Participants ranged in age from 13 to 20 years, with a mean age of 16.29 years (SD = 1.42). The majority of adolescents were Caucasian (51%), with the remainder of Aboriginal (40%) or other (9%) ethnicity. The mean self-reported years of

education was 9.18 (*SD* = 1.26). Participants were either detained in custody on remand (37%) or sentenced (63%). The majority of participants were on remand for property offences (27%) or assault (20%). Similarly, the majority of participants with custodial dispositions were sentenced for property offences (34%) and assault (23%). With the exception of one adolescent who received an adult sentence for murder, the mean juvenile custodial disposition for those adolescents who were sentenced was approximately six months (*M* = 178.57 days, *SD* = 202.30).

Of the original 112 participants, 83 were contacted and agreed to participate in the follow-up phase of the study. These adolescent offenders were incarcerated in minimum (18%) and maximum (48%) security youth custody centres, on youth bail or probation orders (31%), and incarcerated in adult institutions (2%). They ranged in age from 14 to 20 years, with a mean age of 16.73 years (*SD* = 1.48). The majority of participants were Caucasian (47%), with the remainder of Aboriginal (42%) or other (11%) ethnicity. The mean self-reported years of education was 9.34 (*SD* = 1.40). The majority of participants were on remand for property offences (45%) or assault (19%). Similarly, the majority of participants with custodial dispositions were sentenced for property offences (27%) and assault (23%). In contrast, the majority of participants were on probation for assault (48%), robbery (13%), and property offences (13%). Of those participants who were sentenced, the mean custodial disposition was approximately one year (*M* = 364.19 days, *SD* = 281.79). Of those participants on probation, the mean probation length was approximately one year (*M* = 357.61 days, *SD* = 174.26).

Attrition. Follow-up assessments were conducted with 83 of the original 112 participants (i.e., an attrition rate of 26%). The most common reasons for attrition were

geographical distance (31%), participants were no longer in custody or on probation (24%), or they refused to participate in the follow-up (17%). Other reasons for attrition included the following: sentenced to adult provincial/federal institutions (10%), in residential substance abuse treatment programs (7%), at large (7%), and passed away before the follow-up (3%).

Participants who were not assessed at follow-up were significantly older, $t(110) = 2.28$, $p < .05$, although the difference was small ($M = 16.79$, $SD = 1.24$ vs. $M = 16.11$, $SD = 1.44$). However, there were no significant differences in terms of the proportion of participants who were Caucasian (62% of those not assessed at follow-up compared to 47% of those assessed at follow-up) or Aboriginal (35% of those not assessed at follow-up compared to 42% of those assessed at follow-up). Similarly, there was no significant difference in terms of self-reported years of education, a mean of 9.38 years ($SD = 1.18$) among those not assessed at follow-up compared to a mean of 9.11 years ($SD = 1.29$) among those assessed at follow-up. There were also no significant differences between the groups in terms of their juvenile sentence length in the first assessment, a mean of 197.27 days ($SD = 227.31$) among those assessed at follow-up and 124.56 days ($SD = 83.31$) among those not assessed at follow-up. Finally, there were some differences in PCL:YV scores (Table 1). Participants who were not assessed at follow-up had higher PCL:YV Total, $t(108) = 2.47$, $p < .05$, and Factor 3 scores, $t(108) = 3.69$, $p < .01$.

Measures

Hare Psychopathy Checklist: Youth Version. The Hare Psychopathy Checklist: Youth Version (PCL:YV; Forth et al., 2003) is a 20-item clinical rating scale that assesses psychopathic traits in adolescents between the ages of 12 and 18. It is a

Table 1

Mean PCL:YV Total and Factor Scores in the Sample and Attrition Group

PCL:YV	Sample	Attrition Group	*d*
Total*	25.81 (6.62)	29.17 (5.14)	.54
Factor 1	4.12 (1.87)	4.72 (1.89)	
Factor 2	5.15 (1.68)	5.21 (1.61)	
Factor 3**	7.20 (1.89)	8.55 (.95)	.80
Factor 4	7.37 (2.12)	7.97 (1.68)	

Note. * $p < .05$. ** $p < .01$. PCL:YV = Psychopathy Checklist: Youth Version (Forth et al., 2003); *d* = Cohen's d effect size. Standard deviations are in parentheses. Effect sizes for non-significant differences were omitted.

downward extension of the PCL-R, with items modified to take into consideration adolescent development. Items are rated on a 3-point scale (0 = *item does not apply*, 1 = *item applies in some respects*, 2 = *item definitely applies*) and summed to yield a total score that can range from 0 to 40. Item scores reflect the presence and severity of symptomatology across the lifespan, defined as functioning since late childhood/early adolescence, with the exception of Item 12 (Early Behavior Problems), which is based on functioning under the age of 10. Total scores represent the extent to which an adolescent matches the prototypical psychopath. Items are omitted when there is insufficient information to score them. In these cases, total scores for participants are prorated. Numerous studies using the PCL:YV suggest that it is a reliable and valid assessment instrument. Reviews have reported good internal consistency, ranging from .85 to .98, and good to excellent interrater reliability of total scores, ranging from .81 to .98 (Book, Clark, Forth, & Hare, 2006; Campbell, Pulos, Hogan, & Murry, 2005; Forth, 2005; Forth & Burke, 1998; Forth & Mailloux, 2000; Vincent & Hart, 2002).

The PCL:YV items can also be summed to yield factor scores, although the factor structure remains an issue. Early studies suggested the PCL:YV paralleled the 2-factor structure of adult psychopathy (Forth & Mailloux, 2000) whereby the first factor represented the interpersonal and affective traits of the disorder and the second factor represented the behavioural traits of the disorder. Recently, evidence from studies using latent-trait techniques suggests that a hierarchical 3-factor structure, comprising only 13 items, better defines psychopathy in adults (Cooke & Michie, 2001): Arrogant and Deceitful Interpersonal Style (Factor 1; Items 1, 2, 4, and 5), Deficient Affective Experience (Factor 2; Items 6, 7, 8, and 16), and Impulsive and Irresponsible Behavioural

Style (Factor 3; Items 3, 9, 13, 14, and 15). Extending this model to youth, Kosson et al. (2002) found the 2-factor model to have poor fit whereas the 3-factor hierarchical structure was promising according to indices of absolute fit but not indices of relative fit. However, the revised PCL-R manual includes a 4-factor structure; the first three factors replicate the 3-factor structure proposed by Cooke and Michie (2001) and the fourth factor represents the antisocial features of psychopathy (Factor 4; Items 10, 12, 18, 19, and 20). The PCL:YV manual reports support for both the 3- and 4-factor models. Similarly, recent confirmatory factor analyses suggest that both the 3- and 4-factor models adequately fit the PCL:YV in juvenile offenders (Jones, Cauffman, Miller, & Mulvey, 2006; Salekin, Brannen, Zalot, Leistico, & Neumann, 2006). Given evidence supporting both the 3- and 4-factor models and because the 4-factor model encompasses the 3-factor model, the 4-factor model will be examined in the current study.

In this study, PCL:YV ratings were completed by one of three trained raters on the basis of an interview and a review of comprehensive file information.[2] PCL:YV Total scores ranged from 9.00 to 39.00, with a mean of 26.70 (SD = 6.42). The mean Factor 1, Factor 2, Factor 3, and Factor 4 scores were 4.28 (SD = 1.88), 5.16 (SD = 1.66), 7.55 (SD = 1.79), and 7.53 (SD = 2.02), respectively. Correlations between the Total and Factor scores are presented in Table 2. Although there are no recommended cut-off scores to designate categorical classifications of psychopathy, according to traditional adult cut-off scores, 38% of participants exhibited high psychopathy (Total scores between 30 and 40), 46% exhibited moderate psychopathy (Total scores between 20 and 29), and 16%

[2] All raters underwent a PCL:YV training session with an expert in adolescent psychopathy who had experience administering the measure to offenders. The training involved a one-day workshop including an overview of psychopathic traits in adolescents, a description of the PCL:YV items, and guidelines on scoring the items. Prior to the start of data collection, between five and eight training assessments were conducted and a minimum interrater reliability of .85 for the Total score was attained.

Table 2

Correlations Among PCL:YV Total and Factor Scores

PCL:YV	Total	Factor 1	Factor 2	Factor 3	Factor 4
Total	-----	.78**	.77**	.78**	.75**
Factor 1	.89**	-----	.50**	.49**	.42**
Factor 2	.85**	.26**	-----	.55**	.43**
Factor 3	.87**	.25**	.36**	-----	.43**
Factor 4	.91**	.21*	.19	.19*	-----

Note. * $p < .05$. ** $p < .01$. PCL:YV = Psychopathy Checklist: Youth Version (Forth et al., 2003). Correlations above the diagonal are zero-order correlations and those below the diagonal are partial correlations controlling for the other factors.

exhibited low psychopathy (Total scores between 0 and 19). According to guidelines recommended by Cicchetti and Sparrow (1981),[3] interrater reliability (ICC_1), calculated on a subset of participants (n = 32, 29%) using a two-way random effects model, ranged from good to excellent: .95 for the Total score, .79 for Factor 1, .72 for Factor 2, .73 for Factor 3, and .96 for Factor 4.

Time 1 (T1) Assessment of Psychopathic Traits. In addition to the standard PCL:YV assessment (Lifetime PCL:YV), a six-month assessment of psychopathic traits was conducted based on the youth's history and functioning in the past six months (T1 PCL:YV). To assess functioning in the past six months, an interview protocol was developed that asked youth to separate their report into lifetime functioning and functioning in the past six months. For example, youth were asked, "Describe your relationship with your parents and/or siblings" across their life and "Describe your relationship with your parents and/or siblings in the last six months." The T1 assessments were conducted following the standard PCL:YV coding guidelines with the exception of Item 12 (Early Behaviour Problems). The standard coding for this item is based on behaviour problems evident at the age of 10 and under. For T1 assessments, the item was renamed Serious Behaviour Problems and the standard coding guidelines were followed with the age restriction removed. A T1 PCL:YV assessment was completed by one of three trained raters on the basis of an interview and review of comprehensive file information. The T1 assessments were completed by the same rater and concurrently with the Lifetime PCL:YV assessment. PCL:YV T1 Total scores ranged from 2.00 to 35.00, with a mean of 20.66 (SD = 6.95). The internal consistency of the T1 Total scores was

[3] Interrater reliability guidelines are as follows: .40 and under is poor, .40 to .59 is fair, .60 to .74 is good, and .75 and above is excellent.

.86 and the mean inter-item correlation was .24. The mean T1 Factor 1, Factor 2, Factor 3, and Factor 4 scores were 3.42 (*SD* = 2.07), 4.25 (*SD* = 1.80), 6.16 (*SD* = 2.15), and 5.72 (*SD* = 2.12), respectively. The internal consistencies of the T1 Factor 1, Factor 2, Factor 3, and Factor 4 scores were .74, .64, .73, and .64, respectively. Correlations between the T1 Total and Factor scores are presented in Table 3. Interrater reliability (ICC_1), calculated on a subset of participants (n = 32, 29%) using a two-way random effects model, ranged from fair to excellent: .86 for the Total score, .71 for Factor 1, .54 for Factor 2, .77 for Factor 3, and .92 for Factor 4.

Time 2 (T2) Assessment of Psychopathic Traits. A second PCL:YV assessment was completed at follow-up (T2 PCL:YV) by one of three trained raters. The T2 assessments were completed based on an interview and review of comprehensive file information from the youth's functioning in the past six months. The T2 assessments were conducted following the standard PCL:YV coding guidelines with the exception of Item 12 (Early Behavioural Problems). Consistent with the T1 assessment, the item was coded as Serious Behaviour Problems. Different raters completed the T1 and T2 ratings, and the T2 raters were randomly assigned and blind to participants' T1 ratings. This protocol allowed for PCL:YV assessments to be completed at two time points that did not rely on overlapping information and therefore, an inflation of stability. PCL:YV T2 Total scores ranged from 4 to 33, with a mean of 17.28 (*SD* = 7.26). The internal consistency of the T2 Total scores was .88 and the mean inter-item correlation was .27. The mean T2 Factor 1, Factor 2, Factor 3, and Factor 4 scores were 3.25 (*SD* = 1.74), 3.65 (*SD* = 1.71), 5.17 (*SD* = 2.43), and 4.36 (*SD* = 2.51), respectively. The internal consistencies of the T2

Table 3

Correlations Among Time 1 PCL:YV Total and Factor Scores

PCL:YV	Total	Factor 1	Factor 2	Factor 3	Factor 4
Total	-----	.78**	.74**	.84**	.73**
Factor 1	.88**	-----	.54**	.55**	.39*
Factor 2	.87**	.36**	-----	.49**	.33**
Factor 3	.88**	.31**	.23*	-----	.57**
Factor 4	.89**	.10	.04	.43**	-----

Note. * $p < .05$. ** $p < .01$. PCL:YV = Psychopathy Checklist: Youth Version (Forth et al., 2003). Correlations above the diagonal are zero-order correlations and those below the diagonal are partial correlations controlling for the other factors.

Factor 1, Factor 2, Factor 3, and Factor 4 scores were .60, .65, .80, and .76, respectively. Correlations between the T2 Total and Factor scores are presented in Table 4.

Reliability of the T1 and T2 PCL:YV Ratings. Because the Lifetime and T1 PCL:YV assessments were conducted concurrently, a potential concern was that the T1 assessments might have been biased. In other words, raters may have used the Lifetime ratings as an anchor and made relative judgments about the presence or absence of the traits in the past six months. A second potential concern was that raters were aware of the purposes of the study, which may have influenced their T1 and T2 PCL:YV assessments. To address these issues, one of two trained raters conducted a second set of T1 and T2 PCL:YV assessments.[4] These raters were independent from the original pool of raters, and blind to the purposes of the study and the original ratings. Ratings were based on listening to the audio taped interviews and a review of file information. When listening to the T1 interviews, raters were instructed to ignore responses about the youth's lifetime functioning and other information irrelevant to the past six months.[5] For the purposes of T1 file information, raters were only provided with file information from the past six months (i.e., any file information pertaining to the youth's lifetime functioning was removed). Each rater completed assessments for approximately half of the participants at T1 and T2, with a different rater completing the T2 assessment. The order of T1 and T2 assessments was randomized. To ensure reliable assessments, raters made consensus ratings for six random T1 cases.

