6 The psychopath: continuity or change?

Stability of psychopathic traits and predictors of stability

Henriette Bergstrøm, Adelle E. Forth and David P. Farrington

Psychopathic traits in children and adolescents

It has been argued that a thorough understanding of psychopathy is central for criminal justice professionals and their practice (Hare, 1998), because of the construct's strong relationship with serious criminal behaviour (Leistico, Salekin, DeCoster, & Rogers, 2008; Salekin, Rogers, & Sewell, 1996). While only approximately 0.6%–2% of the general population (Coid, Yang, Ullrich, Roberts, & Hare, 2009; Neumann & Hare, 2008) and 10–25% of prison populations (Hare, 2003), reach the criteria of psychopathy, psychopaths are some of the most predatory and highest risk criminals in our society (Blais, Solodukhin, & Forth, 2014; Woodworth & Porter, 2002). In adults, psychopathy is most commonly conceptualized as a four factor construct consisting of interpersonal, affective, lifestyle, and antisocial traits (Hare, 2003). The manifestations and treatment amenability[1] of psychopathic traits are well established in adults (Cleckley, 1941; Cooke, Hart, Logan & Michie, 2012; Hare, 1998, 2003; McCord & McCord, 1964; Rice et al., 1992).

The downward extension of psychopathic traits to children and adolescents is however less clear (Seagrave & Grisso, 2002). To the extent that psychopathic traits are stable throughout life, it is important to identify children and adolescents' early maladjustment and to design efforts to prevent the development and persistence of psychopathic traits (Forth, Kosson, & Hare, 2003; Salekin, 2008). One of the most central criteria for the validity of the downward extension of psychopathic traits is their stability (Andershed, 2010; Salekin, 2008), as transiency would cast doubt on the value of the construct of psychopathy (Seagrave & Grisso, 2002). Until the past decade, little was empirically known about this stability (Andershed, 2010).

The degree of stability is also important from a developmental perspective on psychopathic traits. Two main personality perspectives have been suggested as theoretical frameworks for stability, the trait and the contextual models respectively (Andershed, 2010; Lynam, 2002). The former, endorsed by Andershed (2010), Caspi (2000) and Lynam (2002), stipulates that personality traits are biologically based, static constructs, with limited flexibility (Clark & Watson, 2010;

McCrae & Costa, 2010; McCrae et al., 2000; Roberts et al., 2001). From the presumed biological, deterministic, nature of traits, it also follows that any change will take place at a group level parallelling physiological maturation (Clark & Watson, 2010; McCrae et al., 2000; Roberts et al., 2001).

The trait perspective is in accordance with much of the research on the etiology of psychopathic traits. Traditionally, psychopathic traits have been found to have significant biological and genetic correlates and markers (De Oliveira-Souza et al., 2008; Fowler et al., 2009; Hare, Frazelle, & Cox, 1978; Intrator et al., 1997; Jutai, Hare, & Connolly, 1987; Kiehl et al., 2001; Kiehl et al., 2004; Larsson, Andershed, & Lichtenstein, 2006; Levenston, Patrick, Bradley, & Lang, 2000; Patrick, Bradley, & Lang, 1993; Taylor, Loney, Bobadilla, Iacono, & McGue, 2003; Tikkanen et al., 2011; Verona et al., 2004). Therefore, it is not an unreasonable tenet that psychopathic traits would be similar (Lynam, 2002). However, there are multiple competing perspectives.

In particular, Andershed (2010) is more supportive of contextual influences on personality development (Lewis, 1999, 2001a, 2001b). The latter framework directly contradicts the trait perspective because of its theoretical reliance on the impact of social context and social factors in the formation, development, and presumed *instability* of personality traits (Andershed, 2010; Lewis, 1999, 2001a, 2001b). Despite the previously mentioned biological correlates, there is now also emerging evidence suggesting the effect of a wide range of social factors on the emergence of psychopathic traits (Farrington & Bergstrøm, in press; Farrington, Ullrich, & Salekin, 2010). Both proposed perspectives will have implications for the development and stability of psychopathic traits (Andershed, 2010; Lynam, 2002), yet the literature does not clearly indicate which perspective receives the most support. This might be linked to the quality of the studies on stability, which are discussed below.

Stability of psychopathic traits across the lifespan

Rank-order stability

The most common approach to assessing stability is through rank-order stability (Andershed, 2010; Roberts et al., 2001), also known as *relative* stability (Lynam & Gudonis, 2005). This is a group-level measure, where an individual's relative place is compared to that of others in the sample or population (Lynam & Gudonis, 2005; Roberts et al., 2001). The following section will focus on the findings on rank-order stability from the available studies. Table 6.1 presents an overview of studies investigating the rank-order stability of psychopathic traits. It appears that the degree of rank-order stability differs somewhat according to the developmental period. Andershed (2010) suggested that rank-order stability estimates in excess of 0.70 indicate very high trait stability between two time points. Conversely, results below 0.30 indicate low stability. Rank-order correlations in the range 0.50–0.69 reflect high stability, while a result in the range 0.30–0.49 is considered to indicate moderate stability between two time points.

Table 6.1 Overview of longitudinal studies investigating rank-order stability of psychopathic traits

Developmental period and study	Age at first assessment	Length of follow-up	Measure	Stability
Childhood				
Barry, Barry, Deming, and Lochman (2008)	9–12	2 years	APSD	0.72–0.89 (ICC)
Dadds, Fraser, Frost, and Hawes (2005)	4–9	1 year	APSD	0.60–0.70 (r)
Frick, Kimonis, Dandreaux, and Farrell (2003)	8	4 years	APSD	0.87–0.93 (ICC)
Lynam et al. (2009)	7	11 years	CPS	0.56–0.74 (average r)
Obradovic, Pardini, Long, and Loeber (2007)	8	8 years	CBCL	0.27–0.84 (latent factor correlations)
Van Baardewijk, Vermeiren, Stegge, and Doreleijers (2011)	9–12	1.5 years	YPI-CV	0.59–0.76 (ICC)
Adolescence				
Blonigen, Hicks, Krueger, Patrick, and Iacono (2006)	17	7 years	MPQ	0.61–0.75 (r corrected for attenuation)
Forsman, Lichtenstein, Andershed, and Larsson (2008)	16	3 years	YPI	0.43–0.61 (r)
Loney, Taylor, Butler, and Iacono (2007)	16	6 years	MTI	0.40–0.41 (average ICCs)
Lynam, Caspi, Moffitt, Loeber, and Stouthamer-Loeber (2007)	13	11 years	CPS PCL:SV	0.31 (r)
Munoz & Frick (2007)	13	2 years	APSD	0.43–0.84
Salihovic, Özdemir, and Kerr (2014)	13	4 years	YPI	0.36–0.66 (r)
Adulthood				
Rutherford, Cacciola, Alterman, McKay, and Cook (1999)	N/A	2 years	PCL-R	0.60–0.65 (ICC for total scores)

Notes

APSD = Antisocial Process Screening Measure (Frick & Hare, 2001). CBCL = Child Behavior Checklist (Achenbach, 1991). YPI-CV = Youth Psychopathic Traits Inventory – Child Version (Van Baardewijk et al., 2008). MPQ = Multidimensional Personality Questionnaire (Tellegen, unpublished manuscript from 1982). MTI = Minnesota Temperament Inventory (Loney et al., 2007), YPI = Youth Psychopathic Traits Inventory (Andershed, Kerry Stattin, & Levander, 2002), PCL:SV = Psychopathy Checklist: Screening Version (Hart, Cox, & Hare, 1995), PCL-R = Psychopathy Checklist-Revised (Hare, 2003).

