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Self-reported psychopathic traits and socio-emotional function in 9-12 year old children from the community

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Self-reported psychopathic traits in children Their stability and concurrent and prospective association with conduct problems and aggression

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3. Self-reported psychopathic traits in children

Abstract

The current study investigated the 18-month stability of self-reported psychopathic traits measured through the Youth Psychopathic traits Inventory – Child Version (YPI-CV) and their concurrent and prospective associations with conduct problems and aggression in a sample of 9–12 year olds ($n=159$, 52% boys) from the community. Self-reported psychopathy scores were moderately to highly stable and traits were positively related to conduct problems both concurrently and at follow-up, the latter even after controlling for initial levels of conduct problems. Higher self-reported psychopathic traits were also related to higher reactive, but particularly proactive aggression at follow-up. Finally, children with persistently high levels of psychopathic traits exhibited higher levels of conduct problems and proactive aggression at follow-up than those with unstable or stable low psychopathic traits.

Introduction

Psychopathy stands for a constellation of personality traits such as callousness, manipulativeness, egocentricity, impulsivity and a need for stimulation (e.g. Cleckley, 1988; Hare, 2003). This spectrum of characteristics can be classified in three dimensions: affective callous-unemotional, interpersonal grandiose-manipulative and impulsive and irresponsible traits (Cooke & Michie, 2001). Psychopathy is a well documented predictor of violence and criminality among adults (Douglas, Vincent, & Edens, 2006; Hare, 2003) and it is therefore not surprising that an increasing number of studies focuses on psychopathic traits in younger age groups. The majority of these studies have pertained to adolescent populations, but a number of studies has also tested the psychopathy concept in preadolescent children. Generally, these studies suggest that psychopathic traits can indeed be measured reliably and validly in childhood. At a young age, these traits show notable similarities to those in adults in a number of key respects: factor structure, stability over time and relation to criterion variables.

With respect to the factor structure, psychopathic traits in children have been demonstrated to combine into the same three dimensions that comprise adult psychopathy (Frick, Bodin, & Barry, 2000; Van Baardewijk, Stegge, Andershed, Thomaes, Scholte, & Vermeiren, 2008). Although, like in adulthood (e.g. Hare, 1991; 2003), other factor structures have also been described (Dadds, Fraser, Frost, & Hawes, 2005; Frick, O'Brien, Wootton, & McBurnett, 1994), and there has been some discussion about the relative value of each of the dimensions (e.g. the callous-unemotional traits as the most defining characteristics, see Frick & White (2008) for a review).

With respect to stability, if the concept of child psychopathy is to be viable, it should demonstrate significant stability over time both during childhood and into

adolescence (Seagrave & Grisso, 2002). Indeed, both at mean and rank order level, psychopathic traits have shown moderate to high stability across childhood and into adolescence in various samples, over periods ranging from 1 to 9 years (Barry, Barry, Deming, & Lochman, 2008; Dadds et al., 2005; Frick, Kimonis, Dandreaux, & Farell, 2003; Obradović, Pardini, Long, & Loeber, 2007). Interestingly, recent studies looking at individual level stability, have demonstrated that higher stability of psychopathic traits in youth was predictive of worse outcome (i.e. higher levels of antisocial personality characteristics in young adulthoods; Pardini & Loeber, 2008) and worse outcome of a parent-training intervention in young boys (Hawes & Dadds, 2007), which suggests that it is worthwhile to focus on the predictive utility of differences in the stability of psychopathic traits.