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[4] These raters underwent a one-day training session, including an overview of psychopathic traits in adolescents, a description of the PCL:YV items, guidelines on scoring the items, and file-based assessments of three training cases. Only T1 and T2 assessments were conducted because these were the ratings of interest for the purposes of examining stability.

[5] Because this study was part of a larger protocol, other psychosocial information was included in the interview, such as the age of onset of various interpersonal, affective, behavioural, and antisocial traits.

Table 4

Correlations Among Time 2 PCL:YV Total and Factor Scores

PCL:YV	Total	Factor 1	Factor 2	Factor 3	Factor 4
Total	-----	.77**	.77**	.83**	.83**
Factor 1	.86**	-----	.64**	.45**	.52**
Factor 2	.85**	.51**	-----	.53**	.45**
Factor 3	.91**	.01	.31**	-----	.62**
Factor 4	.92**	.29**	.00	.48**	-----

Note. ** $p < .01$. PCL:YV = Psychopathy Checklist: Youth Version (Forth et al., 2003). Correlations above the diagonal are zero-order correlations and those below the diagonal are partial correlations controlling for the other factors.

PCL:YV T1 Total scores of these raters ranged from 3.00 to 37.00, with a mean of 21.86 (*SD* = 7.45). The mean PCL:YV T1 Factor 1, Factor 2, Factor 3, and Factor 4 scores of these raters were 3.70 (*SD* = 2.35), 5.03 (*SD* = 1.93), 5.96 (*SD* = 2.31), and 5.85 (*SD* = 2.27), respectively. PCL:YV T2 Total scores of these raters ranged from 2.00 to 37.00, with a mean of 18.73 (*SD* = 8.47). The mean PCL:YV T2 Factor 1, Factor 2, Factor 3, and Factor 4 scores of these raters were 3.44 (*SD* = 2.09), 4.39 (*SD* = 2.33), 5.35 (*SD* = 2.67), and 4.56 (*SD* = 2.66), respectively. Interrater reliability (ICC_2) between the original T1 ratings and the second set of T1 ratings, using a two-way random effects model, was excellent: .91 for the T1 Total score, .86 for T1 Factor 1, .74 for T1 Factor 2, .86 for T1 Factor 3, and .91 for T1 Factor 4. Interrater reliability between the original T2 ratings and the second set of T2 ratings was also excellent: .95 for the T2 Total score, .92 for T2 Factor 1, .78 for T2 Factor 2, .88 for T2 Factor 3, and .94 for T2 Factor 4.[6] Thus, it appears that any bias or contamination in T1 PCL:YV ratings by the original pool of raters was very small in magnitude.

Antisocial Process Screening Device. The Antisocial Process Screening Device (APSD; Frick & Hare, 2001) is a 20-item rating scale modeled after the PCL-R to screen for psychopathic traits in children between the ages of 6 and 13. Items are rated by the child's parent or teacher on a 3-point scale (0 = *not at all true*, 1 = *sometimes true*, 2 = *definitely true*) and summed to yield a total score that can range from 0 to 40. Items are omitted when there is insufficient information to score them. In these cases, total scores for participants are prorated. A self-report version was developed to assess psychopathic traits in adolescents (Caputo, Frick, & Brodsky, 1999) on the premise that self-report

[6] In a small number of T2 cases, two ratings were not completed because an audio taped interview was not available due to technical problems. This resulted in two ratings for 79 of the 83 participants at T2.

becomes more reliable and valid in adolescence and to address concerns about the availability of parents or teachers with sufficient knowledge to complete the rating scales in forensic settings (Frick, Barry, & Bodin, 2000). Reviews of the parent- and teacher-rated APSD suggest adequate to excellent internal consistency of the total and subscale scores (Kotler & McMahon, 2005; Lynam & Gudonis, 2005) whereas interrater reliability between parents and teachers is low (Vincent & Hart, 2002). Studies suggest the APSD possesses construct validity in that it is associated with fearlessness (Barry et al., 2000; Frick, Lilienfeld, Ellis, Loney, & Silverthorn, 1999), oppositional and aggressive symptoms (Christian, Frick, Hill, Tyler, & Frazer, 1997), and conduct problems (Frick, 1995).

The self-report APSD demonstrates moderate to good internal consistency, although this is generally the case for only the narcissism and impulsivity subscales of the measure. The callous-unemotional subscale generally evidences poor internal consistency (Poythress et al., 2006a). Studies of the self-report APSD demonstrate construct validity in juvenile offenders as evidenced by associations with externalizing problems (Poythress, Dembo, Wareham, & Greenbaum, 2006; Salekin et al., 2004), program non-compliance (Falkenbach, Poythress, & Heide, 2003), delinquency (Poythress et al., 2006b; Salekin et al., 2004), violence (Kruh, Frick, & Clements, 2005; Murrie et al. 2004; Salekin et al., 2004; Spain et al., 2004), and recidivism (Falkenbach et al., 2003).

The APSD can also be summed to yield factor scores. Originally, Frick, O'Brien, Wootton, and McBurnett (1994) reported a 2-factor structure in a sample of clinic-referred children, comprising callous-unemotional traits and impulsivity/conduct problems. Subsequent studies have found a 3-factor structure in community and

outpatient children (Frick, Bodin, & Barry, 2000) and juvenile delinquents (Vitacco, Rogers, & Neumann, 2003), comprising Narcissism (Factor 1; Items 5, 8, 10, 11, 14, 15 and 16), Callous-Unemotional (Factor 2; Items 3, 7, 12, 18, 19, and 20), and Impulsivity (Factor 3; Items 1, 4, 9, 13, and 17). However, recent studies suggest this 3-factor structure is adequate only after the removal of Items 19 and 20 from the Callous-Unemotional factor (Douglas et al., 2006; Poythress et al., 2006b).

In this study, participants were administered the self-report APSD at the end of their interview during both phases of the study.[7] The standard instructions for completing the measure were provided during both phases. In other words, participants were asked to read each statement and decide how well it describes them. Time 1 APSD Total scores ranged from 3.00 to 28.00, with a mean of 16.90 (*SD* = 5.12). The internal consistency (Cronbach's α) of Time 1 Total scores was .75 and the mean inter-item correlation was .13. The mean scores for the Time 1 Narcissism, Callous-Unemotional, and Impulsivity factors were 4.74 (*SD* = 2.75), 4.38 (*SD* = 1.50), and 5.42 (*SD* = 1.84), respectively. The internal consistencies of the Time 1 Narcissism, Callous-Unemotional, and Impulsivity factors were .75, .04, and .56, respectively.[8] Correlations between the Time 1 Total and Factor scores are presented in Table 5.

Time 2 APSD Total scores ranged from 1.00 to 26.00, with a mean of 15.06 (*SD* = 5.72). The internal consistency of Time 2 Total scores was .81 and the mean inter-item correlation was .17. The mean scores for the T2 Narcissism, Callous-Unemotional, and

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[7] Self-report APSD data are not available for all participants due to refusal or time constraints. As such, only 107 of the 112 participants completed the measure at T1 and only 80 of the 83 participants completed the measure at T2.

[8] As recommended by Poythress et al. (2006a), items 19 and 20 were removed from the callous-unemotional subscale as they exhibit low correlations with the other items. The internal consistency of this revised callous-unemotional subscale was .35.

Table 5

Correlations Among Time 1 APSD Total and Factor Scores

APSD	Total	Factor 1	Factor 2	Factor 3
Total	-----	.85**	.53**	.73**
Factor 1	.95**	-----	.23*	.43**
Factor 2	.84**	.15	-----	.23*
Factor 3	.89**	.40**	.15	-----

Note. * $p < .05$. ** $p < .01$. APSD = Self-report Antisocial Process Screening Device (Caputo et al., 1999). Correlations above the diagonal are zero-order correlations and those below the diagonal are partial correlations controlling for the other factors.

Impulsivity factors were 4.23 (*SD* = 2.53), 4.23 (*SD* = 1.82), and 4.79 (*SD* = 1.95), respectively. The internal consistencies of the Time 2 Narcissism, Callous-Unemotional, and Impulsivity factors were .71, .36, and .61, respectively.[9] Correlations between the Time 2 Total and Factor scores are presented in Table 6.

Procedure

Ethics approval was obtained from the university and institutional review boards prior to the start of the study. Parental/legal guardian consent was obtained before research assistants approached participants in the custody centres. Youth were provided with consent forms describing the nature of the study, what was required of their participation, the methods in place to ensure confidentiality and anonymity, and that their responses would be used strictly for research purposes. At this time, participants provided contact information and consent to contact them for the follow-up phase of the study. Participants were offered snacks and monetary compensation ($10) for their participation. An attempt was made to approach 128 youth and 113 agreed to participate (i.e., a 12% refusal rate). One participant was dropped from analyses because there was insufficient information to conduct a T1 PCL:YV assessment, parents/legal guardians refused consent for seven youth, and eight youth refused to participate in the study.

Youth were contacted a minimum of six months later (*M* = 7.87, *SD* = 2.47, range = 6.00 to 18.25) to participate in the follow-up phase of the study. Research assistants approached those adolescents who returned or remained in the custody centres. Adolescents who were on probation were contacted through their probation officer and those who were in adult institutions were approached in the institution. Participants were offered a monetary compensation ($10) for their participation in the follow-up.

[9] The internal consistency of the callous-unemotional scale was .46 with the removal of items 19 and 20.

Table 6

Correlations Among Time 2 APSD Total and Factor Scores

APSD	Total	Factor 1	Factor 2	Factor 3
Total	-----	.84**	.67**	.80**
Factor 1	.93**	-----	.37**	.54**
Factor 2	.88**	.22	-----	.36**
Factor 3	.90**	.47**	.21	-----

Note. ** $p < .01$. APSD = Self-report Antisocial Process Screening Device (Caputo et al., 1999). Correlations above the diagonal are zero-order correlations and those below the diagonal are partial correlations controlling for the other factors.

Analyses: Generalizability Theory

When examining the stability of a construct, the reliability of the measure must be taken into consideration as this may attenuate the magnitude of stability coefficients. Studies examining the stability of constructs typically report Pearson or intraclass correlation coefficients, or compare changes in the mean level of the construct. However, Pearson and intraclass correlation coefficients provide a conservative estimate of the consistency in rank order of participants across time as the estimates include error due to measurement unreliability. In contrast, mean level changes in scores do not take into account whether there are changes in the rank order of participants.

A more accurate assessment of stability is obtained by conducting analyses using generalizability theory (G theory), which is an extension of classical test theory and recognizes that multiple sources may influence measurement error (John & Benet-Martínez, 2000; Marcoulides, 2000; Shavelson, Webb, & Rowley, 1989). The information provided by G theory is similar to that of an analysis of variance in that variance attributable to different sources of error are provided and therefore, variance attributable to multiple sources of error can be estimated simultaneously in a single analysis (Shavelson & Webb, 1991; Strube, 2000). Any potential source of error is referred to as a facet and the levels within each facet are referred to as conditions (Shavelson et al., 1989). For example, facets for the PCL:YV include items, raters, and time whereas facets for the APSD include items and time. Both the PCL:YV and APSD are composed of 20 items; therefore, the item facet has 20 conditions.

Reliability or stability is indexed by the relative and absolute G coefficients, referred to as G and phi coefficients, respectively (Marcoulides, 2000; Shavelson &

Webb, 1991). The G coefficient represents the reliability of scores across items, raters, and assessments. A relative G coefficient reflects the degree to which the rank order of scores is maintained without taking into consideration whether there are changes in raw scores. In contrast, an absolute G coefficient is more conservative as it reflects both the degree to which the rank order of scores is maintained and the consistency of raw scores. G coefficients can range from 0 to 1 and are analogous to reliability coefficients in classical test theory (Brennan, 2001). G theory analyses were conducted using a program developed by Mushquash and O'Connor (in press).[10]

In general, the variance attributed to participants (P) is the variation in participants' scores when averaged across items and time. In other words, this is not considered a source of error because variation represents individual differences in the construct. The variance attributed to items (I) represents variation in the degree to which the items assess the construct. The variance attributed to time (T) represents variation in the degree to which scores remain consistent between the two assessments when averaged across participants and items. The variance attributed to the interaction between participants and items (P x I) represents the variation in the rank ordering of participants across the items. The variance attributed to the interaction between participants and time (P x T) represents the variation in the rank ordering of participants between the two assessments. The variance attributed to the interaction between items and time (I x T) represents the variation in the degree to which the items assess the construct between the two assessments. Finally, the variance attributed to the three-way interaction (P x I x T) represents interactions between participants, items, and time; however, it is difficult to interpret this variance. On the one hand, the three-way interaction may reflect an actual

[10] For the purposes of analyses, any missing values were replaced with the mean value of the item.

interaction between participants, items, and time. On the other hand, the three-way interaction may reflect residual error (i.e., sources of error that were not included in the design). Therefore, it may be the case that the variance attributable to the three-way interaction is substantial and the variance attributable to residual error is insignificant, or vice versa. However, it is difficult to determine which of these two possibilities is likely as the three-way interaction term is confounded.

Results

Validity of the Protocol for Assessing Temporal Stability: Comparison of Lifetime and Time 1 Ratings

To address the validity of the developed protocol for assessing stability, the association between the Lifetime and T1 PCL:YV Total and Factor scores was examined.[11] For the purposes of these analyses, the Lifetime PCL:YV ratings by the original pool of raters was compared to the T1 PCL:YV ratings by the second pool of raters. Second, the internal consistencies (Cronbach's α) and mean inter-item correlations were examined for the Lifetime, T1, and T2 PCL:YV assessments.

Pearson correlations between the Lifetime and T1 PCL:YV Total, Factor 1, Factor 2, Factor 3, and Factor 4 scores were .67, .64, .59, .52, and .50, respectively; all correlations were significant at the $p < .01$ level. To further examine the validity of the protocol, the association between the Lifetime and T1 ratings was examined using G theory. The results for the Lifetime and T1 PCL:YV Total, Factor 1, Factor 2, Factor 3, and Factor 4 scores are presented in Tables 7 through 11. For both the Lifetime and T1

[11] These analyses are based on only 110 participants because two participants did not have adequate file information to make a Lifetime PCL:YV assessment. However, there was sufficient information to make a T1 PCL:YV assessment. Therefore, these participants were not omitted for the purposes of subsequent analyses.