However, the current authors disagree somewhat with Andershed (2010). The guidelines set forth by Andershed (2010) are appropriate when the data is normally distributed and error free. However, this is rarely the case, especially with longitudinal studies spanning several decades. As a result, we suggest the following rank-order stability guidelines: <0.20 indicates low stability, 0.20–0.39 reflects moderate stability, 0.40–0.59 indicates high stability, and correlations above 0.60 indicate very high stability.

As can be seen from Table 6.1, studies targeting the developmental period of childhood and measuring psychopathic traits using the Antisocial Process Screening Device (APSD; Frick & Hare, 2001) show moderate to very high stability (0.36–0.93) according to our proposed guidelines. However, many studies (e.g. Barry et al., 2008; Dadds et al., 2005; Munoz & Frick, 2007; Pardini, Lochmann, & Powell, 2007; Van Baardewijk et al., 2011) use rather short follow-up periods (e.g. approximately one year), and many of the studies on rank-order stability only utilize two time points (e.g. Blonigen et al., 2006; Forsman et al., 2008; Loney et al., 2007; Neumann, Wampler, Taylor, Blonigen, & Iacono, 2011). It can be argued that such short time spans are not good tests of stability (Andershed, 2010). Lynam et al. (2009) found in their longitudinal study of psychopathic traits that shorter time spans compared to longer time between assessments yielded higher stability estimates. In adolescence, the available studies suggest that more fluctuation takes place during this developmental period. As can be seen from Table 6.1, the rank-order stability estimates range from moderate to high using Andershed's (2010) guidelines, and high to very highly stable using our recommendations. In adulthood, Rutherford et al. (1999) suggest that psychopathic traits only display moderate to high rank-order stability over a two year period. While Rutherford et al. (1999) used a well-known measure of psychopathic traits (i.e. PCL-R; Hare, 2003), the sample was limited to methadone patients, which limits generalizability to other samples.

Mean-level stability

Another commonly used way of assessing stability of psychopathic traits is through measuring stability and change in mean scores over time (Lynam & Gudonis, 2005; Roberts et al., 2001). To date, four published studies spanning substantial time periods have investigated the mean-level stability of psychopathic traits. Table 6.2 presents an overview of these studies. As the table highlights, the observed change, or lack thereof, indicates that psychopathic traits are stable across time. Of particular interest is the study by Harpur and Hare (1994), in light of the fact that very little attention has been paid to stability through adulthood (Barry et al., 2008). Harpur and Hare (1994) conducted a study of 889 prisoners and psychiatric patients assessed on the PCL-R. The sample was divided into seven age cohorts (16–20, 21–25, 26–30, 31–35, 36–40, 41–45, and 46–70), with the greatest number of participants in the age ranges of 21–25 and 26–30 ($n=244$ and $n=240$, respectively). A differential mean-level stability pattern emerged between the PCL-R factors. Factor 1, which measures

Table 6.2 Overview of longitudinal studies investigating mean-level stability of psychopathic traits

Developmental period and study	Age at first assessment	Length of follow-up	Measure	Change (Cohen's d)
Childhood				
Lynam et al. (2009)	7	11 years	CPS	Effect sizes not provided
Adolescence				
Blonigen et al. (2006)	17	7 years	MPQ	−0.06; −0.99
Forsman et al. (2008)	16	3 years	YPI	−0.02; 0.47
Adulthood				
Harpur & Hare (1994)	16–70	Cross-sectional	PCL-R	Mean scores not provided

Notes
CPS = Child Psychopathy Scale (Lynam, 1997), MPQ = Multidimensional Personality Questionnaire (Tellegen, in press), YPI = Youth Psychopathic Traits Inventory (Andershed et al., 2002), PCL-R = Psychopathy Checklist-Revised (Hare, 2003).

interpersonal and affective traits, was stable across the age cohorts (no significant change detected). Factor 2, which compromises lifestyle and antisocial traits, did however decrease. While covering a wide age range, the design is, as pointed out by Blonigen et al. (2006), cross-sectional, and such a design limits any causal inferences (Andershed, 2010; Blonigen et al., 2006; Farrington et al., 2010).

Explanation of variability

There are a number of potential reasons for the variation in both rank-order and mean-level stability. First, it might be due to the natural and commonplace maturation and social changes that take place during the adolescent period (McCrae et al., 2000; Moffitt, 1993; Rindfuss, 1991; Roberts et al., 2001). However, it might also be due to methodological issues such as the use of non-validated measures of psychopathic traits (e.g. MPQ; Tellegen, in press; MTI; Loney et al., 2007), and the differential duration of the studies (Lynam et al., 2009; see also Forth, Bergstrøm & Clark (2015)). To date, there are only two published studies focused on the adult stability of psychopathic traits (see Tables 6.1 and 6.2).

Predictors of stability in psychopathic traits

In an effort to understand the stability and development of psychopathic traits, there has been an increased interest in investigating potential predictors of stability and change (Andershed, 2010; Barry et al., 2008; Frick et al., 2003; Lynam, Loeber, & Stouthamer-Loeber, 2008; Neumann et al., 2011). Multiple analytical approaches have been utilized to assess such predictors (e.g. moderation (Lynam

et al., 2008), conditional latent growth curves (Salihovic, Kerr, Özdemir, & Pakalnieskene, 2012)). For the current discussion we will focus on the approach taken by Frick et al. (2003) as, mathematically speaking, predicting later psychopathic traits while controlling for earlier traits is equivalent to predicting changes in psychopathic traits.

Frick and his colleagues (2003) were some of the first researchers to investigate the longitudinal stability of psychopathic traits using a validated measure of child and adolescent psychopathic traits, and in addition their study was one of the first to assess predictors of stability and change. As previously mentioned, the authors utilised the Antisocial Process Screening Device (APSD; Frick & Hare, 2001) that measures psychopathy as a three factor construct, consisting of Callous-Unemotional (CU), Narcissism, and Impulsivity. In their study, Frick et al. (2003) established the importance of a wide range of individual and social factors that were predictive of later psychopathic traits when controlling for earlier manifestations of psychopathy. The results indicated that the importance of predictors of stability and change depends on type of risk factor and the APSD subscale in question.

Frick et al. (2003) found that conduct disorder (CD)/oppositional defiant disorder (ODD), and delinquency measured at the level of the individual child, were related to later psychopathic traits when controlling for earlier psychopathic traits. However, only CD and ODD were related to any of the APSD subscales, namely the Narcissism subscale. While positive parenting was not a protective factor, negative parenting was related to total psychopathic traits and all of the APSD subscales. Finally, socioeconomic status (SES) had a negative relationship with psychopathic traits, but only for the total APSD and the CU and the Narcissism subscales. This latter finding indicates that a low family SES is related to an increase in psychopathic traits, while a high SES might function as a protective factor as it might contribute to a decrease in psychopathic traits.

Considering the literature on predictors of psychopathic traits (see Farrington, 2007 for a more comprehensive discussion), it is rather surprising that more factors have not been found to influence stability. However, this might be because of methodological limitations, which the current study aims to address.

The current study

The current study is by far the longest investigation to date, spanning multiple developmental periods. The hypotheses guiding the current study are as follows: First, it was expected that stability across developmental periods would be in the moderate range, and second, that shorter time periods between assessment points would elicit higher stability estimates compared with longer ones. Third, and of a more exploratory nature, the study investigated factors that uniquely predict psychopathic traits, meaning that the interest is in social factors that predict psychopathic traits at a specific time point while controlling for earlier psychopathic traits. If none of the suggested predictors were related to an increase or decrease in psychopathic traits, this would not only provide support for the stability of

psychopathic traits, but it would also have implications for the understanding of the development of psychopathic traits. Based on the three proposed hypotheses it was possible to make inferences about which, if any, of the proposed theoretical models of personality are most plausible.

