

The Assessment of Juvenile Psychopathy: Strengths and Weaknesses of Currently Used Questionnaire Measures

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Background: There has been a significant increase in the research use of questionnaire measures of juvenile psychopathy. This paper aimed to critically review these questionnaires. **Method:** Empirical studies on published measures of juvenile psychopathy were reviewed with two criteria in mind: (1) adequate scale psychometrics; (2) utility value in clinical, forensic, community or primary health care settings. **Results:** Despite significant strengths, the review highlights several psychometric shortcomings of currently used measures. **Conclusions:** Psychometric shortcomings in questionnaire measures of juvenile psychopathy mitigate against their use in applied settings in the absence of full clinical assessments, especially where pre-adolescent children are concerned.

Key Practitioner Message:

- Despite the increased use of questionnaire measures of juvenile psychopathy in research settings, practitioners are advised against their use for clinical or forensic decision-making in the absence of full clinical assessment
- Caution in using questionnaire measures of psychopathy should be exercised especially with regard to pre-adolescent children
- More research, including sophisticated psychometric and neurobiological approaches, as well as longitudinal and criterion-related validity studies are needed to establish the diagnostic efficiency of questionnaire measures of juvenile psychopathy

Keywords: Juvenile psychopathy; questionnaire measures; psychometrics

Psychopathy in adults

Over the last two decades the concept of psychopathy has become established to identify a sub-sample of antisocial adults who display a callous, unemotional and remorseless disposition for the rights and feelings of others while maintaining an antisocial lifestyle (Cleckley, 1941; Hare, 1970; Hare, 1991a). Behaviourally, the psychopath engages in criminal and socially deviant activities and impulsive risks. Affectively, s/he lacks empathy and deep emotions. Interpersonally, the psychopath is unable to maintain close relationships and displays grandiosity, egocentricity, manipulation, superficial charm and cold-heartedness (Cooke & Michie, 1997; Lynam & Gudonis, 2005).

However intriguing the particular combination of these features may be, as evidenced by the amount of films, crime novels and television shows it has generated, it is the clinical/forensic utility of psychopathy as a robust predictor of the imminence, severity, and pervasiveness in patterns of violent recidivism among adult offenders (Hare, 2003; Hart & Hare, 1997) that accounts for the attention it has received in academic literature. In addition, psychopathy is being increas-

ingly considered in criminal justice systems when making release decisions (Zinger & Forth, 1998).

Psychopathy in children and adolescents

Although some criticism and fears of the diagnostic misuse in the application of this concept to youths have been documented (Blair & Coles, 2001; Edens et al., 2001; Frick, 2002; Seagrave & Grisso, 2002; Steinberg, 2002), several factors warrant further investigation into the downward extension of psychopathy (Viding et al., 2005). Adult psychopathy is said to be a relatively stable personality disposition (Edens et al., 2001; Monahan & Steadman, 1994; Quinsey et al., 1998). Psychopaths do not seem to benefit from therapeutic interventions in the same way as non-psychopaths (Hemphill, Hare, & Wong, 1998; Ogloff, Wong, & Greenwood, 1990; Salekin, Rogers, & Sewell, 1996; Shine & Hobson, 2000) and in some cases may show even higher recidivism rates when treated (Hemphill, Hare, & Wong, 1998; Shine & Hobson, 2000). The early identification and treatment of the fledgling psychopath is therefore essential to prevent these youngsters from developing the stable personality characteristics that

often result in significant costs, including the burden these youngsters place on educational, criminal justice and mental health settings. For instance, it has been suggested in the USA that preventing a single high-risk youngster from becoming a career criminal saves society more than \$1.3 million in monetary terms (Cohen, 1998).

The downward extension of psychopathy to children has also been motivated by the recognition that conduct disorder represents a heterogeneous set of conditions (Frick & Marsee, 2006; Moffitt, 1993; Moffitt et al., 2001). Several researchers apply the construct of child psychopathy to identify antisocial children who are likely to become chronic offenders (Lynam & Gudonis, 2005). The advantages of applying this distinction to conduct problems hence lies not merely with advancing our theoretical understanding of antisocial behaviour, but has real-life implications for more targeted service provision.