Table 7

Association Between Lifetime and Time 1 PCL:YV Total Scores

	df	SS	MS	Variance	Proportion
Participants (P)	109	431.52	3.96	.07	.13
Items (I)	19	388.97	20.47	.08	.13
Raters (R)	1	80.73	80.73	.04	.06
P x I	2071	913.84	.44	.10	.16
P x R	109	87.97	.81	.03	.05
I x R	19	58.59	3.08	.03	.04
P x I x R	2071	518.71	.25	.25	.43
G coefficient		.75	Phi coefficient		.61

Note. df = Degrees of Freedom; SS = Sum of Squares; MS = Mean Squares; G Coefficient = Relative G coefficient; Phi = Absolute G coefficient.

Table 8

Association Between Lifetime and Time 1 PCL:YV Factor 1 Scores

	df	SS	MS	Variance	Proportion
Participants (P)	109	202.25	1.86	.16	.29
Items (I)	3	31.52	10.51	.04	.08
Raters (R)	1	4.37	4.37	.01	.01
P x I	327	114.23	.35	.06	.10
P x R	109	46.38	.43	.05	.09
I x R	3	2.37	.79	.01	.01
P x I x R	327	76.88	.24	.24	.42
G coefficient		.71	Phi coefficient		.67

Note. df = Degrees of Freedom; SS = Sum of Squares; MS = Mean Squares; G Coefficient = Relative G coefficient; Phi = Absolute G coefficient.

Table 9

Association Between Lifetime and Time 1 PCL:YV Factor 2 Scores

	df	SS	MS	Variance	Proportion
Participants (P)	109	139.85	1.28	.09	.17
Items (I)	3	58.10	19.37	.07	.13
Raters (R)	1	.64	.16	.00	.00
P x I	327	141.40	.43	.11	.19
P x R	109	37.34	.34	.03	.06
I x R	3	11.32	3.77	.03	.06
P x I x R	327	72.18	.22	.22	.40
G coefficient		.57	Phi coefficient		.50

Note. df = Degrees of Freedom; SS = Sum of Squares; MS = Mean Squares; G Coefficient = Relative G coefficient; Phi = Absolute G coefficient.

Table 10

Association Between Lifetime and Time 1 PCL:YV Factor 3 Scores

	df	SS	MS	Variance	Proportion
Participants (P)	109	140.55	1.29	.07	.14
Items (I)	4	47.80	11.95	.05	.10
Raters (R)	1	28.16	28.16	.05	.10
P x I	436	155.21	.36	.06	.12
P x R	109	46.64	.43	.04	.07
I x R	4	4.43	1.11	.01	.02
P x I x R	436	103.77	.24	.24	.46
G coefficient		.58	Phi coefficient		.45

Note. df = Degrees of Freedom; SS = Sum of Squares; MS = Mean Squares; G Coefficient = Relative G coefficient; Phi = Absolute G coefficient.

Table 11

Association Between Lifetime and Time 1 PCL:YV Factor 4 Scores

	df	SS	MS	Variance	Proportion
Participants (P)	109	144.70	1.33	.07	.12
Items (I)	4	90.45	22.61	.10	.16
Raters (R)	1	58.19	58.19	.10	.16
P x I	436	165.15	.38	.07	.11
P x R	109	49.31	.45	.04	.07
I x R	4	3.79	.95	.01	.01
P x I x R	436	102.21	.23	.23	.37
G coefficient		.55	Phi coefficient		.36

Note. df = Degrees of Freedom; SS = Sum of Squares; MS = Mean Squares; G Coefficient = Relative G coefficient; Phi = Absolute G coefficient.

Total and Factor scores, there were small variances attributable to the Participant x Rater interaction (P x R) and the Item x Rater interaction (I x R). In other words, raters assessed participants and items similarly for both types of PCL:YV assessments. Finally, there were moderate G coefficients for the Total and Factor scores, suggesting moderate associations between the Lifetime and T1 ratings.

The internal consistencies of the Lifetime, T1, and T2 Total scores were .87, .85, and .88, respectively. The mean inter-item correlations of the Lifetime, T1, and T2 Total scores were .26, .22, and .27, respectively. The internal consistencies of the Lifetime, T1, and T2 Factor 1 scores were .71, .76, and .60, respectively. The internal consistencies of the Lifetime, T1, and T2 Factor 2 scores were .65, .55, and .70, respectively. The internal consistencies of the Lifetime, T1, and T2 Factor 3 scores were .73, .61, and .72, respectively. The internal consistencies of the Lifetime, T1, and T2 Factor 4 scores were .65, .61, and .78, respectively. In general, the findings suggested the T1 ratings demonstrated moderate associations with the Lifetime ratings and the T1 and T2 ratings demonstrated good structural reliability with respect to the Lifetime ratings.

Temporal Stability of the PCL:YV: Comparison of Time 1 and Time 2 Ratings

A series of G theory analyses was conducted to examine the stability of T1 versus T2 PCL:YV Total and Factor scores. The facets in this design included items, raters, and time. However, because raters were nested within time (i.e., all raters did not assess all participants at both times), the variance attributable to raters could not be estimated separately. Therefore, analyses were first conducted to examine interrater reliability at Time 1 and Time 2 separately. If there was evidence for good interrater reliability within

each assessment period, ratings were then averaged and G theory analyses conducted to examine stability. Therefore, the final design included items and time as facets.

Interrater Reliability at T1 and T2. The interrater reliabilities at T1 and T2 for the Total, Factor 1, Factor 2, Factor 3, and Factor 4 scores are presented in Tables 12 through 16. For both the Total and Factor scores at T1 and T2, there were small variances attributable to the Participant x Rater interaction (P x R) and the Item x Rater interaction (I x R). In other words, raters assessed participants and items similarly. Finally, there were moderate to high G coefficients for the Total and Factor scores at T1 and T2. These findings suggested good reliability between raters at each assessment and therefore, allowed for an examination of the stability of scores across time. The results for the stability of Total, Factor 1, Factor 2, Factor 3, and Factor 4 scores are presented in Tables 17 through 21.

Temporal Stability of PCL:YV Total Scores. As illustrated in Table 17, there was little variance attributable to time (T). In other words, averaged across participants and items, Total scores were consistent between the two assessments. Second, there was little variance attributable to the rank ordering of participants across time (P x T), suggesting there was little variability in the rank ordering of participants' Total scores between the two assessments. Third, there was little variance in the extent to which the items assessed psychopathic traits across time (I x T), suggesting the items assessed psychopathic traits similarly at both assessments. Finally, the G coefficients indicated moderate stability of the PCL:YV Total scores across six months when averaged across participants and the 20 PCL:YV items.

Table 12

Interrater Reliability of PCL:YV Total Scores at Time 1 and Time 2

Time 1	df	SS	MS	Variance	Proportion
Participants (P)	111	526.05	4.74	.10	.17
Items (I)	19	406.12	21.38	.09	.15
Raters (R)	1	4.19	4.19	.00	.00
P x I	2109	1193.96	.57	.18	.31
P x R	111	46.74	.42	.01	.02
I x R	19	21.15	1.11	.01	.01
P x I x R	2109	421.43	.20	.20	.34
G coefficient		.83	Phi coefficient		.80
Time 2					
Participants (P)	78	458.88	5.88	.13	.23
Items (I)	19	218.49	11.50	.07	.11
Raters (R)	1	5.02	5.02	.00	.01
P x I	1482	803.41	.54	.18	.31
P x R	78	21.18	.27	.00	.01
I x R	19	15.85	.83	.01	.01
P x I x R	1482	281.95	.19	.19	.33
G coefficient		.89	Phi coefficient		.87

Note. df = Degrees of Freedom; SS = Sum of Squares; MS = Mean Squares; G Coefficient = Relative G coefficient; Phi = Absolute G coefficient.

Table 13

Interrater Reliability of PCL:YV Factor 1 Scores at Time 1 and Time 2

Time 1	df	SS	MS	Variance	Proportion
Participants (P)	111	238.28	2.15	.21	.37
Items (I)	3	22.86	7.62	.03	.06
Raters (R)	1	1.00	1.00	.00	.00
P x I	333	134.14	.40	.09	.17
P x R	111	32.50	.29	.02	.03
I x R	3	1.20	.40	.00	.00
P x I x R	333	71.30	.21	.21	.38
G coefficient		.78	Phi coefficient		.75
Time 2					
Participants (P)	78	133.30	1.71	.16	.29
Items (I)	3	6.20	2.07	.01	.01
Raters (R)	1	.16	.16	.00	.00
P x I	234	122.30	.52	.15	.28
P x R	78	11.34	.15	.00	.00
I x R	3	2.85	.95	.01	.02
P x I x R	234	50.65	.22	.22	.40
G coefficient		.71	Phi coefficient		.70

Note. df = Degrees of Freedom; SS = Sum of Squares; MS = Mean Squares; G Coefficient = Relative G coefficient; Phi = Absolute G coefficient.

Table 14

Interrater Reliability of PCL:YV Factor 2 Scores at Time 1 and Time 2

Time 1	df	SS	MS	Variance	Proportion
Participants (P)	111	157.80	1.42	.10	.17
Items (I)	3	40.29	13.43	.05	.09
Raters (R)	1	8.45	8.45	.02	.03
P x I	333	176.59	.53	.16	.27
P x R	111	35.68	.32	.03	.05
I x R	3	3.56	1.19	.01	.02
P x I x R	333	71.82	.22	.22	.38
G coefficient		.55	Phi coefficient		.49
Time 2					
Participants (P)	78	136.74	1.75	.15	.27
Items (I)	3	16.31	5.44	.02	.04
Raters (R)	1	5.32	5.32	.01	.02
P x I	234	101.94	.44	.10	.19
P x R	78	25.43	.33	.03	.04
I x R	3	5.10	1.70	.02	.03
P x I x R	234	53.16	.23	.23	.41
G coefficient		.70	Phi coefficient		.66

Note. df = Degrees of Freedom; SS = Sum of Squares; MS = Mean Squares; G Coefficient = Relative G coefficient; Phi = Absolute G coefficient.

Table 15

Interrater Reliability of PCL:YV Factor 3 Scores at Time 1 and Time 2

Time 1	df	SS	MS	Variance	Proportion
Participants (P)	111	191.95	1.73	.13	.25
Items (I)	4	39.77	9.94	.04	.07
Raters (R)	1	.39	.39	.00	.00
P x I	444	200.63	.45	.12	.23
P x R	111	25.71	.23	.00	.00
I x R	4	6.48	1.62	.01	.02
P x I x R	444	97.92	.22	.22	.43
G coefficient		.73	Phi coefficient		.70
Time 2					
Participants (P)	78	180.97	2.32	.18	.33
Items (I)	4	21.79	5.45	.03	.05
Raters (R)	1	.41	.41	.00	.00
P x I	312	136.41	.44	.12	.22
P x R	78	21.99	.28	.02	.03
I x R	4	3.36	.84	.01	.02
P x I x R	312	61.24	.20	.20	.36
G coefficient		.78	Phi coefficient		.75

Note. df = Degrees of Freedom; SS = Sum of Squares; MS = Mean Squares; G Coefficient = Relative G coefficient; Phi = Absolute G coefficient.

Table 16

Interrater Reliability of PCL:YV Factor 4 Scores at Time 1 and Time 2

Time 1	df	SS	MS	Variance	Proportion
Participants (P)	111	197.14	1.78	.12	.19
Items (I)	4	120.02	30.01	.13	.21
Raters (R)	1	.18	.18	.00	.00
P x I	444	265.18	.60	.23	.37
P x R	111	17.43	.16	.00	.01
I x R	4	.31	.08	.00	.00
P x I x R	444	60.09	.14	.14	.22
G coefficient		.65	Phi coefficient		.57
Time 2					
Participants (P)	78	195.42	2.51	.20	.32
Items (I)	4	75.65	18.91	.12	.18
Raters (R)	1	.73	.73	.00	.00
P x I	312	148.75	.48	.17	.27
P x R	78	11.07	.14	.00	.00
I x R	4	1.68	.42	.00	.01
P x I x R	312	43.52	.14	.14	.22
G coefficient		.81	Phi coefficient		.74

Note. df = Degrees of Freedom; SS = Sum of Squares; MS = Mean Squares; G Coefficient = Relative G coefficient; Phi = Absolute G coefficient.

Table 17

Temporal Stability of PCL:YV Total Scores

	df	SS	MS	Variance	Proportion
Participants (P)	82	383.30	4.67	.09	.17
Items (I)	19	250.91	13.21	.07	.15
Time (T)	1	17.28	17.28	.01	.02
P x I	1558	521.45	.34	.05	.11
P x T	82	89.09	1.09	.04	.09
I x T	19	14.02	.74	.01	.01
P x I x T	1558	356.23	.23	.23	.46
G coefficient		.75	Phi coefficient		.69

Note. df = Degrees of Freedom; SS = Sum of Squares; MS = Mean Squares; G Coefficient = Relative G coefficient; Phi = Absolute G coefficient.

Temporal Stability of PCL:YV Factor 1 Scores. As illustrated in Table 18, there was no variance attributable to time (T). In other words, averaged across participants and items, Factor 1 scores were similar between the two assessments. Second, there was little variance attributable to the rank ordering of participants across time (P x T), suggesting there was little variability in the rank ordering of participants' Factor 1 scores between the two assessments. Third, there was little variance in the extent to which the items assessed interpersonal traits across time (I x T), suggesting the items assessed interpersonal traits similarly at both assessments. Finally, the G coefficients indicated moderate stability of the PCL:YV Factor 1 scores across six months when averaged across participants and the four interpersonal items.

Temporal Stability of PCL:YV Factor 2 Scores. As illustrated in Table 19, there was little variance attributable to time (T). In other words, averaged across participants and items, Factor 2 scores were consistent between the two assessments. Second, there was little variance attributable to the rank ordering of participants across time (P x T), suggesting there was little variability in the rank ordering of participants' Factor 2 scores between the two assessments. Third, there was little variance in the extent to which the items assessed affective traits across time (I x T), suggesting the items assessed affective traits similarly at both assessments. Finally, the G coefficients indicated low to moderate stability of the PCL:YV Factor 2 scores across six months when averaged across participants and the four affective items.