Methodology

Design and sample

The current study is an analysis of data from the Cambridge Study in Delinquent Development (CSDD). The CSDD is a well renowned and thoroughly analysed 40 year prospective longitudinal study of 411 boys from childhood (approximate age of eight) to middle age (age 48) (Farrington, Ttofi, & Coid, 2009). Attrition was very low across adolescence (Farrington, Gallagher, Morley, St Ledger, & West, 1990). At age 48, 365 out of 394 who were still alive were interviewed (93%), and 304 of the remaining 365 (83%) completed the medical assessment that included the Psychopathy Checklist: Screening Version (PCL:SV; Hart et al., 1995). It has previously been hypothesized that it is the most antisocial males who would drop out of the study (Farrington et al., 1990), but comparisons of the level of psychopathic traits in the current study between those who dropped out and those who remained showed no significant differences.

Measures of psychopathic traits

Two developmentally appropriate measures were utilized in the current study.

Antisocial Process Screening Device (APSD; Frick & Hare, 2001)

To assess psychopathic traits in childhood and adolescence, the Antisocial Process Screening Device (APSD; Frick & Hare, 2001) was used. This measurement scale is a derivative of the PCL-R. The APSD consists of 20 developmentally appropriate items measured on an ordinal 3 point scale (0, 1, and 2). The maximum score obtainable is 40, while the minimum score is 0. Originally, the measure was designed to be rated by parents and/or teachers (Frick & Hare, 2001), but it has also been successfully utilized as a self-report scale (Lee, Hart & Corrado, 2003; Munoz & Frick, 2007; Silverthorn, Frick, & Reynolds, 2001).

Psychopathy Checklist: Screening Version (PCL:SV; Hart et al., 1995)

The PCL:SV is a shorter screening version of the more comprehensive PCL-R (Hare, 2003; Hart et al., 1995). As with the APSD (Frick & Hare, 2001) and the PCL-R (Hare, 2003), the 12 items on the PCL:SV (Hart et al., 1995) are measured on the same 3 point ordinal scale for a maximum score of 24. Originally, the PCL:SV reflected the two factor structure (Factor 1 (interpersonal/affective) and Factor 2 (lifestyle/antisocial)) of the psychopathy construct (Hart et al.,

1995), but a number of recent studies (Dolan & Fullman, 2006; Guy & Douglas, 2006; Walters et al., 2007) have found evidence for the four facet structure as well: facet 1 (interpersonal), facet 2 (affective), facet 3 (lifestyle), and facet 4 (antisocial) (Hare, 2003). For the current study, only the two factor structure is utilized. The PCL:SV is used frequently in community samples to measure psychopathic traits and has shown high validity and reliability (Cooke, Michie, Hart, & Hare, 1999; Gray, Fitzgerald, Taylor, MacCulloch, & Snowden, 2007; Hastings, Tangney, & Stuewig, 2008).

Coding of psychopathic traits

Since the CSDD was started in the early 1960s, no validated measures of psychopathic traits were included in the original assessments as they were not available at this time. Salekin and Lynam (2010) suggest that, in cases such as these, this can be rectified by creating proxies from the original data. To ensure that such a proxy was based on as comprehensive information as possible, multiple data points were combined. The following presents the utilized time points and the specific information that the coding was based upon.

Time 1 (age 8–10) and Time 2 (age 12–14)

Psychopathic traits were coded for Time 1 and Time 2 by creating a proxy APSD score based on information from five main sources. These were indicators reflecting official records, interviews with parents, teacher-ratings, peer ratings, and self-reports from the boys themselves. The APSD total score at Time 1 had a Cronbach's α of 0.59, while the Time 2 Cronbach's α was 0.62.

Time 3 (age 16–18)

The APSD proxy measure at Time 3 differed somewhat from Time 1 and 2 as it was only based on official records and self-reports from the youths themselves. At this time point, Cronbach's α was 0.27. The APSD proxy measure had very low internal reliability. This has been a common issue with the APSD (Bijttebier & Decoene, 2009; Falkenbach, Poythress, & Heide, 2003; Lee et al., 2003; Munoz & Frick, 2007; Poythress, Dembo, Wareham, & Greenbaum, 2006a; Vitacco, Rogers, & Neumann, 2003), and could be linked to problems with establishing a clear factor structure of the measure (Dadds et al., 2005; Poythress et al., 2006a; Sijtsma, 2009). The especially low internal consistency at Time 3 (age 16–18) compared to the earlier time points might also be attributable to the less comprehensive information on which the coding was based.

Time 4 (age 48)

A measure of psychopathic traits (PCL:SV; Hart et al., 1995) was included at age 48 (Time 4) in the original assessment. There was therefore no need to create

a proxy for this time point. The PCL:SV assessment was conducted by one trained and qualified rater. Cronbach's α for the total PCL:SV score was 0.72, while for Factor 1 it was 0.56 and Factor 2 it was 0.70 (Piquero et al., 2012).

APSD score proxy quality

In support of the quality of the proxy, it was created through a comprehensive process. The proxy was developed by the first author in close collaboration with the second author. The second author, Adelle Forth, is one of the leading experts on psychopathic traits in adolescence. In addition, a third qualified assessor provided feedback on the proxies. A confirmatory factor analysis was also conducted to ensure that all four time points loaded onto the same underlying latent factor. The results indicated a good fit $\chi^2(2, N=395)=2.96$, $p=0.23$, RMSEA$=0.04$, CFI$=0.99$, and TLI$=0.98$ (Wang & Wang, 2012).

Predictors of stability in psychopathy

As highlighted in Table 6.3, a wide range of social factors were measured in the current study. Because of the limited research in this area, composite measures were created based partly on the previous literature in the area and the indicators that were available in the CSDD. Low SES was conceptualized according to Mueller and Parcel (1981) and included indicators relating to social class, occupational prestige, and financial situation. Similarly complex is the negative parenting predictor consisting of multiple indicators such as neglect, physical abuse, and maternal attitude (Trocme et al., 2005). Antisocial family and antisocial peers were measured through reported criminal and antisocial acts in family members and peers respectively. Unfortunately it was not possible to assess the parents of the original boys' psychopathic traits (see Auty, Farrington, & Coid, 2015 for how the boys' psychopathic traits influence their children's psychopathic traits), so instead general parental psychopathology was measured using CSDD indicators such as parents' psychological health and if they have received psychological treatment in the past. Negative family functioning was conceptualized differently than negative parenting as it focused less on abuse related indicators, and more on the quality of the relationship between parents and with the youth.

Table 6.3 Overview of potential predictors/moderators and time of measurement

Predictor/moderators	Time 1 (8–10)	Time 2 (12–14)	Time 3 (16–18)
Low SES	X	X	
Negative Parenting	X	X	
Antisocial Family	X	X	
Antisocial Peers		X	X
Parental Psychopathology	X	X	
Negative Family Functioning	X	X	X

Analytical plan

Rank-order (relative) stability

Rank-order stability is measured through test-retest Pearson's correlations (r) (Roberts et al., 2001). Due to the rather low internal reliability of the measures, the correlations were corrected for attenuation in accordance with Olweus (1979).