Over the last 10 years several lines of inquiry have produced evidence in support of juvenile psychopathy, designating a unique subgroup. Factor analytic studies of child psychopathy measures have demonstrated the same underlying factor structure suggested for adult measures (Forth & Mailloux, 2000; Frick, Bodin, & Barry, 2000; Frick & Hare, 2001; Frick et al., 1994; Kosson et al., 2002; Lynam & Gudonis, 2005). The behavioural profile of juvenile psychopathy seems to mirror that of adults in forensic (Caputo et al., 1999), mental health (Christian et al., 1997) and community (Frick, & Barry et al., 2003) settings. Children with psychopathic tendencies seem to also share the same distinct neurocognitive impairment in affective processing as their adult counterparts (Blair et al., 2006; Sharp, Van Goozen, & Goodyer, 2006; Sharp, in press), in addition to a stronger preference for novel, exciting and dangerous activities (Frick, Cornell, & Barry et al., 2003, Frick, Cornell & Bodin et al., 2003; Frick & Ellis, 1999), and reduced sensitivity to punishment cues (Barry et al., 2000; Fisher & Blair, 1998; Loney et al., 2003). Finally, evidence suggesting a strong genetic component to juvenile psychopathy has recently been reported (Viding et al., 2005).

The question then arises as to how the fledgling psychopath should be identified. Adult psychopaths are typically identified with the Hare Psychopathy Checklist - Revised ([PCL-R] Hare, 2003). The Hare Psychopathy Checklist: Youth Version ([PCL:YV] Forth, Kosson, & Hare, 2003) has been validated for use in 12–18 year old boys in community probation and correctional settings in North America. Like its adult counterpart, it contains 20 items that are scored based on information attained from semi-structured interviews with parents and children, collateral information and file reviews. However, semi-structured interviews are time-consuming, expensive to administer and require specialised training. Researchers have therefore increasingly relied on self-report questionnaire measures of juvenile psychopathy in research settings. Whilst existing personality pathology measures like the MMPI for adolescents have been used (Hicks, Rogers, & Cashel, 2000), most often, new measures designed to identify the fledgling psychopath have been developed by translating adult symptoms into more developmentally appropriate items.

Psychometric data on the validity and reliability of these measures vary in terms of quality and scope. Given the risks (and potential benefits) of applying the construct of psychopathy to youth, it is essential that a careful review of the psychometric evidence regarding these measures is undertaken. Adolescents labelled as psychopathic are more likely to receive harsher (i.e. custodial sentence versus community service) and perhaps longer sentences. However, if the label of psychopathy is used appropriately, it may enable the early identification of adolescents who are at risk of being persistent offenders.

Early identification, in turn, facilitates early therapeutic intervention and could significantly improve the prognosis for behaviour change. It is not the aim of this review article to debate the risks and benefits associated with applying the construct of psychopathy to youth. However, in acknowledging the controversial nature of this debate, we further justify the necessity for a review of the validity of questionnaire measures of juvenile psychopathy. The review will focus exclusively on published questionnaire measures, thereby excluding unpublished and less-researched measures like the Survey of Attitudes and Life Experiences (Rogers, 1996), the P-Scan (Hare & Hervé, 1999) and the Self-Report Psychopathy Scale-II (Hare, 1991b). The review focuses on the strengths and weaknesses of each measure by paying special attention to the following criteria: (1) adequate scale psychometrics; and (2) utility value in clinical, forensic, community or primary health care settings. It concludes with a discussion of directions for future research. First, we provide a brief description of each scale.

Brief description of questionnaire measures of juvenile psychopathy

The *Antisocial Process Screening Devise* ([APSD;] Frick & Hare, 2001; Frick et al., 1994) formerly known as the Psychopathy Screening Device, is the most researched questionnaire measure of juvenile psychopathy (Johnstone & Cooke, 2004). It is a 20-item rating scale with teacher-, parent-, and self-report versions. It was rationally derived from the PCL-R, and has typically been used in samples aged 6–13.

The *Child Psychopathy Scale* ([CPS;] Lynam, 1997) was also rationally derived from the PCL-R and is rated by parents. The early version comprised 41 items drawn from the Child Behaviour Checklist (Achenbach, 1991) and a version of the California Child Q-Set (Block & Block, 1980) through archival data from the Pittsburgh Youth Study. Recently, the CPS was modified ([mCPS;] Lynam & Gudonis, 2005) to exclude all explicit antisocial behaviour and now allows for an additional self-report version (Spain et al., 2004). The revised measure therefore focuses on affective and interpersonal traits and also contains a 'proneness to boredom' scale. Most research on the CPS has focused on adolescents, aged 11 to 18. Reliability and validity data of the original sample on which the modification was developed remains, as far as we know, unpublished.