Temporal Stability of PCL:YV Factor 3 Scores. As illustrated in Table 20, there was little variance attributable to time (T). In other words, averaged across participants and items, Factor 3 scores were consistent between the two assessments. Second, there

Table 18

Temporal Stability of PCL:YV Factor 1 Scores

	df	SS	MS	Variance	Proportion
Participants (P)	82	131.88	1.61	.14	.33
Items (I)	3	9.88	3.29	.02	.04
Time (T)	1	.27	.27	.00	.00
P x I	246	59.15	.24	.01	.03
P x T	82	35.07	.43	.05	.12
I x T	3	1.15	.38	.00	.01
P x I x T	246	52.13	.21	.21	.48
G coefficient		.72	Phi coefficient		.70

Note. df = Degrees of Freedom; SS = Sum of Squares; MS = Mean Squares; G Coefficient = Relative G coefficient; Phi = Absolute G coefficient.

Table 19

Temporal Stability of PCL:YV Factor 2 Scores

	df	SS	MS	Variance	Proportion
Participants (P)	82	94.09	1.15	.07	.16
Items (I)	3	25.03	8.34	.05	.11
Time (T)	1	3.77	3.77	.01	.02
P x I	246	75.16	.31	.06	.12
P x T	82	38.67	.47	.07	.16
I x T	3	1.00	.33	.00	.00
P x I x T	246	47.81	.19	.19	.43
G coefficient		.49	Phi coefficient		.44

Note. df = Degrees of Freedom; SS = Sum of Squares; MS = Mean Squares; G Coefficient = Relative G coefficient; Phi = Absolute G coefficient.

Table 20

Temporal Stability of PCL:YV Factor 3 Scores

	df	SS	MS	Variance	Proportion
Participants (P)	82	139.47	1.70	.12	.26
Items (I)	4	25.08	6.27	.03	.07
Time (T)	1	3.45	3.45	.01	.01
P x I	328	78.88	.24	.01	.03
P x T	82	40.28	.49	.06	.12
I x T	4	4.16	1.04	.01	.02
P x I x T	328	71.49	.22	.22	.49
G coefficient		.70	Phi coefficient		.66

Note. df = Degrees of Freedom; SS = Sum of Squares; MS = Mean Squares; G Coefficient = Relative G coefficient; Phi = Absolute G coefficient.

was little variance attributable to the rank ordering of participants across time (P x T), suggesting there was little variability in the rank ordering of participants' Factor 3 scores between the two assessments. Third, there was little variance in the extent to which the items assessed behavioural traits across time (I x T), suggesting the items assessed behavioural traits similarly at both assessments. Finally, the G coefficients indicated moderate stability of the PCL:YV Factor 3 scores across six months when averaged across participants and the five behavioural items.

Temporal Stability of PCL:YV Factor 4 Scores. As illustrated in Table 21, there was little variance attributable to time (T). In other words, averaged across participants and items, Factor 4 scores were consistent between the two assessments. Second, there was little variance attributable to the rank ordering of participants across time (P x T), suggesting there was little variability in the rank ordering of participants' Factor 4 scores between the two assessments. Third, there was little variance in the extent to which the items assessed antisocial traits across time (I x T), suggesting the items assessed antisocial traits similarly at both assessments. Finally, the G coefficients indicated moderate to low stability of the PCL:YV Factor 4 scores across six months when averaged across participants and the five antisocial items.

Summary. The above results suggest psychopathic traits, as assessed by the PCL:YV, were moderately stable across six months. When the factors were examined, the interpersonal and behavioural traits of psychopathy evidenced moderate stability, followed by the antisocial and affective traits. However, these findings should be qualified by the fact that there was little variability among participants, as evidenced by the small variances attributable to participants (P) for the Total and Factor scores. In

Table 21

Temporal Stability of PCL:YV Factor 4 Scores

	df	SS	MS	Variance	Proportion
Participants (P)	82	139.62	1.70	.10	.17
Items (I)	4	77.19	19.30	.11	.19
Time (T)	1	12.78	12.78	.03	.05
P x I	328	104.66	.32	.05	.08
P x T	82	48.07	.59	.07	.12
I x T	4	3.44	.86	.01	.01
P x I x T	328	74.21	.23	.23	.38
G coefficient		.60	Phi coefficient		.49

Note. df = Degrees of Freedom; SS = Sum of Squares; MS = Mean Squares; G Coefficient = Relative G coefficient; Phi = Absolute G coefficient.

other words, the sample appeared to be relatively homogenous with respect to psychopathic traits. Taken together, these findings suggest psychopathic traits were moderately stable across six months among a sample of adolescent offenders that did not vary much in terms of psychopathic traits and that unreliability due to raters and items were not substantial sources of error.

Temporal Stability of the PCL:YV Items

Although not the focus of this study, analyses were conducted to examine the stability of the PCL:YV items as opposed to the factors (see Table 1 in Appendix A for a description of the PCL:YV items). Similar to the procedure above, analyses were first conducted to examine interrater reliability at T1 and T2 separately. Interrater reliability was indexed by intraclass correlation coefficients (ICC_2) and G coefficients (Table 22). However, the G theory analyses produced negative variance estimates for the Participant x Rater interaction term. Negative variance estimates may be due to model misspecification or sampling error (Shavelson & Webb, 1991). Therefore, intraclass correlation coefficients may provide a more realistic estimate of the interrater reliability of items and will be discussed. Interrater reliability of the T1 PCL:YV items ranged from .55 to .95 and the interrater reliability of the T2 PCL:YV items ranged from .40 to .96. In general, these values are lower than those reported in the PCL:YV manual for item interrater reliability in institutional samples (ranged from .68 to .95). However, this may be due to ratings being conducted within a specific time frame rather than across the lifespan.

Given moderate to high interrater reliability for the PCL:YV items, the two ratings were averaged and analyses conducted to examine stability. Consistent with the

Table 22

Interrater Reliability of PCL:YV Items at Time 1 and Time 2

	Time 1			Time 2		
PCL:YV	ICC_2	G	Phi	ICC_2	G	Phi
Item 1	.64	1.00	1.00	.82	1.00	1.00
Item 2	.77	1.00	1.00	.64	1.00	.99
Item 3	.83	1.00	.99	.78	1.00	.99
Item 4	.62	1.00	.99	.69	1.00	.97
Item 5	.81	1.00	1.00	.82	1.00	.99
Item 6	.68	1.00	.98	.73	1.00	.99
Item 7	.55	1.00	.94	.40	1.00	.87
Item 8	.72	1.00	.99	.61	1.00	.99
Item 9	.68	1.00	.98	.70	1.00	.97
Item 10	.71	1.00	.99	.86	1.00	.99
Item 11	.78	1.00	1.00	.91	1.00	1.00
Item 12	.71	1.00	.99	.65	1.00	.98
Item 13	.69	1.00	.98	.77	1.00	.99
Item 14	.54	1.00	.99	.65	1.00	.99
Item 15	.63	1.00	.99	.75	1.00	.99
Item 16	.67	1.00	.99	.78	1.00	.99
Item 17	.54	1.00	.97	.66	1.00	.98

(table continues)

Table 22 (*continued*)

	Time 1			Time 2		
PCL:YV	ICC_2	G	Phi	ICC_2	G	Phi
Item 18	.72	1.00	1.00	.80	1.00	1.00
Item 19	.92	1.00	1.00	.88	1.00	.99
Item 20	.95	1.00	1.00	.96	1.00	1.00

Note. ICC_2 = Average measure intraclass correlation coefficient; G = Relative G coefficient; Phi = Absolute G coefficient; PCL:YV = Psychopathy Checklist: Youth Version (Forth et al., 2003).

analyses above, stability was indexed by intraclass correlation coefficients (ICC_1) and G coefficients (Table 23). However, the G theory analyses produced negative variance estimates for the Participant x Time interaction term and therefore, stability as indexed by intraclass correlation coefficients will be discussed. Stability estimates ranged from .08 to .43, indicating low to moderate stability of individual PCL:YV items. The items that evidenced greater relative stability were Impression Management, Stimulation Seeking, Grandiose Sense of Self Worth, Poor Anger Control, and Lack of Remorse. In contrast, the items the evidenced lower relative stability were Parasitic Orientation, Criminal Versatility, and Failure to Accept Responsibility.

Temporal Stability of Psychopathy

To examine the stability of a diagnosis of psychopathy, kappa coefficients were examined for agreement between T1 and T2 diagnoses. In order to determine the most appropriate cut-off for T1 PCL:YV Total scores, receiver operating characteristic (ROC) curve analyses were conducted. ROC curves plot the association between sensitivity (true positive rate) and 1 – specificity (false positive rate) for all possible cut-off scores on the measure of interest, in this case, the T1 PCL:YV. Sensitivity was perfect for T1 PCL:YV Total scores of approximately 16 and under whereas specificity was perfect for scores of approximately 34 and above. The results did not suggest an appropriate cut-off that clearly maximized overall diagnostic accuracy. Therefore, a judgment was made based on sensitivity and specificity. A T1 PCL:YV Total score of 25 resulted in a sensitivity of .60 and a specificity of .12.

Using a cut-off score of 25, 30% of participants were categorized as psychopaths at T1 and 23% were categorized as psychopaths at T2, resulting in a kappa coefficient of

Table 23

Temporal Stability of the PCL:YV Items

PCL:YV	ICC_1	G	Phi
Item 1	.43	1.00	.99
Item 2	.41	1.00	1.00
Item 3	.43	1.00	.97
Item 4	.33	1.00	.99
Item 5	.32	1.00	.99
Item 6	.40	1.00	.99
Item 7	.34	1.00	1.00
Item 8	.35	1.00	.98
Item 9	.08	1.00	.98
Item 10	.41	1.00	.99
Item 11	.39	1.00	.99
Item 12	.39	1.00	.97
Item 13	.31	1.00	.99
Item 14	.38	1.00	.97
Item 15	.33	1.00	.99
Item 16	.18	1.00	.98
Item 17	.35	1.00	.98

(table continues)

Table 23 (*continued*)

PCL:YV	ICC_1	G	Phi
Item 18	.31	1.00	.95
Item 19	.29	1.00	.95
Item 20	.16	1.00	.98

Note. ICC_1 = Single measure intraclass correlation coefficient; G = Relative G coefficient; Phi = Absolute G coefficient; PCL:YV = Psychopathy Checklist: Youth Version (Forth et al., 2003).

.57. Using the traditional adult cut-off score of 30, 14% of participants were categorized as psychopaths at T1 and 5% were categorized as psychopaths at T2, resulting in a kappa coefficient of .28.

Temporal Stability of the APSD

A series of G theory analyses was conducted to examine the stability of the self-report APSD Total and Factor scores. The facets in this design included items and time. The results for the Total, Factor 1, Factor 2, and Factor 3 scores are presented in Tables 24 through 27.

Temporal Stability of APSD Total Scores. As illustrated in Table 24, there was no variance attributable to time (T). In other words, averaged across participants and items, Total scores were similar between the two assessments. Second, there was little variance attributable to the rank ordering of participants across time (P x T), suggesting there was little variability in the rank ordering of participants' Total scores between the two assessments. Third, there was no variance in the extent to which the items assessed psychopathic traits across time (I x T), suggesting the items assessed psychopathic traits similarly at both assessments. Finally, the G coefficients indicated moderate stability of the APSD Total scores across six months when averaged across participants and the 20 APSD items.

Temporal Stability of APSD Factor 1 Scores. As illustrated in Table 25, there was no variance attributable to time (T). In other words, averaged across participants and items, Factor 1 scores were similar between the two assessments. Second, there was little variance attributable to the rank ordering of participants across time (P x T), suggesting there was little variability in the rank ordering of participants' Factor 1 scores between

Table 24

Temporal Stability of APSD Total Scores

	df	SS	MS	Variance	Proportion
Participants (P)	79	204.79	2.59	.05	.01
Items (I)	19	279.79	14.73	.09	.180
Time (T)	1	5.53	5.53	.00	.01
P x I	1501	642.03	.43	.10	.20
P x T	79	42.35	.54	.02	.03
I x T	19	9.48	.50	.00	.01
P x I x T	1501	352.15	.24	.24	.48
G coefficient		.72	Phi coefficient		.66

Note. df = Degrees of Freedom; SS = Sum of Squares; MS = Mean Squares; G Coefficient = Relative G coefficient; Phi = Absolute G coefficient.

Table 25

Temporal Stability of APSD Factor 1 Scores

	df	SS	MS	Variance	Proportion
Participants (P)	79	118.84	1.50	.06	.15
Items (I)	6	47.88	7.98	.05	.11
Time (T)	1	1.43	1.43	.00	.00
P x I	474	159.55	.34	.06	.15
P x T	79	38.00	.48	.04	.01
I x T	6	.93	.16	.00	.00
P x I x T	474	99.64	.21	.21	.49
G coefficient		.60	Phi coefficient		.56

Note. df = Degrees of Freedom; SS = Sum of Squares; MS = Mean Squares; G Coefficient = Relative G coefficient; Phi = Absolute G coefficient.

the two assessments. Third, there was no variance in the extent to which the items assessed narcissism across time (I x T), suggesting the items assessed narcissistic traits similarly at both assessments. Finally, the G coefficients indicated moderate to low stability of the APSD Factor 1 scores across six months when averaged across participants and the seven narcissism items.

Temporal Stability of APSD Factor 2 Scores. As illustrated in Table 26, there was no variance attributable to time (T). In other words, averaged across participants and items, Factor 2 scores were similar between the two assessments. Second, there was no variance attributable to the rank ordering of participants across time (P x T), suggesting the rank ordering of participants' Factor 2 scores was similar between the two assessments. Third, there was no variance in the extent to which the items assessed callous-unemotional traits across time (I x T), suggesting the items assessed these traits similarly at both assessments. However, the G coefficients indicated low stability of the APSD Factor 2 scores across six months when averaged across participants and the six callous unemotional items.[12]

Temporal Stability of APSD Factor 3 Scores. As illustrated in Table 27, there was little variance attributable to time (T). In other words, averaged across participants and items, Factor 3 scores were consistent between the two assessments. Second, there was little variance attributable to the rank ordering of participants across time (P x T), suggesting there was little variability in the rank ordering of participants' Factor 3 scores between the two assessments. Third, there was no variance in the extent to which the items assessed impulsivity across time (I x T), suggesting the items assessed impulsivity

[12] Stability was re-examined for the callous-unemotional scale with the removal of items 19 and 20. There were no substantial differences in the variance estimates. The G and phi coefficients were .48 and .43, respectively.