Mean-level (absolute) stability

In accordance with Forsman et al. (2008), a repeated measures ANOVA was conducted in accordance to measure mean-level stability. To ensure that the APSD and PCL:SV mean scores could be compared, PCL:SV at 48 was prorated to reflect the same 0–40 scale as APSD.

Stability classification

Due to the lack of research on the stability of adult psychopathic traits (Andershed, 2010; Barry et al., 2008; Blonigen et al., 2006), the current study included a more in-depth look at the time period from 18 to 48 by classifying the boys as either high, middle, or low on psychopathic traits at the APSD at age 16–18 (Time 3) and on the prorated PCL:SV at age 48. Change scores were calculated, classified, and then compared with each other.

Partial correlations

Since the study is partly based on the Frick et al. (2003) study, their analytical strategy has also been followed. Separate regressions were conducted for each stability period and the corresponding predictors. Through the regressions, partial correlations were obtained. These partial correlations show the unique contribution of the predictor on psychopathic traits when controlling for earlier psychopathic traits (Frick et al., 2003).

Results

Descriptive statistics

The level of psychopathic traits across time points were within the low to average range, compared with other community samples (Frick & Hare, 2001; Hart et al., 1995). Time 1 (age 8–10) had a Mean score on the APSD of 14.10 with a SD of 4.45, while at Time 2 (age 12–14) the Mean was 10.79 with $SD=3.63$. At Time 3 (age 16–18) the level of psychopathic traits were $M=12.34$, $SD=3.40$. The PCL:SV's range is between 0 and 24 (the APSD range is between 0 and 40), and this is reflected in the low means at age 48 (Time 4). The *Mean*

score for the total PCL:SV was 3.14 ($SD=3.40$), while the Factor 1 *Mean* was 1.00 ($SD=1.32$) and the Factor 2 *Mean* was 2.09 ($SD=2.32$).[2]

Correlations corrected for attenuation

As previously mentioned rank-order stability is assessed through test-retest correlations, and to limit measurement error it is common practice to correct these correlations for attenuation (Olweus, 1979; Roberts et al., 2001). The results are presented in Table 6.4.

According to the guidelines set forth by the current authors, all of the correlations were in the moderate to very high range. Table 6.4 also shows a trend where the shorter time spans yield higher rank-order stability estimates compared to the longer times between assessments. The strongest correlation was found between Time 3 psychopathic traits and Factor 2. The correlation of 0.84 shows remarkable stability over a 30 year period.

Mean-level stability

The results from the repeated measures ANOVA indicated that more change was taking place at the mean-level from Time 1 to prorated Time 4. Since the Mauchly's test of Sphericity was significant ($\chi^2=28.90$, $d.f.=5$, $p<0.001$), the Greenhouser-Geiser correction was utilized. The overall effect was significant with $F[2.77, 667.59]=299.28$ ($p<0.001$) and a $\eta^2=0.55$, and the mean difference between each time point was significant ($p<0.05$) as well. Calculated effect sizes (Cohen's d) are presented in Table 6.5.

Stability classification

The results from the group classification indicate that the majority of participants in the sample remain stable from late adolescence to middle age. From age 16–18 (Time 3) to age 48 (Time 4), 24.9% decreased on psychopathic traits

Table 6.4 Correlations corrected for attenuation

Psychopathic traits	1	2	3
1 APSD age 8–10 (Time 1)			
2 APSD age 12–14 (Time 2)	0.61**		
3 APSD age 16–18 (Time 3)	0.58**	0.64**	
4 PCL:SV Total age 48 (Time 4)	0.40**	0.52**	0.66**
a Factor 1 age 48 (Time 4)	0.26*	0.42**	0.46**
b Factor 2 age 48 (Time 4)	0.48**	0.58**	0.84**

Notes
* $p<0.05$;
** $p<0.001$;
$n=266$–370.

while only 4.1% increased. The majority of the sample remained constant from Time 3 to Time 4 (71%).

Predictors

The detailed findings for each stability period are presented in Tables 6.6 and 6.7. A wide range of predictors influence psychopathic traits in one time period when controlling for psychopathic traits at an earlier time.

When reviewing the partial correlations, some clear trends emerged. An antisocial family and antisocial peers were consistently uniquely predictive of increases in psychopathic traits across time. Low SES, parental psychopathology, and negative family functioning were less consistent across developmental periods, but they predict an increase in psychopathic traits over time.

Discussion

The current study is one of the longest investigations of the stability of psychopathic traits to date. While only using four time points, the study does span a total of 40 years. The main findings from this study are that at a rank-order level, psychopathic traits are moderately to very highly stable. This means that people keep their relative position on psychopathic traits within the sample over time (Roberts et al., 2001). These results are in accordance with previous findings from other longitudinal studies (e.g. Blonigen et al., 2006; Forsman et al., 2008; Lynam et al., 2007; Lynam et al., 2009). Since many of these prior studies have used different measures of psychopathic traits and targeted differential developmental periods, the congruency is quite remarkable (Andershed, 2010). However, different levels of analysis seem to provide different results (Andershed, 2010; Blonigen et al., 2006; Forsman et al., 2008; Roberts et al., 2001). Change is happening in accordance with previous studies (e.g. Blonigen et al., 2006; Forsman et al., 2008), but this appears to be mainly taking place at a mean, absolute level. This means that the sample as a whole is changing over time, rather than individuals having varying trajectories within the sample. This indicates that those who are the highest remain the highest on psychopathic traits, while those who are low on psychopathic traits tend to stay low. These results emphasize the importance of using different levels of analysis, and highlight that

Table 6.5 Mean level stability of psychopathic traits

	1	2	3	4
1 APSD age 8–10 (Time 1)	–			
2 APSD age 12–14 (Time 2)	–0.74	–		
3 APSD age 16–18 (Time 3)	–0.36	0.38	–	
4 Prorated PCL:SV age 48 (Time 4)	–1.56	–1.15	–1.48	–

Note
Effect sizes (Cohen's d) between each time point.

Table 6.6 Partial correlations between predictors and psychopathic traits while controlling for time 1 psychopathic traits

Predictors	APSD age 12–14	APSD age 16–18	PCL:SV age 48
Predictors age 8–10			
Low SES	0.01 (0.05)	0.01 (0.07)	0.12 (0.20**)
Antisocial Family	0.12* (0.17**)	0.13* (0.19**)	0.21** (0.26**)
Negative Parenting	0.06 (0.16**)	−0.05 (−0.01)	0.06 (0.13*)
Parental Psychopathology	−0.05 (−0.02)	0.03 (0.06)	0.13* (0.16*)
Negative Family Functioning	0.01 (0.08)	−0.01 (0.02)	0.07 (0.14*)
Predictors age 12–14			
Low SES		−0.01 (0.06)	0.17** (0.23**)
Antisocial Family		0.12* (0.16**)	0.12* (0.18**)
Antisocial Peers		0.20*** (0.25***)	0.24*** (0.29***)
Negative Parenting		0.05 (0.09)	0.01 (0.07)
Parental Psychopathology		0.17** (0.20***)	0.27*** (0.26***)
Negative Family Functioning		0.06 (0.11)	0.07 (0.14*)
Predictors age 16–18			
Antisocial Peers			0.31*** (0.36***)
Negative Family Functioning			0.22*** (0.22***)

Notes
Bivariate correlations in parentheses.
$n = 282$–358;
* $p < 0.05$;
** $p < 0.01$;
*** $p < 0.001$.