The 20-item *Psychopathy Content Scale* ([PCS;] Murrie & Cornell, 2000) was selected from the Millon Adolescent Clinical Inventory ([MACI;] Millon, 1993),

and was developed for screening purposes. Again, most research has been conducted on adolescents (aged 12 to 18). A 16-item version (P-16) of this measure was derived from the 20-item version with similar characteristics (Salekin et al., 2003). This new version, informed by the recommendation of Cooke and Michie (2001) and Frick et al. (2000), contains affective, interpersonal and behavioural items.

The *Youth Psychopathic Traits Inventory* ([YPI; Andershed & Kerr et al., 2002) is a recently developed 50-item self-report measure developed for use in adolescents age 12 and above. The measure mainly contains affective and interpersonal items but also contains behaviour-focused items, such as impulsivity and thrill-seeking.

Psychometric properties of currently used questionnaire measures

Table 1 lists the studies reporting psychometric properties for the APSD, followed by the CPS, PCS and the YPI. Below, the salient features of Table 1 are discussed under the following headings: Reliability (internal consistency reliability, test-retest reliability, inter-rater reliability), factor structure, criterion-related validity, construct validity and predictive validity.

Reliability

Internal consistency reliability. Generally, reliability coefficients for total scores for all measures of juvenile psychopathy are moderate to good. The best way to compare internal consistency across measures is by using multiple measures of psychopathy in the same sample. Thus, Murrie et al. (2004) compared performance of the PCS-SR with self-report (SR) and adult-report (AR) versions of the APSD in incarcerated male adolescents. The APSD-SR performed worse in terms of internal consistency (.71), compared to the APSD-AR (.88) and the self-report PCS (.86) (Frick & Hare, 2001). Spain et al. (2004) demonstrated similar findings. These differences are, however, negligible and it is safe to conclude that according to traditional measures of internal consistency (e.g. Cronbach's alpha) no single measure seems to significantly outperform any other measure.

The question also arises as to which of questionnaire or interview-based measures demonstrate better internal consistency. In a sample of male adolescent incarcerated offenders, Skeem and Cauffman (2003) demonstrated better reliability for the questionnaire-based YPI (.92) compared with the interview-based PCL:YV (.73). However, as is often the case, incarcerated or clinic samples represent a comparatively homogeneous group. The YPI demonstrated only moderate internal consistency (.74) in a large Swedish *community* sample (Andershed & Kerr et al., 2002), probably due to the sample's heterogeneity.

The mixed findings above can be explained by the fact that classical test theory approaches to determining internal consistency rely heavily on the number of items entered into the analysis, the rating source and the age of the sample under investigation. Modern latent variable analyses offer more appropriate ways of determining internal consistency and do not depend on scale length or sample characteristics (see Sharp, Goodyer, &

Croudace, 2006 for a discussion of child psychopathy data; Embretson & Hershberger, 1999; Embretson & Reise, 2000). The importance of applying more appropriate data analytic techniques is demonstrated by psychometric work carried out on the PCS. Although most studies (based on traditional methods of determining internal consistency like Cronbach's alpha) have demonstrated reliability coefficients around .80 for the PCS (see Table 1), the internal consistency of the measure becomes questionable when more appropriate latent trait analyses are applied. For instance, Lexcen, Vincent and Grisso (2004) used Confirmatory Factor Analyses (CFA) to test the unidimensional structure of the PCS and demonstrated a poor fit for the data, thus recommending against the use of the PCS total score.

Test-retest reliability. Only two studies were identified that have considered test-retest reliability. Skeem and Cauffman (2003) demonstrated better test-retest reliability for the YPI (the total score intraclass correlation coefficient was .74) compared with the PCL:YV (.66) whilst McBurnett and Lahey (1994) reported adequate 1 week reliability for the APSD (teacher version).

Inter-rater reliability. The APSD is the only measure that allows for ratings from multiple sources in that it includes parent-, teacher- and self-report versions. Meyer et al., (2001) demonstrated superior inter-rater agreement for the self-report and parent-report versions of the APSD (around .50 across studies), compared with .29 usually demonstrated for measures of emotional and behaviour problems. In contrast, agreement between self-report APSD and adult/staff-rated APSD scores was modest (Murrie & Cornell, 2002).