Table 26

Temporal Stability of APSD Factor 2 Scores

	df	SS	MS	Variance	Proportion
Participants (P)	79	52.33	.66	.02	.04
Items (I)	5	37.87	7.57	.04	.10
Time (T)	1	.04	.04	.00	.00
P x I	395	191.30	.48	.11	.26
P x T	79	17.80	.23	.00	.00
I x T	5	2.06	.41	.00	.00
P x I x T	395	102.10	.26	.26	.60
G coefficient		.30	Phi coefficient		.27

Note. df = Degrees of Freedom; SS = Sum of Squares; MS = Mean Squares; G Coefficient = Relative G coefficient; Phi = Absolute G coefficient.

Table 27

Temporal Stability of APSD Factor 3 Scores

	df	SS	MS	Variance	Proportion
Participants (P)	79	94.28	1.19	.08	.14
Items (I)	4	91.71	22.93	.14	.26
Time (T)	1	2.42	2.42	.01	.01
P x I	316	119.89	.38	.08	.14
P x T	79	23.58	.30	.01	.03
I x T	4	1.44	.36	.00	.00
P x I x T	316	72.58	.23	.23	.43
G coefficient		.62	Phi coefficient		.50

Note. df = Degrees of Freedom; SS = Sum of Squares; MS = Mean Squares; G Coefficient = Relative G coefficient; Phi = Absolute G coefficient.

similarly at both assessments. Finally, the G coefficients indicated moderate to low stability of the APSD Factor 3 scores across six months when averaged across participants and the five impulsivity items.

Summary. The above results suggest psychopathic traits, as assessed by the self-report APSD, were moderately stable across six months. When the factors were examined, narcissistic and impulsive traits evidenced moderate stability whereas callous-unemotional traits evidenced low stability. However, these findings should be qualified by the fact that there was little variability among participants, as evidenced by the small variances attributable to participants (P) for the Total and Factor scores. In other words, the sample appeared to be relatively homogenous with respect to psychopathic traits. Taken together, these findings suggest psychopathic traits were moderately stable across six months among a sample of adolescent offenders that did not vary much in terms of psychopathic traits and that unreliability due to raters and items were not substantial sources of error.

Magnitude of Change in Scores Across Time

To examine changes in PCL:YV and APSD scores and PCL:YV items across time, a difference score was calculated as the Time 1 rating minus the Time 2 rating. Therefore, positive difference scores reflect decreases in scores and ratings, negative scores reflect increases in scores and ratings, and difference scores close to zero reflect no change in scores and ratings across time. As noted in Table 28, there was a small decrease in PCL:YV Total ($M = 2.89$, $SD = 6.59$), Factor 2 ($M = .60$, $SD = 1.94$), Factor 3 ($M = .64$, $SD = 2.22$), and Factor 4 ($M = 1.24$, $SD = 2.42$) scores across time whereas there was no change in PCL:YV Factor 1 scores across time ($M = .16$, $SD = 1.85$).

Table 28

PCL:YV and APSD Total and Factor Score Differences

PCL:YV	Mean (*SD*)	Range
Total	2.89 (6.59)	-13.50 – 21.50
Factor 1	.16 (1.85)	-6.50 – 5.00
Factor 2	.60 (1.94)	-3.50 – 4.00
Factor 3	.64 (2.22)	-6.50 – 7.00
Factor 4	1.24 (2.42)	-4.50 – 7.50
APSD		
Total	1.68 (4.63)	-10.00 – 11.00
Factor 1	.50 (2.61)	-8.00 – 8.00
Factor 2	.06 (1.66)	-4.00 – 4.00
Factor 3	.55 (1.73)	-5.00 – 4.00

Note. PCL:YV = Psychopathy Checklist: Youth Version (Forth et al., 2003); APSD = Self-report Antisocial Process Screening Device (Caputo et al., 1999).

Similarly, there was a very small decrease in APSD Total scores ($M = 1.68$, $SD = 4.63$) and no changes in Factor scores across time. There were no substantial increases or decreases in PCL:YV item ratings across time, the mean difference scores ranged from -.11 to .40 (Table 29). The difference scores indicated relatively few changes in scores and item ratings across time. However, mean difference scores only provide an overall estimate of changes. In other words, it is unclear what proportion of participants did or did not change over time.

To further examine changes in PCL:YV and APSD scores and PCL:YV items, the proportion of adolescents whose scores increased, decreased, and remained the same was calculated.[13] The majority of participants' PCL:YV Total scores remained unchanged across assessments, 42% of participants' PCL:YV Total scores at Time 1 and Time 2 were within the range of ± 3 (Table 30). Similarly, the majority of participants' APSD Total scores remained unchanged across assessments, 54% were within the range of ± 3. There were relatively few participants whose scores increased or decreased substantially. The more common change that occurred was for participants' PCL:YV and APSD Total scores to decrease than to increase. The majority of participants' PCL:YV and APSD Factor scores also remained unchanged across assessments: 70%, 58%, 78%, and 70% of participants' PCL:YV Factor 1, Factor 2, Factor 3, and Factor 4 scores were within the range of ± 1, respectively. For the APSD, 46%, 66%, and 84% of participants' APSD Factor 1, Factor 2, and Factor 3 scores were within the range of ± 1, respectively. Finally, the majority of participants' PCL:YV item scores remained unchanged across assessments, ranging from 36% to 71% (Table 31).

[13] For the analysis of PCL:YV items, only the original ratings were used in order to illustrate the findings more clearly (i.e., using average ratings resulted in some items having average ratings of .5 and 1.5). For example, it is difficult to determine the nature of a change from a rating of 1.5 to 1.0.

Table 29

Mean Difference Score of the PCL:YV Items

PCL:YV	Mean (*SD*)	Range	PCL:YV	Mean (*SD*)	Range
Item 1	-.07 (.68)	-2.00 – 1.50	Item 11	.08 (.64)	-2.00 – 2.00
Item 2	-.01 (.73)	-2.00 – 2.00	Item 12	.33 (.56)	-1.00 – 2.00
Item 3	.30 (.68)	-1.00 – 2.00	Item 13	-.11 (.80)	-2.00 – 2.00
Item 4	.13 (.68)	-1.50 – 1.50	Item 14	.22 (.68)	-1.50 – 1.50
Item 5	.11 (.81)	-2.00 – 2.00	Item 15	.08 (.67)	-1.50 – 2.00
Item 6	.14 (.68)	-2.00 – 1.50	Item 16	.20 (.82)	-2.00 – 2.00
Item 7	.03 (.65)	-1.50 – 1.50	Item 17	.16 (.72)	-1.50 – 1.50
Item 8	.23 (.73)	-1.50 – 2.00	Item 18	.31 (.67)	-1.00 – 2.00
Item 9	.16 (.85)	-2.00 – 1.50	Item 19	.40 (.93)	-2.00 – 2.00
Item 10	.05 (.78)	-1.50 – 2.00	Item 20	.14 (.87)	-2.00 – 2.00

Note. PCL:YV = Psychopathy Checklist: Youth Version (Forth et al., 2003).

Table 30

Changes in PCL:YV and APSD Total and Factor Scores

	Change in Score from Time 1 to Time 2						
	-10	-7	-4	0	+4	+7	+10
PCL:YV Total	13%	11%	20%	42%	5%	6%	2%
APSD Total	3%	18%	13%	54%	10%		4%
	Change in Score from Time 1 to Time 2						
	-4	-2	-1	0	+1	+2	+4
PCL:YV Factor 1	2%	11%	26%	35%	8%	16%	1%
APSD Factor 1	10%	24%	19%	16%	11%	14%	6%
PCL:YV Factor 2	5%	25%	14%	34%	10%	12%	
APSD Factor 2	1%	16%	25%	23%	18%	14%	4%
	Change in Score from Time 1 to Time 2						
	-6	-3	-1	0	+1	+3	+6
PCL:YV Factor 3	2%	13%	30%	35%	13%	5%	1%
APSD Factor 3		13%	45%	18%	21%	4%	
PCL:YV Factor 4	4%	20%	35%	20%	14%	6%	

Note. PCL:YV = Psychopathy Checklist: Youth Version (Forth et al., 2003); APSD = Self-report Antisocial Process Screening Device (Caputo et al., 1999).

Table 31

Changes in PCL:YV Items

	Change in Score from Time 1 to Time 2				
PCL:YV	-2	-1	0	+1	+2
Item 1	0%	15%	63%	19%	4%
Item 2	4%	18%	46%	29%	4%
Item 3	5%	25%	63%	7%	0%
Item 4	2%	28%	52%	17%	1%
Item 5	4%	30%	45%	19%	2%
Item 6	2%	27%	49%	20%	1%
Item 7	0%	31%	49%	18%	1%
Item 8	5%	35%	41%	19%	0%
Item 9	2%	29%	57%	7%	5%
Item 10	5%	24%	49%	21%	1%
Item 11	5%	13%	71%	8%	2%
Item 12	4%	41%	48%	7%	0%
Item 13	2%	29%	41%	27%	1%
Item 14	4%	28%	55%	13%	0%
Item 15	2%	22%	53%	22%	1%
Item 16	4%	37%	36%	19%	4%
Item 17	1%	28%	48%	22%	1%

(table continues)

Table 31 (*continued*)

	Change in Score from Time 1 to Time 2				
PCL:YV	-2	-1	0	+1	+2
Item 18	7%	30%	49%	13%	0%
Item 19	15%	29%	43%	12%	1%
Item 20	5%	24%	52%	14%	5%

Note. PCL:YV = Psychopathy Checklist: Youth Version (Forth et al., 2003).

Consistent with the findings using G theory, examination of the difference scores and the proportion of participants that changed across assessments suggested moderate stability of psychopathic traits across time. For the PCL:YV, the interpersonal, behavioural, and antisocial symptoms of psychopathy were relatively stable across six months whereas the affective symptoms were less stable. In contrast, the affective and behavioural traits of the APSD evidenced greater stability than the interpersonal traits of the APSD.

Factors Influencing Temporal Stability

Age. A median split of the sample was taken to create a group of younger adolescents (14 to 16 years, $n = 34$) and a group of older adolescents (17 to 20 years, $n = 49$). To examine whether age influenced the stability of psychopathic traits, a series of separate G theory analyses was conducted for younger and older adolescents.

The G coefficients for the PCL:YV Total, Factor 1, Factor 2, Factor 3, and Factor 4 scores in younger adolescents were .57, .63, .33, .53, and .22, respectively. The G coefficients for the PCL:YV Total, Factor 1, Factor 2, Factor 3, and Factor 4 scores in older adolescents were .79, .77, .60, .75, and .64, respectively. The G coefficients for the APSD Total, Factor 1, Factor 2, and Factor 3 scores in younger adolescents were .67, .60, .35, and .65, respectively. The G coefficients for the APSD Total, Factor 1, Factor 2, and Factor 3 scores in older adolescents were .74, .59, .27, and .58, respectively.[14] For more detailed information about stability by age, see Tables 1 through 9 in Appendix B. In general, older adolescent offenders evidenced greater stability of psychopathic traits with

[14] The removal of items 19 and 20 from Factor 2 resulted in G coefficients of .45 and .50 in the younger and older adolescents, respectively.

the exception of the APSD interpersonal traits, which suggested comparable stability estimates between younger and older adolescent offenders.

To further examine whether age influenced the stability of psychopathic traits, the association between age and PCL:YV and APSD difference scores was examined. Partial correlations controlling for the other factors between age and PCL:YV Total, Factor 1, Factor 2, Factor 3, and Factor 4 difference scores were -.12, -.20, .27, .20, and -.14, respectively. The only significant association at the $p < .05$ level was found between age and PCL:YV Factor 2 difference scores, indicating that a decrease in affective traits over six months was associated with older adolescents. In contrast, partial correlations between age and APSD Total, Factor 1, Factor 2, and Factor 3 difference scores were .15, .01, .06, and .13, respectively. All correlations were non-significant, suggesting that age did not influence the stability of psychopathic traits as assessed by the self-report APSD.

Psychopathy. The association between psychopathy groups (low, moderate, and high) and difference scores was examined to determine whether psychopathy level influenced the stability of psychopathic traits across time. Partial correlations controlling for the other factors between psychopathy group and PCL:YV Total, Factor 1, Factor 2, Factor 3, and Factor 4 difference scores were .11, .39, -.02, .00, and .04, respectively. The only significant association at the $p < .01$ level was found between psychopathy group and PCL:YV Factor 1 difference scores, indicating that a decrease in interpersonal traits over six months was associated with greater psychopathic traits.

Summary. The above findings suggested that a decrease in interpersonal traits was associated with adolescents who exhibited greater psychopathic traits whereas a decrease in affective traits was associated with older adolescents. To reconcile these findings, a

series of regressions were conducted whereby PCL:YV Total and Factor difference scores were the dependent variables and age, psychopathy group, and the number of months spent in custody during the T1 assessment (i.e., within the past six months, the number of months spent in custody) were entered simultaneously as predictor variables. Psychopathy group was significantly associated with Total, ß = .38, $t = 3.48$, $p < .01$, and Factor 1, ß = .47, $t = 4.51$, $p < .01$, difference scores. There were no other significant predictor variables and the overall models for Factor 2, Factor 3, and Factor 4 were non-significant. Taken together, the findings suggested that a decrease in interpersonal traits was associated with adolescents who exhibited greater psychopathic traits.