Table 6.7 Partial correlations between predictors and psychopathic traits while controlling for time 2 psychopathic traits

Predictors	APSD age 16–18	PCL:SV age 48
Predictors age 12–14		
Low SES	0.04 (0.06)	0.22** (0.23**)
Antisocial Family	0.12* (0.16**)	0.10 (0.18**)
Antisocial Peers	0.19** (0.25***)	0.20** (0.29***)
Negative Parenting	0.07 (0.09)	0.11 (0.07)
Parental Psychopathology	0.17** (0.20***)	0.26*** (0.26***)
Negative Family Functioning	0.08 (0.11)	0.14* (0.14*)
Predictors age 16–18		
Antisocial Peers		0.26*** (0.36***)
Negative Family Functioning		0.19** (0.22***)

Notes
Bivariate correlations in parentheses.
$n = 218$–342;
* $p < 0.05$;
** $p < 0.01$;
*** $p < 0.001$.

results from one level cannot necessarily be generalized to another (Andershed, 2010; Roberts et al., 2001).

The stability results also indicate that psychopathic traits are more stable across short-term periods (e.g. approximate 2–4 years between assessments) compared to longer term periods (e.g. across multiple developmental periods) up to 30 years. As Lynam et al. (2009) and the current study show, using only short time spans is not sufficient to understand trajectories and stability of psychopathic traits. Both short-term (e.g. monthly or annually) and long-term assessments are needed that span developmental periods (Andershed, 2010; Lynam et al., 2009). The importance of this finding becomes evident when reviewing the findings on the development period where the greatest change takes place. The greatest change took place from late adolescence to middle age, which might be explained by the 30 year assessment span. However, when classifying the number of males who increased, decreased, or remained constant in this 30 year time period, it was clear that the majority actually remained constant from age 16–18 to 48. The rather large mean difference might actually reflect a difference in types of measurements used (APSD versus PCL:SV) than actual instability in traits. These results show for the first time the moderate to very high stability from childhood (age 8–10) to middle age (age 48), and as such the current study complements and extends prior studies and further enhances the understanding of stability.

Because of the previously mentioned lack of research on predictors of stability and change (Andershed, 2010), the current study is unique in its systematic investigation of predictive factors. In line with the risk factor literature and Frick et al. (2003), it seems that factors related to the immediate social environment of the child are crucial to the development and instability of psychopathic traits. It also appears that some factors, such as low SES and parental psychopathology, only have an effect on stability in certain developmental periods. The current study extends Frick et al. (2003) due to its longer assessment period, and the increased number of tested predictors. When comparing the predictors with and without controlling for psychopathic traits it becomes clear that this strategy is important when investigating predictors as earlier traits might contribute to inflated significant correlations. The most surprising finding is the lack of significance of negative parenting, as previous studies have established its importance as a factor that increases psychopathic traits (Farrington, 2007; Farrington et al., 2010; Frick et al., 2003; Krischer & Sevecke, 2008; Poythress, Skeem, & Lillienfeld, 2006b; Serin, 1991; Weiler & Widom, 1996).

A potential explanation for the differential findings between Frick et al. (2003) and the current study on negative parenting might be due to differences in samples. Frick et al.'s (2003) sample consisted of carefully matched groups while the current study utilized a comprehensive community sample. Another explanation might be based on how negative parenting was conceptualized in the current study. Negative parenting focused mostly on parenting techniques and discipline, while negative family functioning measured the more general functioning of the family. It might be that, for the current sample, the broad family functioning is more important for their development than physical discipline. If

negative parenting and negative family functioning had been combined, the findings might have been more in line with Frick et al. (2003) as these variables would have measured a wider range of parenting behaviours. Different conceptualizations of risk factors might cloud the understanding of predictive factors, and future research should aim at being more consistent in their measures.

Implications

The findings on the rank-order and mean-level stability of psychopathic traits have several implications for research on psychopathy in childhood and adolescents. First and foremost, the rather high stability provides further evidence for the downward extension of psychopathic traits to childhood. The observed stability provides evidence that childhood and adolescent psychopathy are useful constructs that are not mere transient states that a person "grows out of" over time (Forth et al., 2003; Seagrave & Grisso, 2002). Therefore, psychopathic traits can be a feasible treatment target in children as young as eight years of age (Forth et al., 2003; Frick & Hare, 2001). It is generally recognized that treating adults with psychopathic traits is difficult and challenging (Rice et al., 1992; Salekin, 2010). By targeting psychopathic traits as early as childhood, timely interventions might prevent the development of negative trajectories (Forth et al., 2003, Salekin, 2007, 2008; Salekin, Rosenbaum, & Lee., 2008; Seagrave & Grisso, 2002). Based on the findings from the current study, the family context is a reasonable treatment and intervention target.

The lack of fluctuation over time and relatively high stability estimates indicate that the development of psychopathic traits adheres to the trait perspective of personality development as originally suggested by Andershed (2010), Caspi (2000) and Lynam (2002). This perspective proposes that psychopathic traits are formed early in development, and any observed change and discontinuity will be of a superficial and transient nature (McCrae et al., 2000). Since the personality trait perspective has received substantial support as a general model of personality (Kallasmaa, Allik, Realo, & McCrae, 2000; McCrae & Costa, 1987; McCrae, Costa, Del Pilar, Rolland, & Parker, 1998; Parker & Stumpf, 1998; Piedmont, 1994; Piedmont & Chae, 1997; Rozsa et al., 2008; Schinka, Kinder, & Kremer, 1997; Yang et al., 1999), it might not come as a surprise that psychopathic traits display characteristics according to this model over time. However, the number of significant predictors (partial correlations) does indicate that psychopathic traits are not necessarily as static as assumed by the personality trait perspective. The personality trait perspective itself has also been criticized for its focus on group level stability (Lewis, 1999, 2001a, 2001b).

Limitations

The current study has a number of limitations, but the main one is related to rank-order and mean-level stability, which provide information about the stability of psychopathic traits at a group level (Andershed, 2010; Lynam &

Gudonis, 2005; Roberts et al., 2001). While valuable in their own right, rank-order and mean-level stability does not provide information about individual trajectories within a group (Andershed, 2010; Roberts et al., 2001). According to Andershed (2010) future research should focus more on individual trajectories to truly understand how psychopathic traits develop over the life course.

Conclusion

The current study not only enhances the understanding of psychopathy and its development, but also provides further validation of the construct of psychopathy in children and adolescents. It appears that at a rank-order, group, level, psychopathic traits are moderately to highly stable across a 40 year long period. While change is taking place at a mean-level, especially from late adolescence to middle age, it appears that it is the group that changes together, rather than individuals within it. Such high stability indicates that psychopathic traits develop according to the trait perspective of personality development, but there might still be room for change based on the number of significant predictors.

Notes

1 Or lack thereof (Rice, Harris, & Cormier, 1992).
2 The Factor Means at age 48 do not add up to the Mean of the total score due to outlier corrections.

References

Achenbach, T. M. (1991). *Manual for the Child Behavioral Checklist/4–18 and 1991 profile.* Burlington: University of Vermont.

Andershed, H. (2010). Stability and change of psychopathic traits: What do we know? In R. T. Salekin & D. R. Lynam (eds), *Handbook of child and adolescent psychopathy* (pp. 233–250). New York: The Guilford Press.

Andershed, H., Kerr, M., Stattin, H., & Levander, S. (2002). Psychopathic traits in non-referred youths: A new assessment tool. In E. Blaauw & L. Sheridan (eds), *Psychopaths: Current international perspectives* (pp. 131–158). The Hague: Elsevier.

Auty, K., M., Farrington, D. P., & Coid, J. W. (2015). Intergenerational transmission of psychopathy and mediation via psychosocial factors. *British Journal of Psychiatry, 206,* 26–31.