Whilst significant but low agreement among sources is accepted with regard to conduct disorder, depression and anxiety in children, low agreement amongst sources may be considered more problematic where stable personality variables are the target of interest (Murrie & Cornell, 2002). Establishing adequate inter-rater reliability is further complicated by the fact that adult psychopaths are limited in their ability to reliably report on the affective and interpersonal aspects of their character (Hare, 2003). This may also be true for children and adolescents and was thus addressed by the developers of the YPI (Andershed & Gustafson et al., 2002) and the PCS (Murrie & Cornell, 2002) where psychopathic traits were framed as characteristics that should seem neutral or even appealing to those with psychopathic traits (e.g. 'I usually feel calm when other people are scared') instead of framing items as deficits (e.g. 'My emotions are more shallow than others'). Even so, the PCS showed a significant correlation with a social desirability subscale (Lexcen et al., 2004). Whether self or adult report versions of psychopathy measures turn out to be most reliable can only be answered by pitting versions of questionnaires against each other in criterion validity studies.

Factor structure

Traditionally, adult psychopathy is said to consist of two factors: the interpersonal or affective dimension (shallow affect, insincere charm and reduced empathy

Table 1. Selective review of published studies containing information regarding the psychometric properties of questionnaire measures of juvenile psychopathy

Study design		Measures	Sample	N	Age	Internal consistency	Factor structure	Criterion-related validity	Construct (divergent) validity	Predictive validity
Study										
Frick et al., 1994	APSD-PR APSD-TR	Two clinic-referred groups, predominantly white males (US)	92	6-13	Moderate	2-factor (IC/P and CU)	n/a	Both factors associated with CP symptoms; CU scale (.36) weaker than I/CP (.67).	n/a	
Frick et al., 2000	APSD-PR APSD-TR	Clinic-referred community male & female (US)	160	6-13	Good	CFA: Clinic: 2-factor (I/CP & CU); Community: 3-factor (I/CP, CU, Narc) n/a	n/a	I/CP factor more strongly associated with ASB; CU weaker association with CP but uniquely associated with sensation seeking. CU scale inversely related to anxiety. I/CP and Narc factors more strongly associated with ASB; CU weaker association with CP in both clinic and community samples. Minority groups, older children and boys showed higher scores.	n/a	
Frick & Kimonis et al., 2003	APSD-PR APSD-TR APSD-SR	Community male & female mixed ethnicity (US)	1,136	Mean 10.65	Good T1: .92/.89 T3: .81/.88 T4: .80/.89 T5: .77/.86	n/a	n/a		Stability estimate of .93 over 4-year follow-up for APSD-PR. SES, initial level of ASB and quality of parenting best predictors of stability of APSD traits.	
Lee et al., 2003	APSD-SR*	Male offenders, mixed ethnicity (Canada)	100	14-19	Moderate .77	3-factor	Moderate correlation (.40) with PCL-YV, especially for younger group. High sensitivity, but moderate specificity, optimal cut-off cannot be recommended. .62 correlation with PCL-YV. .39 correlation with PCL-SV. With cut-off of 20, 47% high APSD would be correctly identified on the PCL-YV	No sex or ethnic differences.	n/a	
Vitacco et al., 2003	APSD (SR)*	Male & female offenders, mixed ethnicity (US)	155	Mean 15/16	Moderate .62	CFA: 3-factor preferred to 2-factor	No gender or ethnicity differences	Adolescent offenders in maximum security showed higher scores on CU and Narc factors than those in county detention.		
Frick Cornell & Bodin et al., 2003	APSD	Community male & female (US)	93	Mean 12.43	Good .92	n/a	n/a	CU correlated with thrill-seeking and lower sensitivity to punishment cues.	CU scale predicts later delinquency and proactive aggression beyond CP over 1-year follow-up.	