Discussion

The growing literature on psychopathic traits in adolescent offenders suggests psychopathic traits can be assessed reliably and evidence is growing in support of the validity of the construct. Adolescent psychopathic traits are associated with a variety of negative outcomes, such as violence (Kosson et al., 2002; Murrie et al., 2004) and recidivism (Catchpole & Gretton, 2003; Corrado et al., 2004; Vincent et al., 2003). Despite evidence in favour of the construct validity of the traits in adolescents, an important and outstanding issue remains with respect to the stability of psychopathic traits in adolescents. Therefore, the present study examined the validity of a protocol to assess changes in psychopathic traits, the six-month stability of the interpersonal, affective, behavioural, and antisocial traits of psychopathy, and whether age influenced the stability of psychopathic traits in a sample of male, adolescent offenders.

Validity of the Protocol for Assessing Stability

Concerns have been raised that the PCL-R is inappropriate for assessing symptom change across time given the nature of the assessment procedure (Farrington, 2005; Frick et al., 2003). This concern is equally applicable to the PCL:YV given that it is a downward extension of the PCL-R. In order to assess changes in psychopathic traits, a protocol was developed that separated lifetime and current functioning. The results are promising in that this protocol appears to assess the construct of psychopathy in a manner similar to the standard PCL:YV assessment as demonstrated by moderate to high reliability between the Lifetime and T1 Total and Factor score ratings, and similar estimates of internal consistency and mean inter-item correlation between the Lifetime, T1, and T2 assessments. Furthermore, most internal consistency values were within the acceptable range of .70 or higher as suggested by Nunnally and Bernstein (1994) and all mean inter-item correlations were in the acceptable range of .15 to .50 as recommended by Clark and Watson (1995).

These findings suggest that changes in psychopathic traits can be assessed by comparing assessments of current functioning, defined here as functioning in the past six months. The argument can be made that this finding should be expected given the nature of the construct. As a personality disorder, the assumption is that psychopathic traits are stable and persistent (i.e., psychopathic traits should manifest across time in multiple domains of functioning). Therefore, such traits should be present regardless of whether they are assessed across the lifespan or within a specific time frame. This is not to suggest that consistency between lifetime and current functioning is equivalent to the

stability of traits. Rather, comparing assessments of current functioning allows for the detection of changes in traits should they occur.

Beyond the ability to assess changes in psychopathic traits specifically, the current study has important implications for assessing change in other clinical and forensic contexts, such as assessing changes in other personality disorders and violence risk assessment. The majority of studies examining the stability of personality disorders in adolescents have examined the stability of diagnoses by determining whether adolescents continue to meet criteria for the diagnosis at follow-up. However, similar to the concerns raised with the PCL-R and PCL:YV for assessing change, information for the purposes of diagnosis at follow-up largely overlaps with information used to make the diagnosis in the first assessment, making it difficult to assess changes. The protocol developed in the current study can therefore be modified and applied to assess changes in other personality disorders in adolescents.

Another area that may benefit from the protocol in the current study is assessing changes in violence risk assessment. At present, experts utilize actuarial risk assessment instruments or structured professional judgment to make assessments of an individual's risk for violence based on a number of risk factors. For actuarial risk assessment instruments, a score is obtained that corresponds to the probability of future violence whereas in structured professional judgments, a final judgment is made with respect to risk level as low, moderate, or high. However, many of the risk factors in actuarial risk assessment instruments and some in structured professional judgment approaches are historical (e.g., a past history of violence) and therefore, do not change, which may make it difficult to assess whether an individual's risk for violence has increased, decreased, or

remained the same. This question is of particular importance in forensic settings where judgments about violence risk play a role in decisions regarding the release of offenders into the community. Concluding that an offender's risk for violence remains high is not meaningful if the violence risk assessment protocol makes it difficult to assess change (i.e., largely historical, overlapping information is utilized at both assessments). If the conclusion is drawn that an individual remains at a high risk for violence when in fact, his/her violence risk has decreased, this may lead to civil liberty violations in terms of further detainment of an individual. On the other hand, if a second assessment concludes that an individual remains at low risk for violence when in actuality his/her violence risk is now high, this may put those in the community at risk. The potential for examining risk for violence within a specific time frame is beginning to emerge. For example, the Risk for Sexual Violence Protocol (RSVP; Hart et al., 2003) assesses risk factors as present in the past, recently, and in the future. Alternatively, structured professional judgment approaches, such as the HCR-20 (Webster, Douglas, Eaves, & Hart, 1997), recommend reassessments of violence risk as deemed appropriate, for example, when the decision-making context changes. These reassessments may then be utilized to examine changes in violence risk across time.

Stability of Psychopathic Traits

The development of a protocol that can assess changes in psychopathic traits makes it possible to address the issue of how stable psychopathic traits are in adolescent offenders. Although a few studies have begun to examine the stability of psychopathic traits (e.g., Frick et al., 2003; Skeem & Cauffman, 2003), several limitations raise concerns about the validity of the findings. For example, Frick et al. (2003) examined the

stability of psychopathic traits as assessed by the APSD in a community sample of children, which raises concerns about the low base rate of psychopathic traits, and Skeem and Cauffman (2003) examined reliability of PCL:YV ratings across a one-month interval whereby the same rater conducted the assessments, which raises concerns about the inflation of reliability estimates. As such, the present study aimed to investigate the stability of psychopathic traits in a sample of adolescent offenders. The use of an adolescent offender sample ensures a moderate base rate of psychopathy and the use of the PCL:YV and self-report APSD provide a comprehensive assessment of psychopathic traits. In other words, consistent findings between the two measures provide more confidence in the estimates of stability. Finally, the use of different raters and generalizability theory allows for stability estimates to be examined in the context of the reliability of the measure and raters.

The findings suggested moderate stability of psychopathic traits across six months as assessed through both clinical ratings and self-report. The G coefficient for the PCL:YV Total score was .75, which is consistent with stability estimates found in samples of adults (e.g., Alterman et al., 1993; Rutherford et al., 1996; Schroeder et al., 1983). The G coefficient for the APSD Total score was .72, which is also consistent with stability estimates reported in previous studies of the APSD and other self-report measures (e.g., Frick et al., 2003; Lynam & Gudonis, 2005). The findings also suggested moderate to low stability of the interpersonal, affective, and behavioural traits of psychopathy. The G coefficients for the PCL:YV interpersonal, affective, behavioural, and antisocial traits were .72, .49, .70, and .60, respectively, which is also consistent with studies examining stability in adults (e.g., Alterman et al., 1993; Rutherford et al., 1996).

In contrast, the G coefficients for the APSD narcissism, callous-unemotional, and impulsivity dimensions were .60, .30, and .62, respectively, which were lower than those reported by Frick et al. (2003). However, this may be due to differences in samples, as Frick et al. (2003) examined stability in a community sample of children.

Examining changes in PCL:YV and APSD scores across time further supports the stability estimates found in the current study. The majority of adolescents' PCL:YV and APSD Total scores did not change substantially between the two assessments. In other words, a very small proportion of adolescents' scores increased or decreased by more than ten points. Similar results were obtained for changes in Factor scores, the majority of adolescents' scores on the interpersonal and affective factors were no greater or less than one point and no greater or less than two points for the behavioural and antisocial factors. Interestingly, decreases were more likely than increases in scores, which is consistent with Frick et al.'s (2003) finding that the more common type of change was for children rated high on callous-unemotional traits to be rated low at follow-up rather than children rated low to be rated high at follow-up. These findings provide support for the argument that some psychopathic traits may be normative during early adolescence.

Similarities between the PCL:YV and APSD with respect to the relative stability of the different dimensions of psychopathy provide confidence in the findings of the current study. Both the PCL:YV and APSD demonstrated greater stability of the interpersonal and behavioural traits of psychopathy relative to the affective traits of psychopathy. It may be that greater stability of the interpersonal and behavioural traits of psychopathy suggests these are the traits that begin to emerge first, followed by the affective traits of psychopathy. However, Klaver, Hart, Moretti, and Douglas (2006)

examined the onset of psychopathic traits and found that affective traits manifested first, followed by the behavioural and interpersonal traits. It may be that traits that emerge early in development evidence lower stability because there is greater opportunity for changes to occur or interventions to take place. Alternatively, this inconsistency may reflect multifinality. In other words, the presence of affective deficits early in development does not necessarily signal the emergence of psychopathic traits in adolescence. The greater stability of the interpersonal and behavioural traits may also reflect the fact that it is easier to assess these traits as their manifestations may be more observable and there is less ambiguity about the presence or absence of these traits. For example, assessing poor anger control is not very difficult if there are numerous documented accounts of physical fighting.

The finding that the affective traits of psychopathy were less stable relative to the other traits raises some interesting issues. This finding seems inconsistent with the argument that the affective features of psychopathy are the core traits of the disorder (Cooke, Michie, Hart, & Clark, 2005; Herpertz & Sass, 2000), which differentiate psychopathy from other personality disorders such as antisocial personality disorder. If affective traits are one of the defining features of psychopathy, they should be one of the more stable traits. Second, the relatively low stability of the affective traits suggests affective deficits may be normative during adolescence and that with development across time, adolescents take greater responsibility for their actions and become more empathic. However, these possibilities should be viewed with caution as the relatively low stability of the affective traits may be due to measurement issues. The reliability of the affective scores between raters in the first assessment was somewhat low, a G coefficient of .55.

Furthermore, the internal consistencies of the affective scores for two of the three assessments (Lifetime and T1) were below the acceptable value of .70 suggested by Nunnally and Bernstein (1994). Similarly, the internal consistency of the callous-unemotional dimension in both assessments was poor, .04 and .36, respectively. This suggests that affective traits, as defined by the PCL:YV and APSD, may not be appropriate for assessing changes in affective deficits across time. The items may be problematic due to the inclusion of inappropriate developmental indicators of affective deficits. Alternatively, it may be difficult to assess affective traits, such as the quality of emotional attachments or remorse, over brief periods of time.

Finally, the moderate to low stability of the antisocial traits of psychopathy is not surprising for a number of reasons. First, this may largely reflect the fact that the majority of adolescents continued to be detained in custody between the first and second assessment. As such, the strict regulations of the custody centre would make it difficult to engage in antisocial behaviour and criminal offences. Second, the assessment of antisocial traits is largely a function of the frequency of behaviours. In order to obtain high stability of these traits, there would need to be similar opportunities available during both assessments in order for the behaviours to manifest. In other words, among those adolescents who were not detained in custody for a substantial period of time, there was likely great variability with respect to the number of opportunities available to engage in antisocial behaviour. Finally, it is well documented that delinquency and antisocial behaviour are normative during adolescence (Moffitt, 1993) and the instability of this trait may reflect the normative desistence in antisocial behaviour across time.

Stability of Individual Psychopathic Traits

The findings for the stability of individual psychopathic traits suggested low to moderate stability across six months. The individual traits that evidenced high relative stability were impression management, stimulation seeking, grandiosity, poor anger control, serious behaviour problems, impersonal sexual behaviour, and impulsivity. The individual traits that evidenced moderate relative stability were callous/lacking empathy, unstable interpersonal relationships, shallow affect, pathological lying, irresponsibility, and manipulation. The individual traits that evidenced low relative stability were lacking goals, serious criminal behaviour, serious violations of conditional release, failure to accept responsibility, criminal versatility, and parasitic orientation.

Interestingly, the stability of individual traits did not mirror the findings based on the interpersonal, affective, behavioural, and antisocial traits. In other words, not all of the individual traits reflecting the interpersonal and behavioural traits evidenced the highest stability. For example, only two of the interpersonal traits evidenced high relative stability (impression management and grandiosity) whereas the other two traits evidenced moderate relative stability (pathological lying and manipulation). Within the context of psychopathic traits, it appears that the individual traits that evidenced greater stability reflect largely behavioural traits, those that evidenced moderate stability reflect largely interpersonal and affective traits, and those that evidenced low stability reflect antisocial traits and traits that may be normative during adolescence. The stability of psychopathic traits viewed in this manner suggests one way in which psychopathy may develop across the lifespan. The finding that behavioural items were more stable is consistent with the notion that behaviours should manifest first given the limited verbal capacity of children.

As children develop and enter into late childhood and early adolescence, verbal and interpersonal skills develop and therefore, the interpersonal and affective psychopathic traits may begin to emerge. Alternatively, the item descriptions of the behavioural traits may be much clearer or the behaviours are more likely to be documented relative to the interpersonal and affective traits.

The items that evidenced lower relative stability appear to reflect traits that may be normative during adolescence. As stated above, delinquency and antisocial behaviour are normative during adolescence (Moffitt, 1993) and the instability of these traits likely reflects the normative desistence of antisocial behaviour across adolescence. In contrast, lacking goals, failure to accept responsibility, and parasitic orientation may simply reflect normative traits during adolescence. For example, parasitic orientation may simply be due to adolescents' reliance on their parents for many of their needs given their limited independence and therefore, it may be unclear what constitutes normal and abnormal adolescent dependence. If these items are normative indicators of adolescence, they may be inappropriate indicators of "adolescent psychopathy" as they are unlikely to differentiate psychopathic adolescents from normative adolescents.

Impact of Attrition

It is important to bear in mind that the above conclusions reflect the stability of psychopathic traits among those adolescent offenders who agreed to participate in both assessments. The most common reasons for attrition included geographical location and because adolescent offenders were no longer in custody or on probation. Because more detailed information was not obtained from these offenders in order to ensure anonymity and confidentiality, it is unclear whether and how this group of adolescents may have

affected the current stability estimates. However, comparisons between those who were and were not assessed at follow-up revealed few differences between the groups. There were no differences with respect to ethnicity, self-reported education, and sentence length.

The few differences that did exist suggest that inclusion of these adolescents may have resulted in higher stability estimates. Although adolescents who were not assessed at follow-up were significantly older, the magnitude of the difference was very small; adolescents not assessed at follow-up were approximately 17 years old whereas those assessed at follow-up were approximately 16 years old. If the difference had been larger in magnitude, higher stability estimates may have been found on the assumption that psychopathic traits are more crystallized in older adolescents and therefore, less subject to change across time. Adolescents who were not assessed at follow-up did have significantly higher behavioural scores, suggesting greater crystallization of the behavioural traits of psychopathy.

However, an argument could also be made that the inclusion of these adolescents would have resulted in lower stability estimates. First, higher scores may lead to decreases over time simply as a function of regression towards the mean. Furthermore, greater opportunities for change may be present despite crystallization of psychopathic traits later in development. However, this may only affect specific psychopathic traits. Given that delinquency and antisocial behaviour are normative during adolescence (Moffitt, 1993), the inclusion of older adolescents may result in lower stability of the behavioural and antisocial traits of psychopathy.