Barry, T. D., Barry, C. T., Deming, A. M., & Lochman, J. E. (2008). Stability of psychopathic characteristics in childhood. The influence of social relationships. *Criminal Justice and Behavior, 35,* 244–262.

Bijttebier, P., & Decoene, S. (2009). Assessment of psychopathic traits in children and adolescents. Further validation of the Antisocial Process Screening Device and the Child Psychopathy Scale. *European Journal of Psychological Assessment, 25,* 157–163.

Blais, J., Solodukhin, E., & Forth, A. E. (2014). A meta-analysis exploring the relationship between psychopathy and instrumental versus reactive violence. *Criminal Justice and Behavior, 41,* 797–821.

Blonigen, D. M., Hicks, B. M., Krueger, R. F., Patrick, C. J., & Iacono, W. G. (2006). Continuity and change in psychopathic traits measured via normal-range personality: A longitudinal-biometric study. *Journal of Abnormal Psychology, 115*, 85–95.

Caspi, A. (2000). The child is the father of the man: Personality continuities from childhood to adulthood. *Journal of Personality and Social Psychology, 78*, 158–172.

Clark, L. A., & Watson, D. (2010). Temperament: An organizing paradigm for trait psychology. In O. P. John, R. W. Robins, & L. A. Pervin (eds), *Handbook of personality: Theory and research* (Vol. 3, pp. 265–286). New York: The Guilford Press.

Cleckley, H. (1941). *The mask of sanity: An attempt to reinterpret the so-called psychopathic personality*. Oxford: Mosby.

Coid, J., Yang, M., Ullrich, S., Roberts, A., & Hare, R. (2009). Prevalence and correlates of psychopathic traits in the household population of Great Britain. *International Journal of Law and Psychiatry, 32*, 65–73.

Cooke, D. J., Hart, S. D., Logan, C. & Michie, C. (2012). Explicating the construct of psychopathy: Development and validation of a conceptual model, the Comprehensive Assessment of Psychopathic Personality (CAPP). *International Journal of Forensic Mental Health*, 11, 242-252.

Cooke, D. J., Michie, C., Hart, S. D., & Hare, R. D. (1999). Evaluating the screening version of the Hare Psychopathy Checklist-Revised (PCL:SV): An item response theory analysis. *Psychological Assessment, 11*, 3–13.

Dadds, M. R., Fraser, J., Frost, A., & Hawes, D. J. (2005). Disentangling the underlying dimensions of psychopathy in conduct problems in childhood: A community study. *Journal of Consulting and Clinical Psychology, 73*, 400–410.

De Oliveira-Souza, R., Hare, R. D., Bramati, I. E., Garrido, G. J., Ignacio, F. A., & Tovar-Moll, F. M. (2008). Psychopathy as a disorder of the moral brain: Fronto-temporo-limbic grey matter reduction demonstrated by voxel-based morphometry. *NeuroImage, 40*, 1202–1213.

Dolan, M., & Fullam, R. (2006). Face affect recognition deficits in personality-disordered offenders: Association with psychopathy. *Psychological Medicine, 36*, 1563–1569.

Falkenbach, D. M., Poythress, N. G., & Heide, K. M. (2003). Psychopathic features in a juvenile diversion population: Reliability and predictive validity of two self-report measures. *Behavioral Sciences and the Law, 21*, 787–805.

Farrington, D. P. (2007). Family background and psychopathy. In C. J. Patrick (ed.), *Handbook of psychopathy* (pp. 229–250). New York: The Guilford Press.

Farrington, D. P., & Bergstrøm, H. (in press). Family background and psychopathy. In C. J. Patrick (ed.), *Handbook of psychopathy* (2nd edn). New York: Guilford Press.

Farrington, D. P., Gallagher, B., Morley, L., St Ledger, R., & West, D. J. (1990). Minimizing attrition in longitudinal research: Methods of tracing and securing cooperation in a 24 year follow up study. In D. Magnusson & L. Bergman (eds), *Data quality in longitudinal research* (pp. 122–147). Cambridge: Cambridge University Press.

Farrington, D. P., Ttofi, M. M., & Coid, J. W. (2009). Development of adolescence-limited, late onset, and persistent offenders from age 8 to age 48. *Aggressive Behavior, 35*, 150–163.

Farrington, D. P., Ullrich, S., & Salekin, R. T. (2010). Environmental influences on child and adolescent psychopathy. In R. T. Salekin & D. R. Lynam (eds), *Handbook of child and adolescent psychopathy* (pp. 202–232). New York: The Guilford Press.

Forsman, M., Lichtenstein, P., Andershed, H., & Larsson, H. (2008). Genetic effects explain the stability of psychopathic personality from mid- to late adolescence. *Journal of Abnormal Psychology, 117*, 606–617.

Forth, A. E., Bergstrøm, H., & Clark, H. J. (2015). Psychopathic traits in adolescence. In C. B. Gacano (ed.) *The clinical and forensic assessment of psychopathy: A practitioner's guide* (pp. 115-136). New York: Routledge.

Forth, A. E., Kosson, D. S., & Hare, R. D. (2003). *The Psychopathy Checklist: Youth Version manual*. Toronto: Multi-Health Systems.

Fowler, T., Langley, K., Rice, F., van den Bree, M. B. M., Ross, K., Wilkinson, L. S., Owen, M. J., O'Donovan, M. C., & Thapar, A. (2009). Psychopathy trait scores in adolescents with childhood ADHD: The contribution of genotypes affecting MAOA, 5HTT and COMT activity. *Psychiatric Genetics, 19*, 312–319.

Frick, P. J., & Hare, R. D. (2001). *Antisocial Process Screening Device: APSD*. Toronto: Multi-Health Systems.

Frick, P. J., Kimonis, E. R., Dandreaux, D. M., & Farrell, J. M. (2003). The 4 year stability of psychopathic traits in non-referred youth. *Behavioral Sciences and the Law, 21*, 713–736.

Gray, N. S., Fitzgerald, N., Taylor, J., MacCulloch, M. J., & Snowden, R. J. (2007). Predicting future reconviction in offenders with intellectual disabilities: The predictive efficacy of VRAG, PCL-SV, and the HCR-20. *Psychological Assessment, 19*, 474–479.

Guy, L. S., & Douglas, K. S. (2006). Examining the utility of the PCL:SV as a screening measure using competive factor models of psychopathy. *Psychological Assessment, 18*, 225–230.

Hare, R. D. (1998). The Hare PCL-R: Some issues concerning its use and misuse. *Legal and Criminological Psychology, 3*, 99–119.

Hare, R. D. (2003). *Manual for the Hare Psychopathy Checklist – revised* (2nd edn). Toronto: Multi-Health Systems.

Hare, R. D., Frazelle, J., & Cox, D. N. (1978). Psychopathy and physiological responses to threat of an aversive stimulus. *Psychophysiology, 15*, 165–172.

Harpur, T. J., & Hare, R. D. (1994). Assessment of psychopathy as a function of age. *Journal of Abnormal Psychology, 103*, 604–609.

Hart, S., Cox, D., & Hare, R. (1995). *Manual for the Psychopathy Checklist: Screening Version (PCL:SV)*. Toronto: Multi-Health Systems.

Hastings, M. E., Tangney, J. P., & Stuewig, J. (2008). Psychopathy and identification of facial expressions of emotion. *Personality and Individual Differences, 44*, 1474–1483.