Table 1. Continued

Study design		Measures	Sample	N	Age	Internal consistency	Factor structure	Criterion-related validity	Construct (divergent) validity	Predictive validity
Study	Measures									
Christian et al., 1997	APSD	Clinic male and female (US)	120	6-13	n/ADHD	n/a	n/ADHD	n/a	Children in CU-conduct group showed greater number and variety of conduct problems & more police contact than I/CP group. Associated with impulsivity & delinquency. Negatively correlated with internalising problems. Incremental validity in the prediction of delinquency across ages 10 & 13.	n/a
Lynam, 1997	CPS-AR	High risk community males (US)	430	12-13	Good .91	2-factor, but highly correlated (.95)	n/a	n/a		
Falkenbach et al., 2003	APSD-SR APSD-PR mCPS-SR mCPS-SR	Male & female arrested youth, mixed ethnicity (US)	69	11-17	Good .82	n/a	n/a	n/a		Both APSD & CPS predicted treatment non-compliance. Predict re-arrest 1 yr follow-up: APSD-SR.33 APSD-PR.40 CPS-SR.36 CPS-PR.56 n/a
Spain et al., 2004	APSD-SR* mCPS-SR	Male offenders (US)	85	11-18	.78 .87	3-factor 3-factor (interpersonal, affective, behavioural)	n/a	n/a	CPS > APSD > PCL:YV in its prediction of disciplinary infractions, ASB and days required to progress in treatment.	n/a
Murrie & Cornell, 2000	PCS-SR*	Male & female psychiatric inpatients, mixed ethnicity (US)	90	12-17	Good .87	n/a	Correlated with PCL-R (.51). Sensitivity 85%, specificity 81%.	n/a	High PCS showed less conformity, anxiety and submissiveness, but higher identity diffusion than low P.	n/a
Loper et al., 2001	PCS-SR	Incarcerated male & female offenders (US)	82	adol	n/a	n/a	Distinguished high and low scorers on PCL-R in 83% of cases.	n/a	Positively related to instrumental violence. Negatively related to empathy, guilt and remorse. APSD-SR & PCA both correlated with violent offending.	n/a
Murrie, et al., 2004	PCS-SR* APSD-SR APSD-AR	Incarcerated males, mixed ethnicity (US)	113	13-18	Good .86 Adequate .71 Good .88	n/a	APSD-SR (.30) APSD-SR (.35) & PCA (.49) correlated moderately with PCL:YV.	n/a	PCL-YV (.35) showed strongest relationship to violent offending, thus better predictor of short-term violence than APSD-SR (.25) and APSD-AR (ns).	

Table 1. Continued

Study design		Measures		Sample	N	Age	Internal consistency	Factor structure	Criterion-related validity	Construct (divergent) validity	Predictive validity
Murrie & Cornell, 2002	PCS* APSD-AR APSD-SR	Male offenders (US)	117	13-18	n/a	n/a		n/a	PCS .49, APSD-SR .30 & APSD-AR.35 correlated with PCL:YV, but stronger correlation with ASB factor of PCL:YV. APSD-SR did not correlate with APSD-AR. Neither APSD or PCS had adequate sensitivity and specificity	n/a	n/a
Lexcen et al., 2004	PCS-SR PCS-SR	Males in detention centers (US)	481	12-17	CFA indices poor	2-factor	n/a	PCS identified youth who were distressed on several measures of emotional, psychological, and behavioural disorder. PCS associated with ASB. PCS associated with ethnicity. n/a	Postdictive analyses of legal status found no relationship.		
Salekin et al., 2003	P-16-SR	Male & female court-referred young offenders, mixed ethnicity (US)	55	13-17	.82 .86	3-factor (narc, substance abuse, ASB) 3-factor (narc, CU, ASB)	n/a	Only ASB aspect of PCS predicted recidivism.			
Andershed et al., 2002	YPI	Community male & female (Sweden)	1,024	16	Moderate .74 average across scales	3-factor (interpersonal, affective, behavioural)	n/a	All aspects of P-16 predicted recidivism over 2 year period. Total score gave best results. n/a			
Skeem & Cauffman, 2003	YPI*	Incarcerated male offenders, mixed ethnicity (US)	160	14-17	Good .92 test-retest reliability, .74	3-factor (interpersonal, affective, behavioural)	.30 PCL:YV (3 factor) .24 PCL:YV (2 factor) Sensitivity .63 Specificity .63	High YPI obtained higher ratings of ASB than low YPI group. YPR inversely related to anxiety & maturity.	No postdictive power for ASB. Predicted prospective violent infractions over 1 month.		