Comparison of the PCL:YV and the APSD

In general, studies examining the stability of personality traits assessed through self-report tend to reveal higher stability estimates than when assessed through other-reports, such as parent or teacher ratings. For example, a meta-analysis by Roberts and DelVecchio (2000) found that self-report methods of personality assessment resulted in greater trait consistency than observer methods. One reason for this discrepancy may be because self-report ratings tend to largely reflect consistency in responding over time rather than consistency in personality traits. However, when Roberts and DelVecchio (2000) controlled for age and time interval, self- and observer-report methods were comparable. Consistent with this meta-analysis, similar stability estimates were found for psychopathic traits between the PCL:YV and APSD.

In contrast, stability of the interpersonal, affective, and behavioural traits evidenced greater stability when assessed by the PCL:YV relative to the APSD. One reason may be that the APSD does not adequately capture the construct of psychopathy in adolescents. At present, the PCL:YV is the "gold standard" for assessing psychopathic traits in adolescent offenders and there is evidence that the APSD does not capture psychopathic traits in a manner analogous to the PCL:YV (Lee et al., 2003; Murrie & Cornell, 2002). The PCL:YV includes detailed descriptions of psychopathic traits whereas the APSD assesses traits on the basis of a one-sentence description, which may not adequately capture how the traits manifest. Furthermore, there are differences between the PCL:YV and APSD with respect to the items that load onto the specific factors. Although the narcissism, callous-unemotional, and impulsivity dimensions of the APSD are designed to be analogous to the interpersonal, affective, and behavioural traits

of the PCL:YV, not all parallel items of the APSD load onto the same factors as the PCL:YV. For example, APSD item 5 ("My emotions are shallow and fake") loads onto the interpersonal factor whereas the parallel PCL:YV item (Shallow Affect) loads onto the affective factor.

Second, differences between the measures may reflect differences in methodology. The two PCL:YV assessments were conducted based on a specific time frame (i.e., the past six months). In contrast, participants were not instructed to complete the APSD within the same time frame. Therefore, it is unclear whether adolescents based their ratings on lifetime functioning for both ratings or lifetime functioning for the first rating and functioning since the last interview for the second rating. Finally, the relative lower stability of the APSD may be because adolescent offenders believed there were substantial changes in these traits across six months. Alternatively, this may reflect impression management. Adolescents who participated in the follow-up phase may have thought the purpose of the second assessment was to assess improvements in functioning. Therefore, they may have endorsed fewer psychopathic traits to present themselves as having improved over time.

Factors Influencing Stability

The question of the stability of adolescent psychopathic traits is a critical issue addressing whether psychopathy as a coherent personality disorder exists in adolescents. However, the question of whether there are factors that influence the stability of psychopathic traits is also important for developing and targeting intervention strategies. Therefore, the current study examined whether age, psychopathy group, and time in custody influenced the stability of psychopathic traits in adolescent offenders.

In general, psychopathic traits evidenced greater stability in older adolescents (i.e., 17 to 20 years) than younger adolescents (i.e., 14 to 16 years). Furthermore, a decrease in affective traits was more likely among older adolescents than younger adolescents. The finding that psychopathic traits were more stable in older adolescents suggests psychopathic traits are more crystallized later in development and may signal the emergence of an adult personality disorder. Rather than predicting poor prognosis from a treatment perspective, this finding suggests the importance of early identification of psychopathic traits and early intervention to prevent the further crystallization of psychopathic traits. The decrease in affective traits among older adolescents suggests affective deficits may be normative during early adolescence. Alternatively, this may be due to the association between affective deficits and antisocial behaviour. There is evidence that deficits in empathy are associated with offending and externalizing behaviours (Jolliffee & Farrington, 2004; Miller & Eisenberg, 1988). As such, the decrease in affective traits may be a function of decreases in antisocial behaviour.

In contrast, the amount of time spent in custody did not influence the stability of psychopathic traits whereas a decrease in the interpersonal traits of psychopathy was associated with higher levels of psychopathic traits. This suggests that the interpersonal traits may be the most malleable in adolescents who exhibit high levels of psychopathic traits. Alternatively, this may be due to the nature of the sample. In other words, an arrogant and deceitful interpersonal style may be typical in juvenile offenders and the decrease in these traits across time may simply reflect exposure to custody regulations that do not condone these types of behaviours and interactions.

Explanations for (In)Stability

Given that the current findings suggest moderate stability of psychopathic traits across six months, it is natural to assume this represents stability of psychopathic traits (i.e., the latent constructs are stable across time). This conclusion is certainly supported by evidence of small variances attributable to items, raters, and time. However, stability may result for a number of other reasons. The most obvious explanation for stability of personality is environmental consistency (Caspi & Roberts, 2001; Fraley & Roberts, 2005; Roberts & DelVecchio, 2000). In other words, personality traits appear to be stable over time because individuals are exposed to a consistent environment. In support of this, approximately one-third of adolescents remained in custody for a substantial proportion of time between the first and second assessment.

Second, stability may result from person-environment transactions, which include reactive, evocative, and proactive transactions (Caspi & Roberts, 2001; Fraley & Roberts, 2005; Roberts & DelVecchio, 2000). In other words, an individual's abilities, traits, and behaviours are consistent with the demands of the environment. Reactive transactions refer to the tendency to interpret experiences as consistent with one's personality. As such, individuals selectively attend to information that confirms their existing personality schema, thereby facilitating stability. With respect to psychopathic traits assessed through the PCL:YV, this explanation seems unlikely as different raters assessed adolescents at each assessment. Although this may explain stability of psychopathic traits assessed through the APSD, it seems that if this were likely, the stability estimates should be greater than those found with the PCL:YV. Evocative transactions refer to maintaining consistency as a function of eliciting reactions by others. It may be that adolescents elicit

specific reactions from parents, peers, and custody staff that reinforce existing psychopathic traits. For example, an adolescent who has poor anger control may elicit negative and angry responses from others, which in turn continues to elicit violent reactions, thereby maintaining existing levels of the trait. Proactive transactions refer to the tendency to select roles and environments that match one's personality. This type of transaction also leads to the further solidification of existing personality traits. For example, a narcissistic adolescent may choose to be around those who are less dominant or competent, thereby reinforcing and maintaining the level of narcissistic traits.

In addition to examining what may lead to stability, it is also important to consider what may lead to instability or relatively low stability of traits so that undue weight is not attributed to unreliability of the measure. Two common explanations for instability of traits include biosocial transitions and historical factors (Caspi & Roberts, 2001). Biosocial transitions refer to various biological and social events that may affect the stability of personality. Biological changes that result from puberty may affect the way specific traits manifest and major social events come with different roles and responsibilities. For example, biological changes may affect psychopathic traits such as stimulation seeking and impulsivity whereas social events, such as marriage or having a child, may affect traits such as irresponsibility. Historical factors refer to cohort effects and recognize that most theories and findings are historically conditioned and socially constructed. Historical factors may include major historical events such as war. This is a factor to consider with respect to the generalizability of findings should stability of psychopathic traits be examined in a population of adolescents that experience a very

unique and specific historical event, such as examining stability in a sample of Romanian orphans.

Another explanation for instability of traits is that personality traits may have different meanings at different ages (Bazana & Stelmack, 2004), similar to the concept of heterotypic continuity. For example, what defines parasitic orientation at the age of 14 is likely not the same standard applied to adolescents who are 17. Although the PCL:YV manual explicitly states that normal adolescent development should be taken into consideration when coding items (i.e., the presence of the trait relative to similar-age peers), this does not ensure that different raters agree as to what constitutes normal adolescent development. More importantly, it appears there are no guidelines for what constitutes normal adolescent development with respect to psychopathic traits because it is questionable whether psychopathic adolescents possess more psychopathic traits than normative adolescents (Edens et al., 2001). Finally, this factor is particularly important when considering the stability of self-reported psychopathic traits. Taken together, failing to take into consideration other factors that account for stability or instability of traits, such as environmental consistency, person-environment transactions, and biosocial transitions, may lead to inaccurate or incomplete conclusions about the stability of psychopathic traits.

Clinical and Policy Implications

At present, this is the first study to attempt to examine the stability of psychopathic traits, as assessed with the PCL:YV and APSD, in adolescent offenders. This is also the first study to examine whether changes in psychopathic traits can be detected by developing a novel assessment protocol. The findings suggested that changes

in psychopathic traits could be detected using a modified protocol for the PCL:YV and that there was moderate stability of psychopathic traits across six months. As such, this study addresses a critical issue regarding the validity of the disorder in adolescents. More importantly, the findings have important clinical implications and for our understanding of the construct of adolescent psychopathy.

Developing a protocol that can reliably detect whether changes occur across time is critical for evaluating the effectiveness of intervention strategies and treatment programs aimed at reducing psychopathic traits. A protocol that has the ability to detect changes across time can help determine whether or not intervention strategies are effective. Furthermore, information about how stable psychopathic traits are can be utilized to predict how much change may occur and the intensity and specificity of intervention strategies. For example, the current study found moderate stability of psychopathic traits, suggesting that treatment programs may not result in much change over time or that treatment may need to be intense and lengthy for changes to occur. More specifically, intensive, long-term interventions may be required for older adolescents or interventions may need to be administered in early adolescence when the traits are more malleable. Alternatively, the relatively low to moderate stability of the affective traits suggests developing intervention strategies that specifically target affective deficits if resources are limited and efforts need to be directed toward those traits that may evidence the greatest change across time.

The finding that psychopathic traits evidenced moderate stability in adolescents does not necessarily suggest treatment will be ineffective. As noted above, instability of traits may result from a number of factors or major events that take place between

assessments. It is possible that had adolescents been subject to specific intervention strategies aimed at reducing the severity of psychopathic traits after the first assessment, lower stability estimates would have been obtained. In other words, stability of psychopathic traits and appropriate, planned intervention strategies are not mutually exclusive. This reinforces the point made above that the stability of psychopathic traits needs to be taken into consideration in the development of comprehensive and appropriate intervention strategies.

Finally, the results of the current study have important implications for understanding the construct of psychopathy in adolescents. At the heart of the debate over "adolescent psychopathy" and calls for a developmental approach to studying psychopathic traits is the question of whether psychopathic traits in adolescents are evidence of a developmental disorder or whether psychopathy is an adult personality disorder with warning signs that emerge in adolescents. Although the interpersonal and behavioural traits of psychopathy demonstrated high relative stability, the affective and antisocial traits evidenced low to moderate stability. Furthermore, there was low to moderate diagnostic stability of psychopathy. This suggests that psychopathy, as a coherent personality disorder construct, does not exist in adolescents. Rather, it suggests that psychopathic traits in adolescents may be indicators of an emerging adult personality disorder. Furthermore, this finding speaks to the debate over whether psychopathic traits in adolescents should be viewed categorically or dimensionally (Murrie et al., 2006; Vasey, Kotov, Frick, & Loney, 2005). The low to moderate stability of the affective traits, and in particular the diagnostic stability of psychopathy, supports the dimensional perspective of adolescent psychopathy. As such, it would be inappropriate to use specific

scores to designate adolescents as psychopaths and non-psychopaths for the purposes of program suitability or making decisions about transfer to adult court.

Limitations and Future Directions

To conclude, the results of the current study suggested moderate stability of psychopathic traits across six months in a sample of male, adolescent offenders. Furthermore, similar results were obtained whether psychopathic traits were assessed through clinical ratings or self-report, with the interpersonal and behavioural traits demonstrating greater stability relative to the affective and antisocial traits. However, the present findings should be viewed with caution due to a number of limitations.

The most obvious limitation is that the current findings address the issue of the stability of psychopathic traits, as assessed by the PCL:YV and self-report APSD, in male, adolescent offenders across six months. Although there is no reason to believe that the stability of psychopathic traits should be moderated by gender, at the very least, this is an important question for the purposes of generalizing the current findings. In fact, there is evidence that the stability of conduct disorder is comparable between the genders (Frick & Loney, 1999). The PCL:YV and APSD are two of the most commonly used measures for assessing adolescent psychopathic traits. However, this does not imply that the measures provide the most accurate conceptualization of psychopathic traits in adolescents. Both measures are downward extensions of the PCL-R, raising concerns about extending an adult personality downwards into adolescence. It may be that research in developmental psychopathology and normal adolescent development will provide a more developmentally appropriate definition of "adolescent psychopathy."

Second, stability of psychopathic traits should be examined across longer intervals, such as one and two years. Assessments conducted six months apart may not provide sufficient time to assess the stability of psychopathic traits. Furthermore, larger stability coefficients are generally found with shorter test intervals (Bazana & Stelmack, 2004), in which case six months may not provide an accurate estimate of how stable psychopathic traits are. However, it is also important to note that had the traits not demonstrated moderate stability across this time interval, serious concerns would be raised about the validity of the disorder. Finally, it will be important to conduct assessments into adulthood to examine whether psychopathic adolescents become psychopathic adults. In addition to informing the debate regarding whether psychopathy is a developmental disorder or an adult personality disorder, these findings may speak to the etiology of the disorder.

Third, although conclusions were made suggesting moderate stability of psychopathic traits, it is unclear what level of stability is appropriate to define stability as low, moderate, and high. Is a stability coefficient of .70 sufficient to conclude that psychopathic traits are stable in adolescents in the context of changes in development thought to occur during this stage? Or should a higher standard be more appropriate given that psychopathy is defined as a personality disorder? At the very least, the current findings can be interpreted within the context of the stability of personality traits and personality disorder traits in adolescents. Within this context, psychopathic traits appear to be as stable as general personality traits and other personality disorder traits. Although unreliability due to the measure and raters did not appear to negatively affect stability estimates, the manner in which the T1 PCL:YV ratings were conducted may have

overestimated the current findings. Although the second pool of raters were instructed to ignore interview information irrelevant to the past six months, it is possible that this information unknowingly affected their ratings. Future studies should consider conducting separate interviews of lifetime and recent functioning by different raters in order to ensure information about lifetime functioning does not influence ratings of recent functioning.