Intrator, J., Hare, R., Stritzke, P., Brichtswein, K., Dorfman, D., Harpur, T.,… Machhac, J. (1997). A brain imaging (single photon emission computerized tomogrophy) study of semantic and affective processing in psychopaths. *Biological Psychiatry, 42*, 96–103.

Jutai, J. W., Hare, R. D., & Connolly, J. F. (1987). Psychopathy and Event-Related Brain Potentials (ERPs) associated with attention to speech stimuli. *Personality and Individual Differences, 8*, 175–184.

Kallasmaa, T., Allik, J., Realo, A., & McCrae, R. R. (2000). The Estonian version of the NEO-PI-R: An examination of universal and culture-specific aspects of the Five-Factor Model. *European Journal of Personality, 14*, 265–278.

Kiehl, K. A., Smith, A. M., Hare, R. D., Mendrek, A., Forster, B. B., Brink, J., & Liddle, P. F. (2001). Limbic abnormalities in affective processing by criminal psychopaths as revealed by functional magnetic resonance imaging. *Biological Psychiatry, 50*, 677–684.

Kiehl, K. A., Smith, A. M., Mendrek, A., Forster, B. B., Hare, R. D., & Liddle, P. F. (2004). Temporal lobe abnormalities in semantic processing by criminal psychopaths as revealed by functional magnetic resonance imaging. *Psychiatry Research: Neuroimaging, 130*, 297–312.

Krischer, M. K., & Sevecke, K. (2008). Early traumatization and psychopathy in female and male juvenile offenders. *International Journal of Law and Psychiatry, 31*, 253–262.

Larsson, H., Andershed, H., & Lichtenstein, P. (2006). A genetic factor explains most of the variation in the psychopathic personality. *Journal of Abnormal Psychology, 115*, 221–230.

Lee, Z. V., Hart, S. D., & Corrado, R. R. (2003). The validity of the Antisocial Process Screening Device as a self-report measure of psychopathy in adolescent offenders. *Behavioral Sciences and the Law, 21*, 771–786.

Leistico, A.-M. R., Salekin, R. T., DeCoster, J., & Rogers, R. (2008). A large scale meta-analysis relating the Hare measures of psychopathy to antisocial conduct. *Law and Human Behavior, 32*, 28–45.

Levenston, G. K., Patrick, C. J., Bradley, M. M., & Lang, P. J. (2000). The psychopath as observer: Emotion and attention in picture processing. *Journal of Abnormal Psychology, 109*, 373–385.

Lewis, M. (1999). On the development of personality. In L. A. Pervin & O. P. John (eds), *Handbook of personality theory and research* (2nd edn, pp. 327–346). New York: The Guilford Press.

Lewis, M. (2001a). Issues in the study of personality development. *Psychological Inquiry, 12*, 67–83.

Lewis, M. (2001b). Continuity and change: A reply. *Psychological Inquiry, 12*, 110–112.

Loney, B. R., Taylor, J., Butler, M. A., & Iacono, W. G. (2007). Adolescent psychopathy features: 6-year temporal stability and the prediction of externalizing symptoms during the transition to adulthood. *Aggressive Behavior, 33*, 242–252.

Lynam, D. R. (2002). Fledging psychopathy: A view from personality theory. *Law and Human Behavior, 26*, 255–259.

Lynam, D. R., Caspi, A., Moffitt, T. E., Loeber, R., & Stouthamer-Loeber, M. (2007). Longitudinal evidence that psychopathy scores in early adolescence predict adult psychopathy. *Journal of Abnormal Psychology, 116*, 155–165.

Lynam, D. R., Charnigo, R., Moffitt, T. E., Raine, A., Loeber, R., & Stouthamer-Loeber, M. (2009). The stability of psychopathy across adolescence. *Development and Psychopathology, 21*, 1133–1153.

Lynam, D. R., & Gudonis, L. (2005). The development of psychopathy. *Annual Review of Clinical Psychology, 1*, 381–407.

Lynam, D. R., Loeber, R., & Stouthamer-Loeber, M. (2008). The stability of psychopathy from adolescence into adulthood. The search for moderators. *Criminal Justice and Behavior, 35*, 228–243.

McCord, W., & McCord, J. (1964). *The psychopath: An essay on the criminal mind.* Princeton, NJ: Van Nostrand.

McCrae, R. R., & Costa, P. T. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology, 52*, 81–90.

McCrae, R. R., & Costa, P. T. (2010). The five-factor theory of personality. In O. P. John, R. W. Robins, & L. A. Pervin (eds), *Handbook of personality: Theory and research* (3rd edn, pp. 159–181). New York: The Guilford Press.

McCrae, R. R., Costa, P. T., Del Pilar, G. H., Rolland, J.-P., & Parker, W. D. (1998). Cross-cultural assessment of the Five-Factor Model. The revised NEO Personality Inventory. *Journal of Cross Cultural Psychology, 29*, 171–188.

McCrae, R. R., Costa, P. T., Ostendorf, F., Angleitner, A., Hrebikova, M., Aviva, M. D.,... Sanchez-Bernardos, M. L. (2000). Nature over nurture: Temperament, personality and life span development. *Journal of Personality and Social Psychology, 78*, 173–186.

Moffitt, T. E. (1993). Life-course persistent and adolescent limited antisocial behavior: A developmental taxonomy. *Psychological Review, 100*, 674–701.

Mueller, C. W., & Parcel, T. L. (1981). Measures of socioeconomic status: Alternatives and recommendations. *Child Development, 52*, 13–30.

Munoz, L. C., & Frick, P. J. (2007). The reliability, stability, and predictive utility of the self-report version of the Antisocial Process Screening Device. *Scandinavian Journal of Psychology, 48*, 299–312.

Neumann, C., Wampler, M., Taylor, J., Blonigen, D. M., & Iacono, W. G. (2011). Stability and invariance of psychopathic traits from late adolescence to young adulthood. *Journal of Research in Personality, 45*, 145–152.

Neumann, C. S., & Hare, R. D. (2008). Psychopathic traits in a large community sample: Links to violence, alcohol use, and intelligence. *Journal of Consulting and Clinical Psychology, 76*, 893–899.

Obradovic, J., Pardini, D. A., Long, J. D., & Loeber, R. (2007). Measuring interpersonal callousness in boys from childhood to adolescence: An examination of longitudinal invariance and temporal stability. *Journal of Clinical Child and Adolescent Psychology, 36*, 276–292.

Olweus, D. (1979). Stability of aggressive reaction patterns in males: A review. *Psychological Bulletin, 86*, 852–875.

Pardini, D. A., Lochman, J. E., & Powell, N. (2007). The development of callous-unemotional traits and antisocial behavior in children: Are there shared and/or unique predictors. *Journal of Clinical Child and Adolescent Psychology, 36*, 319–333.

Patrick, C. J., Bradley, M. M., & Lang, P. J. (1993). Emotion in the criminal psychopath: Startle reflex modulation. *Journal of Abnormal Psychology, 102*, 82–92.

Parker, W. D., & Stumpf, H. (1998). A validation of the five-factor model of personality in academically talented youths across observers and instruments. *Personality and Individual Differences, 25*, 1005–1025.

Piedmont, R. L. (1994). Validation of the NEO PI-R observer form in college students: Toward a paradigm for studying personality development. *Assessment, 1*, 259–268.

Piedmont, R. L., & Chae, J.-H. (1997). Cross-cultural generalizability of the Five Factor Model of personality: Development and validation of the NEO-PI-R for Koreans. *Journal of Cross-Cultural Psychology, 28*, 131–155.