*Studies in which the PCL:YV, PCL:SV or PCL-R is used as 'gold standard'

APSD = Antisocial Process Screening Devise
 CU = callous unemotional subscale of the APSD
 I/CP = impulsivity/conduct problems subscale of the APSD
 Narc = narcissism subscale of the APSD
 CPS = Child Psychopathy Scale
 mCPS = modified Child Psychopathy Scale
 PCS = Psychopathy Content Scale (20-item self-report instrument derived from the Millon Adolescent Clinical Inventory - MACI)
 P-16 = 16-item psychopathy scale derived from the Millon Adolescent Clinical Inventory (MACI)
 YPI = Youth Psychopathic traits Inventory
 SR = self-report
 PR = parent-report
 TR = teacher-report
 AR = adult report (e.g. during incarceration)
 ASB = antisocial behaviour

and guilt); and the social deviance dimension (impulsivity and poor behavioural control associated with an antisocial lifestyle). The two-factor structure has been replicated for the APSD in clinic-referred youth samples and include a callous/unemotional (CU) and an impulsivity/conduct problems (I/CP) factor (Frick et al., 1994, 2000). A two-factor structure has also been demonstrated to underlie items on the PCS (Lexcen et al., 2004).

Recently, through the application of Item Response Theory (IRT), a three-factor structure was suggested for adult psychopathy: arrogant and deceitful interpersonal style; impulsive and irresponsible behaviour; and a deficient affective style (Cooke & Michie, 1997, 2001). This three-factor model is based on 13, rather than the original 20 items, excluding the purely behavioural items from the traditional measure. When latent trait analyses (e.g. CFA) have been used to investigate the factor structure of juvenile psychopathy measures, the structure that best captures the underlying construct is consistent with Cooke and Michie's (1997; 2001) three-factor structure for both the APSD (Frick et al., 2000; Vitacco, Rogers, & Neumann, 2003; Lee et al., 2003), the PCS and PS-16 (Salekin et al., 2003).

Consistent with the above, there has been a recent move to omit the behavioural (antisocial) factor in juvenile psychopathy measures. For instance, Lynam and Gudonis (2005) modified the CPS to exclude all explicit antisocial behaviour items. Spain et al. (2004) demonstrated that this modified version outperformed the APSD and the PCL:YV in predicting a variety of antisocial variables. It may therefore be that the omission of the behavioural aspect of psychopathy provides a less convoluted, and consequently more defined representation of the core characteristics of juvenile psychopathy.

The same line of thought was followed by the developers of the YPI (Andershed & Kerr et al., 2002). The YPI focuses on the core psychopathy traits (interpersonal and affective) rather than the nonspecific indices of antisocial behaviour (Skeem & Cauffman, 2003). The focus on the core affective and interpersonal traits of psychopathy tallies with Frick's work which have shown that the callous/unemotional (CU) traits of the APSD are most important for distinguishing early-onset and more severely impaired conduct-disordered children (Frick & Ellis, 1999). Another possible advantage of focusing on affective/interpersonal core traits is that these may be the more biologically based features distinguishing psychopathy from other aggressive disorders, and thus may be more generalisable across developmental stages.

Criterion-related validity

There are few studies investigating criterion validity for the APSD. Only two studies appear to have investigated performance against a gold standard or criterion measure of psychopathy. Vitacco et al. (2003) showed that, with a cut-off of 20 on the APSD, sensitivity and specificity of .75 and .78 respectively, and a positive predictive power on the PCL:YV of 47% could be obtained. However, Lee et al. (2003) could not recommend an optimal cut-off that clearly maximised an overall diagnostic cut-off. Using more appropriate latent trait

analyses, these authors suggested low concurrent validity for the APSD. Recently, Lee et al. (2003) used structural equation modelling to study the concurrent validity between the APSD-SR and the PCL:YV and demonstrated a method effect (interview-based vs. self-report) challenging the use of the PCL:YV as a criterion measure. Indeed, relatively little psychometric work has been carried out on the PCL:YV. Like other measures of juvenile psychopathy, the PCL:YV is predicated on the assumption that child psychopathy mirrors adult psychopathy – an aspect on which there exists no unequivocal agreement yet. Until we have a better understanding of the general phenomenology of juvenile psychopathy, the PCL:YV does not seem ready to be considered as a 'gold standard' for juvenile psychopathy.

These concerns notwithstanding, more recently developed measures have performed well when validated against the PLC-YV. The PCS was validated against the PCL-R (Murrie & Cornell, 2000) and the PCL:YV (Murrie & Cornell, 2002) resulting in a suggested cut-off score of 14 (Murrie & Cornell, 2002). Skeem and Cauffman (2003) showed that a threshold of 2.5 yields an optimal balance between the sensitivity and the specificity for the YPI in predicting psychopathy on the PCL:YV. They also showed that a youth deemed psychopathic by the PCL:YV has a 68% chance of scoring more highly on the YPI than a randomly chosen youth not deemed psychopathic.