Fourth, the current study examined stability across two assessments, which implies a linear trajectory of psychopathic traits. It may be that with multiple repeated assessments across time, a non-linear trajectory emerges with stability fluctuating as a function of the time interval and number of assessments. As Fraley and Roberts (2005) argue, a single stability or test-retest coefficient says very little about the stability of a construct. Instead, "the stability of a construct is reflected in the way in which its test-retest coefficients decay across increasingly long intervals or, more specifically, the way in which coefficients are patterned across a range of ages and test-retest intervals" (Fraley & Roberts, 2005, p. 62). If psychopathic traits evidence fluctuations in stability, this provides important information about when to target intervention strategies.

Future studies should examine and compare stability estimates across early, middle, and late adolescence. Although adolescents in the current study ranged in age from 13 to 20, the majority of adolescents were 16 years or older and larger stability coefficients were found with the older adolescents. Furthermore, there is evidence that differences exist across adolescence with respect to sensation seeking, perspective taking, and future time perspective (Steinberg & Cauffman, 1996), which may affect the manifestation and stability of psychopathic traits. More importantly, differences across

adolescence may suggest developmental differences in the manifestation of psychopathic traits.

Although understanding how stable psychopathic traits are is an important issue, the magnitude of stability coefficients does not indicate what variables or processes promote (in)stability. A stable environmental context may promote the stability of personality traits whereas unstable environments may result in unstable personality traits (Caspi & Bem, 1990; Caspi & Roberts, 2001). Future studies should examine whether psychosocial variables impact the stability of psychopathic traits. For example, Frick et al. (2003) found that conduct problems, delinquency, and negative parenting were positively associated with total APSD scores. In addition, Frick and Dantagnan (2005) found that more life stressors were associated with greater stability of conduct problems in children with conduct problems and callous-unemotional traits whereas greater association with delinquent peers was associated with less stability. More specifically, examining and testing theoretically meaningful moderators specific to the interpersonal, affective, and behavioural traits of psychopathy would provide more clinically relevant information. For example, a history of childhood abuse may be uniquely associated with the stability of affective traits whereas delinquent peers may be uniquely associated with the stability of behavioural traits. Ultimately, the identification of moderators of (in)stability has important implications for developing appropriate intervention strategies in that these variables may be areas to target as part of intervention strategies.

Finally, once the stability of psychopathic traits across adolescence is better understood, it will be important to begin to examine developmental trajectories of the disorder. In other words, examining whether there exists distinct groups of psychopathic

adolescents by conducting multiple assessments over time to examine the pattern of psychopathic traits. For example, several studies have utilized semi-parametric analyses to identify four distinct developmental trajectories of aggression (low, moderate desisters, high desisters, and chronic) and found that these groups differed with respect to violence and delinquency (Broidy et al., 2003; Nagin & Tremblay, 1999; Schaeffer, Petras, Ialongo, Poduska, & Kellam, 2003). These findings illustrate the important implications of identifying groups that underlie a continuous dimension in terms of predicting which adolescents may develop the disorder in adulthood and the development of appropriate intervention strategies.

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Appendix A

Table 1

PCL:YV Item Descriptions

PCL:YV	Item Description
Item 1	Impression Management
Item 2	Grandiose Sense of Self Worth
Item 3	Stimulation Seeking
Item 4	Pathological Lying
Item 5	Manipulation for Personal Gain
Item 6	Lack of Remorse
Item 7	Shallow Affect
Item 8	Callous/Lack of Empathy
Item 9	Parasitic Orientation
Item 10	Poor Anger Control
Item 11	Impersonal Sexual Behavior
Item 12	Early/Serious Behavior Problems
Item 13	Lacks Goals
Item 14	Impulsivity
Item 15	Irresponsibility
Item 16	Failure to Accept Responsibility
Item 17	Unstable Interpersonal Relationships

(table continues)

Table 1 (*continued*)

PCL:YV	Item Description
Item 18	Serious Criminal Behavior
Item 19	Serious Violations of Conditional Release
Item 20	Criminal Versatility

Note. PCL:YV = Psychopathy Checklist: Youth Version (Forth et al., 2003).

Appendix B

Table 1

Temporal Stability of PCL:YV Total Scores in Younger and Older Adolescents

14-16 years	df	SS	MS	Variance	Proportion
Participants (P)	33	95.08	2.88	.04	.09
Items (I)	19	131.58	6.93	.09	.20
Time (T)	1	3.45	3.45	.00	.01
P x I	627	210.90	.34	.05	.10
P x T	33	38.07	1.15	.05	.10
I x T	19	8.40	.44	.01	.01
P x I x T	627	148.96	.24	.24	.50
G coefficient		.57	Phi coefficient		.52
17-20 years					
Participants (P)	48	261.47	5.45	.11	.21
Items (I)	19	129.37	6.81	.06	.12
Time (T)	1	14.92	14.92	.01	.03
P x I	912	300.50	.33	.05	.11
P x T	48	49.93	1.04	.04	.08
I x T	19	11.59	.61	.01	.02
P x I x T	912	201.31	.22	.22	.44
G coefficient		.79	Phi coefficient		.73

Note. df = Degrees of Freedom; SS = Sum of Squares; MS = Mean Squares; G Coefficient = Relative G coefficient; Phi = Absolute G coefficient.

Table 2

Temporal Stability of PCL:YV Factor 1 Scores in Younger and Older Adolescents

14-16 years	df	SS	MS	Variance	Proportion
Participants (P)	33	51.58	1.56	.12	.27
Items (I)	3	4.75	1.58	.02	.05
Time (T)	1	.13	.13	.00	.00
P x I	99	24.13	.24	.02	.03
P x T	33	18.24	.55	.09	.19
I x T	3	.35	.12	.00	.00
P x I x T	99	21.02	.21	.21	.47
G coefficient		.63	Phi coefficient		.61
17-20 years					
Participants (P)	48	78.68	1.64	.16	.36
Items (I)	3	5.86	1.95	.02	.04
Time (T)	1	.14	.14	.00	.00
P x I	144	34.30	.24	.01	.03
P x T	48	16.83	.35	.03	.08
I x T	3	1.07	.36	.00	.01
P x I x T	144	30.83	.21	.21	.49
G coefficient		.77	Phi coefficient		.76

Note. df = Degrees of Freedom; SS = Sum of Squares; MS = Mean Squares; G Coefficient = Relative G coefficient; Phi = Absolute G coefficient.

Table 3

Temporal Stability of PCL:YV Factor 2 Scores in Younger and Older Adolescents

14-16 years	df	SS	MS	Variance	Proportion
Participants (P)	33	31.67	.96	.04	.09
Items (I)	3	17.67	5.89	.08	.19
Time (T)	1	.02	.02	.00	.00
P x I	99	26.55	.27	.04	.09
P x T	33	18.76	.57	.09	.21
I x T	3	.28	.09	.00	.00
P x I x T	99	19.07	.19	.19	.43
G coefficient		.33	Phi coefficient		.28
17-20 years					
Participants (P)	48	59.97	1.25	.09	.21
Items (I)	3	9.45	3.15	.03	.06
Time (T)	1	5.76	5.76	.03	.06
P x I	144	46.52	.32	.06	.14
P x T	48	17.90	.37	.04	.10
I x T	3	.92	.31	.00	.01
P x I x T	144	28.55	.20	.20	.44
G coefficient		.60	Phi coefficient		.53

Note. df = Degrees of Freedom; SS = Sum of Squares; MS = Mean Squares; G Coefficient = Relative G coefficient; Phi = Absolute G coefficient.

Table 4

Temporal Stability of PCL:YV Factor 3 Scores in Younger and Older Adolescents

14-16 years	df	SS	MS	Variance	Proportion
Participants (P)	33	33.01	1.00	.05	.14
Items (I)	4	14.82	3.70	.05	.12
Time (T)	1	.02	.02	.00	.00
P x I	132	33.53	.25	.02	.04
P x T	33	14.61	.44	.04	.11
I x T	4	1.67	.42	.01	.02
P x I x T	132	29.58	.22	.22	.58
G coefficient		.53	Phi coefficient		.48
17-20 years					
Participants (P)	48	97.44	2.03	.15	.32
Items (I)	4	11.64	2.91	.02	.05
Time (T)	1	5.31	5.31	.02	.04
P x I	192	43.96	.23	.01	.01
P x T	48	23.79	.50	.06	.12
I x T	4	2.77	.69	.01	.02
P x I x T	192	41.63	.22	.22	.45
G coefficient		.75	Phi coefficient		.70

Note. df = Degrees of Freedom; SS = Sum of Squares; MS = Mean Squares; G Coefficient = Relative G coefficient; Phi = Absolute G coefficient.

Table 5

Temporal Stability of PCL:YV Factor 4 Scores in Younger and Older Adolescents

14-16 years	df	SS	MS	Variance	Proportion
Participants (P)	33	26.41	.80	.02	.03
Items (I)	4	32.83	8.21	.11	.22
Time (T)	1	7.50	7.50	.04	.08
P x I	132	45.77	.35	.06	.11
P x T	33	16.82	.51	.06	.11
I x T	4	1.51	.38	.00	.01
P x I x T	132	30.29	.23	.23	.44
G coefficient		.22	Phi coefficient		.14
17-20 years					
Participants (P)	48	97.08	2.02	.13	.21
Items (I)	4	45.09	11.27	.10	.17
Time (T)	1	5.63	5.63	.02	.03
P x I	192	58.16	.30	.04	.07
P x T	48	30.90	.64	.09	.14
I x T	4	3.83	.96	.02	.03
P x I x T	192	42.02	.22	.22	.36
G coefficient		.64	Phi coefficient		.56

Note. df = Degrees of Freedom; SS = Sum of Squares; MS = Mean Squares; G Coefficient = Relative G coefficient; Phi = Absolute G coefficient.

Table 6

Temporal Stability of APSD Total Scores in Younger and Older Adolescents

14-16 years	df	SS	MS	Variance	Proportion
Participants (P)	31	61.40	1.98	.03	.07
Items (I)	19	136.56	7.19	.11	.22
Time (T)	1	1.51	1.51	.00	.00
P x I	589	242.29	.41	.08	17
P x T	31	15.24	.49	.01	.03
I x T	19	5.86	.31	.00	.00
P x I x T	589	145.39	.25	.25	.51
G coefficient		.67	Phi coefficient		.60
17-20 years					
Participants (P)	47	142.82	3.04	.06	.12
Items (I)	19	149.21	7.85	.08	.15
Time (T)	1	4.13	4.13	.00	.01
P x I	893	393.77	.44	.11	.22
P x T	47	27.00	.57	.02	.04
I x T	19	7.24	.38	.00	.01
P x I x T	893	203.14	.23	.23	.46
G coefficient		.74	Phi coefficient		.69

Note. df = Degrees of Freedom; SS = Sum of Squares; MS = Mean Squares; G Coefficient = Relative G coefficient; Phi = Absolute G coefficient.

Table 7

Temporal Stability of APSD Factor 1 Scores in Younger and Older Adolescents

14-16 years	df	SS	MS	Variance	Proportion
Participants (P)	31	36.06	1.16	.05	.13
Items (I)	6	18.05	3.01	.04	.10
Time (T)	1	.57	.57	.00	.00
P x I	186	58.38	.31	.04	.11
P x T	31	11.71	.38	.02	.06
I x T	6	2.74	.46	.01	.02
P x I x T	186	41.97	.23	.23	.58
G coefficient		.60	Phi coefficient		.56
17-20 years					
Participants (P)	47	82.52	1.76	.07	.16
Items (I)	6	30.00	5.00	.05	.11
Time (T)	1	.86	.86	.00	.00
P x I	282	101.00	.36	.08	.18
P x T	47	26.29	.56	.05	.11
I x T	6	.50	.08	.00	.00
P x I x T	282	55.36	.20	.20	.43
G coefficient		.59	Phi coefficient		.56

Note. df = Degrees of Freedom; SS = Sum of Squares; MS = Mean Squares; G Coefficient = Relative G coefficient; Phi = Absolute G coefficient.

Table 8

Temporal Stability of APSD Factor 2 Scores in Younger and Older Adolescents

14-16 years	df	SS	MS	Variance	Proportion
Participants (P)	31	18.16	.59	.02	.05
Items (I)	5	13.92	2.78	.04	.09
Time (T)	1	.00	.00	.00	.00
P x I	155	73.16	.47	.10	.24
P x T	31	4.08	.13	.00	.00
I x T	5	.79	.16	.00	.00
P x I x T	155	41.62	.27	.27	.63
G coefficient		.35	Phi coefficient		.31
17-20 years					
Participants (P)	47	34.15	.73	.02	.04
Items (I)	5	25.81	5.16	.05	.11
Time (T)	1	.04	.04	.00	.00
P x I	235	116.28	.50	.12	.27
P x T	47	13.71	.29	.01	.01
I x T	5	1.53	.31	.00	.00
P x I x T	235	60.22	.26	.26	.57
G coefficient		.27	Phi coefficient		.24

Note. df = Degrees of Freedom; SS = Sum of Squares; MS = Mean Squares; G Coefficient = Relative G coefficient; Phi = Absolute G coefficient.

Table 9

Temporal Stability of APSD Factor 3 Scores in Younger and Older Adolescents

14-16 years	df	SS	MS	Variance	Proportion
Participants (P)	31	30.02	.97	.07	.12
Items (I)	4	44.27	11.07	.17	.31
Time (T)	1	.53	.53	.00	.01
P x I	124	43.93	.35	.04	.07
P x T	41	6.97	.23	.00	.00
I x T	4	.71	.18	.00	.00
P x I x T	124	34.29	.28	.28	.50
G coefficient		.65	Phi coefficient		.49
17-20 years					
Participants (P)	47	61.50	1.31	.08	.14
Items (I)	4	48.08	12.02	.12	.22
Time (T)	1	2.00	2.00	.01	.01
P x I	188	75.33	.40	.10	.19
P x T	47	16.50	.35	.03	.06
I x T	4	1.63	.41	.00	.01
P x I x T	188	37.37	.20	.20	.37
G coefficient		.58	Phi coefficient		.48

Note. df = Degrees of Freedom; SS = Sum of Squares; MS = Mean Squares; G Coefficient = Relative G coefficient; Phi = Absolute G coefficient.