Piquero, A. R., Farrington, D. P., Fontaine, N. M. G., Vincent, G., Coid, J., & Ullrich, S. (2012). Childhood risk, offending trajectories, and psychopathy at 48 years in the Cambridge Study in Delinquent Development. *Psychology, Public Policy, and Law, 18*, 577–598.

Poythress, N. G., Dembo, R., Wareham, J., & Greenbaum, P. E. (2006). Construct validity of the Youth Psychopathic Traits Inventory (YPI) and the Antisocial Process Screening Device (APSD) with justice-involved adolescents. *Criminal Justice and Behavior, 33*, 26–55.

Poythress, N. G., Skeem, J. L., & Lilienfeld, S. O. (2006). Associations among early abuse, dissociation, and psychopathy in an offender sample. *Journal of Abnormal Psychology, 115*, 288–297.

Rice, M. E., Harris, G. T., & Cormier, C. A. (1992). An evaluation of a maximum security therapeutic community for psychopaths and other mentally disordered offenders. *Law and Human Behavior, 16*, 399–412.

Rindfuss, R. R. (1991). The young adult years: Diversity, structural change, and fertility. *Demography, 28*, 493–512.

Roberts, B. W., Caspi, A., & Moffitt, T. E. (2001). The kids are alright: Growth and stability in personality development from adolescence to adulthood. *Personality Processes and Individual Differences, 81*, 670–683.

Rozsa, S., Rihmer, Z., Gonda, X., Szili, I., Rihmer, A., Ko, N.,... Akiskal, H. S. (2008). A study of affective temperaments in Hungary: Internal consistency and concurrent validity of the TEMPS-A against the TCI and NEO-PI-R. *Journal of Affective Disorders, 106*, 45–53.

Rutherford, M., Cacciola, J. S., Alterman, A. I., McKay, J. R., & Cook, T. G. (1999). The 2-year test-retest reliability of the Psychopathy Checklist-Revised in methadone patients. *Assessment, 6*, 285–291.

Salekin, R. T. (2007). Psychopathy in children and adolescents: Key issues in conceptualizations and assessment. In C. J. Patrick (ed.), *Handbook of psychopathy* (pp. 389–416). New York: The Guilford Press.

Salekin, R. T. (2008). Psychopathy and recidivism from mid-adolescence to young adulthood: Cumulating legal problems and limiting life opportunities. *Journal of Abnormal Psychology, 117*, 386–395.

Salekin, R. T. (2010). Treatment of child and adolescent psychopathy: Focusing on change. In R. T. Salekin & D. R. Lynam (eds), *Handbook of child and adolescent psychopathy* (pp. 343–373). New York: The Guilford Press.

Salekin, R. T., & Lynam, D. R. (2010). Child and adolescent psychopathy: An introduction. In R. T. Salekin & D. R. Lynam (eds), *Handbook of child and adolescent psychopathy* (pp. 1–14). New York: The Guilford Press.

Salekin, R. T., Rogers, R., & Sewell, K. W. (1996). A review and meta-analysis of the Psychopathy Checklist and Psychopathy Checklist-Revised: Predictive validity of dangerousness. *Clinical Psychology: Science and Practice, 3*, 203–215.

Salekin, R. T., Rosenbaum, J., & Lee, Z. (2008). Child and adolescent psychopathy: Stability and change. *Psychiatry, Psychology, and Law, 15*, 224–236.

Salihovic, S., Kerr, M., Özdemir, M., & Pakalnieskene, V. (2012). Directions of effects between adolescent psychopathic traits and parental behavior. *Journal of Abnormal Child Psychology, 40*, 957–969.

Salihovic, S., Özdemir, M., & Kerr, M. (2014). Trajectories of adolescent psychopathic traits. *Journal of Psychopathology and Behavioural Assessment, 36*, 47–59.

Schinka, J. A., Kinder, B. N., & Kremer, T. (1997). Research validity scales for the NEO-PI-R: Development and initial validation. *Journal of Personality Assessment, 68*, 127–138.

Seagrave, D., & Grisso, T. (2002). Adolescent development and the measurement of juvenile psychopathy. *Law and Human Behavior, 26*, 219–239.

Serin, R. C. (1991). Psychopathy and violence in criminals. *Journal of Interpersonal Violence, 6*, 423–431.

Sijtsma, K. (2009). On the use, misuse, and the very limited usefulness of Cronbach's alpha. *Psychometrika, 74*, 107–120.

Silverthorn, P., Frick, P. J., & Reynolds, R. (2001). Timing of onset and correlates of severe conduct problems in adjudicated girls and boys. *Journal of Psychopathology and Behavioral Assessment, 23*, 1717–181.

Taylor, J., Loney, B. R., Bobadilla, L., Iacono, W. G., & McGue, M. (2003). Genetic and environmental influences on psychopathy trait dimensions in a community sample of male twins. *Journal of Abnormal Child Psychology, 31*, 633–645.

Tikkanen, R., Auvinen-Lintunen, L., Ducci, F., Sjöberg, R. L., Goldman, D., Tiihonen, J., Ojansuu, I., & Virkkunen, M. (2011). Psychopathy, PCL-R, and MAOA genotype as predictors of violent reconvictions. *Psychiatry Research, 185*, 382–386.

Trocme, N., Fallon, B., MacLaurin, B., Daciuk, J., Felstiner, C. B., Black, T., Tonmyr, L., Blackstock, C., & Barter, K. (2005). *Canadian Incidence study of reported child abuse and neglect 2003: Major findings*. Ottawa: Minister of Public Works and Government Services Canada.

Van Baardewijk, Y., Stegge, H., Andershed, H., Thomaes, S., Scholte, E., & Vermeiren, R. (2008). Measuring psychopathic traits through self-report: The development of the Youth Psychopathic traits Inventory – Child Version. *International Journal of Law and Psychiatry, 31*, 199–209.

Van Baardewijk, Y., Vermeiren, R., Stegge, H., & Doreleijers, T. (2011). Self-reported psychopathic traits in children: Their stability and concurrent and prospective association with conduct problems and aggression. *Journal of Psychopathology and Behavioral Assessment, 33*, 236–245.

Verona, E., Curtin, J. J., Patrick, C. J., Bradley, M. M., & Lang, P. J. (2004). Psychopathy and physiological response to emotionally evocative sounds. *Journal of Abnormal Psychology, 113*, 99–108.

Vitacco, M. J., Rogers, R., & Neumann, C. S. (2003). The Antisocial Process Screening Device. An examination of its construct and criterion-related validity. *Assessment, 10*, 143–150.

Walters, G. D., Gray, N. S., Jackson, R. L., Sewell, K. W., Rogers, R., Taylor, J., & Snowden, R. J. (2007). A taxometric analysis of the Psychopathy Checklist: Screening Version (PCL:SV): Further evidence of dimensionality. *Psychological Assessment, 19*, 330–339.

Wang, J. & Wang, X. (2012). *Structural equation modeling: Applications using Mplus*. Chichester: John Wiley & Sons Ltd.

Weiler, B. L., & Widom, C. S. (1996). Psychopathy and violent behaviour in abused and neglected young adults. *Criminal Behaviour and Mental Health, 6*, 253–271.

Woodworth, M., & Porter, S. (2002). In cold blood: Characteristics of criminal homicides as a function of psychopathy. *Journal of Abnormal Psychology, 111*, 436–445.

Yang, J., McCrae, R. R., Costa, P. T., Dai, X., Yao, S., Cai, T., & Gao, B. (1999). Cross-cultural personality assessment in psychiatric populations: The NEO-PI-R in the People's Republic of China. *Psychological Assessment, 11*, 359–368.