Construct validity

Construct validity of psychopathological constructs is demonstrated when there is evidence for a coherent syndrome (Johnstone & Cooke, 2004), usually confirmed by convergent and divergent validity. As shown in Table 1, most measures of juvenile psychopathy have demonstrated feasibility in this regard.

Frick and co-workers (1994; 2000; 2003) demonstrated that the callous/unemotional (CU) subscale of the APSD is weakly associated with conduct symptoms compared with the impulsivity/conduct problems I/CP scale, in addition to being uniquely associated with sensation-seeking and a lower sensitivity to punishment cues, and inversely related to anxiety. Christian et al. (1997) employed cluster analyses and showed that a group comprising children scoring high on CU and conduct problems showed a greater number and variety of conduct problems and a higher frequency of police contact.

Similar findings have been demonstrated for the CPS as rated by adult staff members (Lynam, 1997; Spain et al., 2004). However, Johnstone and Cooke (2004) pointed out that, in terms of its face validity, the CPS lack potentially important items linked specifically with the construct of psychopathy in adults, e.g. grandiosity and stimulation seeking. A boredom susceptibility scale was recently added which increases the mCPS's face validity (Lynam, 2005), but to our knowledge only one published study exists of this measure (Spain et al., 2004).

The PCS demonstrated its construct validity by its association with crimes and its negative relationship with empathy, guilt and remorse (Loper, Hoffschmidt, & Ash, 2001). So does the YPI, which positively correlates with measures of antisocial behaviour (Andershed &

Kerr et al., 2002) and negatively correlates with anxiety (Skeem & Cauffman, 2003).

Predictive validity

In contrast to test-retest reliability, predictive validity is important for demonstrating not only the long-term stability of a construct or measure over time, but also its power to predict key outcome variables. At present, evidence supporting the claim that psychopathic traits represent a stable personality pattern that continues into early adulthood is at best indirect (Edens et al., 2001). Given the fact that a significant percentage of adolescents engage in antisocial behaviour of a transient nature (Moffitt et al., 2001), and that increased egocentricity is characteristic of normal adolescent development, it is essential to demonstrate stability (or at least heterotypic continuity) of juvenile psychopathy and independence from measures of developmental maturity if this construct is to have any clinical or forensic utility.

Table 1 testifies to the fact that amongst the few longitudinal studies that have been carried out (Falkenbach, Poythress, & Heide, 2003; Frick et al., 2003), most were short-term in scope. One exception is a 4-year follow-up carried out on the APSD (Frick et al., 2003), which demonstrated more stability for parent ratings of psychopathy than other psychopathological constructs in community samples reported in other studies (Verhulst, Koot, & Berden, 1990). Although encouraging, the sample size was small (25 in each group), thus necessitating replication.

Other, more short-term studies that have included a longitudinal component (either through the prediction or postdiction of violence or aggression) have been remarkably similar in their findings, with the strength of most predictions of total scores being between .20 and .40 (Edens et al., 2001).

Only one published study reported longitudinal findings for the recently revised mCPS. Falkenbach et al. (2003) showed that the mCPS is a significant predictor of re-arrest and treatment non-compliance. Although promising, this study did not employ multivariate analyses and did not attempt to control for important variables like initial level of conduct symptoms.

Mixed results have been found for the PCS. Lexcen et al. (2004), using retrospective data, were unable to demonstrate predictive validity for the PCS and legal status. However, another study demonstrated good predictive validity for recidivism over a 2-year follow-up period (Salekin et al., 2003).

Utility value in community, clinical and forensic settings

One indicator of the utility value of questionnaire measures for use in community, clinical and forensic settings is its ability to demonstrate diagnostic efficiency. As discussed earlier, in the absence of an adequate gold standard for juvenile psychopathy, this has not been achieved, with the result that different studies seem to be using different cut-offs (e.g. [APSD]; Stevens, Charman, & Blair, 2001; Blair et al., 2001; Vitacco et al., 1999). In this sense, measures do not yet

demonstrate diagnostic efficiency for either clinical/forensic and community settings. In fact, only two measures have been validated for use in community settings – the APSD and the YPI. Community studies of juvenile psychopathy are important to assist in deciding which measures are optimal for the identification of sub-threshold symptoms for the purposes of early intervention (Goodman et al., 1997).

Another difficulty with using questionnaire measures of psychopathy for either research or clinical purposes is that no explicit guidance is provided for achieving a rating. Given the conflicting results regarding the underlying factor structure for these measures, researchers and clinicians remain unclear as to whether to use total scores or subscale scores, and which items to choose for each subscale. In addition, since scores are combined across raters for some measures (e.g. the APSD), it remains unclear whether only one rating source would suffice.

On the topic of raters, this review revealed that, in deciding which measure to use, researchers and clinicians should pay careful consideration to validity data on rater efficiency. As shown in Table 1, the APSD staff ratings are not adequate in predicting violence as compared with the PCS or the APSD self-report ratings (Murrie et al., 2004). Doubt was furthermore cast on the reliability of self-report data especially with regard to the affective and interpersonal components of psychopathy. More research is required before self-report ratings alone can be used in judicial and clinical treatment decision making.

Despite these problems, this review testifies to moderate agreement between measures of juvenile psychopathy and various types of antisocial behaviour across different settings and age ranges. Although a similar magnitude of association is mirrored in adult samples, it remains unknown whether this relationship is stable from childhood to adulthood. Most authors (Edens et al., 2001; Murrie & Cornell, 2004; Skeem & Petrila, 2004; Frick, 2002) therefore argue for exercising caution in applying the construct of juvenile psychopathy in clinical, forensic or educational settings beyond short-term decision making.

Another problem in the clinical/forensic utility of psychopathy at present is the fact that virtually nothing is known about its usefulness to predict treatment outcome. Exceptions include the APSD (Spain et al., 2004; Hawes & Dadds, 2005) and the mCPS (Spain et al., 2004; Falkenbach et al., 2003).

Conclusion and future research

The construct of juvenile psychopathy may have serious implications for youngsters' liberty and treatment options. For instance, psychopathic traits in the description of a juvenile offender have been shown to increase members of American college students' endorsement of the death sentence for juveniles (Edens, Guy, & Fernandez, 2003). Given the findings of this review that the development of measures of juvenile psychopathy is by and large still in its infancy, we agree with Edens et al. (2001) that their use in the clinical/forensic setting may be considered unethical at this stage. Questionnaire measures are perhaps at present

more suited for screening purposes that may lead to more comprehensive clinical interview, file review and the gathering of collateral information. Special attention should be paid especially when using questionnaire measures with children aged 6–12.

The above precautions notwithstanding, interest in juvenile psychopathy is reflected in the fact that special issues of Behavioural Sciences and the Law (Petrla & Skeem, 2003; Skeem & Petrla, 2004) and the Journal of Abnormal Child Psychology (Salekin & Frick, 2005) have recently been devoted to the topic. Below, we outline future directions for research that may further refine measures of juvenile psychopathy with the ultimate aim of bolstering this potentially useful construct.

First, more criterion-related validity studies, especially in UK samples need to be conducted. Second, methods used to determine internal consistency (e.g. Cronbach's Alpha) are not optimal and there is not yet agreement on the factor structure underlying the construct of juvenile psychopathy. The use of a stronger measurement model to address these issues is therefore recommended. Johnstone and Cooke (2004) suggested a roadmap with three requirements: the demonstration of configural invariance of symptoms across key ages, similar performance of age cognate symptoms across key ages, and stability of relative standing on the latent trait across ages. The optimal way of achieving this is through the use of latent variable modeling techniques, such as IRT, CFA and SEM. Currently, there are very few studies that have applied such methodologies in developmental psychopathology in general (Cheong & Raudenbush, 2000; Sharp et al., 2006) and psychopathy research in particular (Johnstone & Cooke, 2004).

Third, more longitudinal work should be conducted, including measures of developmental maturity (Skeem & Cauffman, 2003). In particular, stable traits of psychopathy need to be disentangled from malleable characteristics of maturity during the transition from adolescence to adulthood.

Finally, confidence in the construct is likely to be bolstered by research focusing on the biological basis of juvenile psychopathy. Whilst studies such as those discussed here certainly provide preliminary evidence for the construct it is also true that typically, when a diathesis and associations with fundamental abnormalities of a psychological or biological nature can be demonstrated for a psychopathological construct across developmental stages, confidence in the construct increases (Johnstone & Cooke, 2004).

Taken together, the above agenda may dispel some of the fears and confusion regarding this potentially useful construct. Until then, the practical use of juvenile psychopathy measures in clinical and forensic settings remains uncertain.

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