Finally, if psychopathy is a viable construct in children, one would expect to find relations to criterion variables analogous to those in adults. In adults, psychopathy is strongly related to antisocial behaviors and aggression. Offenders with high psychopathic traits commit both more, and more varied, crimes than offenders with low levels of these traits (e.g. Hare, 2003; Kosson, Smith, & Newman, 1990) and the crimes they commit are more violent in nature (e.g. Hemphill, Hare, & Wong, 1998; Porter, Birt, & Boer, 2001; Serin & Amos, 1995). While aggression in offenders with low psychopathic traits can generally be characterized as a hostile, emotional and impulsive reaction in response to a perceived threat (reactive violence or aggression; Dodge & Coie, 1987) psychopathic offenders show a particular disposition toward premeditated, 'cold blooded' and goal directed violence (proactive violence; Dodge & Coie, 1987) in addition to their elevated levels of reactive aggression (Porter & Woodworth, 2006). This tendency towards instrumental violence may be explained by their low levels of autonomic arousal, emotional attachment and empathy (Meloy, 2006). As expected, similar findings with respect to externalizing behaviors have been described in children. Psychopathic traits have shown to be useful in designating an important subgroup within the heterogeneous group of preadolescent children showing behavioral problems. The presence of these traits is associated with more severe antisocial behaviors and delinquency, both concurrently and predictively over follow-up periods ranging from 1 to 7 years (Christian, Frick, Hill, & Tyler, 1997; Dadds et al., 2005; Frick, Cornell, Barry, Bodin, & Dane, 2003; Kimonis, Frick, Fazekas, & Loney, 2006; Lynam, 1997; Piatigorsky & Hinshaw, 2004). Furthermore, children with high psychopathic traits show higher levels of reactive aggression but, like in adults, particularly of proactive or instrumental aggression than children with behavioral problems without psychopathic traits (Frick, et al., 2003a; Waschbusch & Willoughby, 2008).

To conclude, findings with respect to the factor structure of psychopathy, the stability and the concurrent and prospective relationships to externalizing behaviors suggest that the concept is viable, not only in adults and adolescents, but in preadolescent youth as well. (For reviews, which also cover similarities pertaining to

emotional and cognitive functioning, see Frick & Dickens, 2006; Frick & White, 2008; Kotler & McMahon, 2005; Lynam & Gudonis, 2005).

A recent development in the discussion concerning psychopathic traits in children pertains to the use of informants. All cited studies investigating psychopathic traits in children have relied on parent and/or teacher report, with the majority of those using versions of the Anti-social Process Screening Device (APSD; Frick & Hare, 2001). However, correlations between scores on measures of psychopathy using various informants have generally been low, possibly indicating that a single (external) source of information is not covering the full manifestation of the construct. In fact, for a number of reasons, the use of an internal source (i.e. self-report) may provide an important perspective on children's psychopathic traits in addition to external, third party reports. First, in general, children are in the unique position to report on behaviors across a range of situations, including the home, the classroom and the playground. Second, specifically to psychopathy, internal emotional states central to the psychopathic constellation, such as the lack of empathy or guilt, may be more evident to children themselves than to untrained observers such as parents or teachers (Andershed, Kerr, Stattin, & Levander, 2002; Lilienfeld, & Andrews, 1996; Muñoz & Frick, 2007). Third, the use of self-report minimizes the contamination between core psychopathic personality traits and their, more conspicuous but secondary, antisocial behavioral consequences. There is reason to assume that preadolescent children themselves are indeed capable of rating these traits through self-report as children from approximately nine years of age have been shown to reliably and meaningfully report on constructs related to psychopathy such as empathy (Bryant, 1982), guilt (Ferguson, Stegge, Eyre, Vollmer, & Ashbaker, 2000) and narcissism (Barry, Frick, & Killian, 2003; Thomaes, Stegge, Olthof, & Bushman, 2008).

In adults and adolescents, there has been growing empirical support for the use of self-report in the study of psychopathy (e.g. Andershed, Hodgins, & Tengstrom, 2007; Andershed et al., 2002; Dolan & Rennie, 2006, 2007; Edens, Poythress, & Watkins, 2001; Larsson, Tuvblad, Rijdsdijk, Andershed, Grann, & Lichtenstein, 2007; Lilienfeld & Andrews, 1996; Sandoval, Hancock, Poythress, Edens, & Lilienfeld, 2000). In preadolescent children, only one empirical study to date has focused uniquely on the utility of self-report (Van Baardewijk et al., 2008). It involved the validation of a downward extension of the adolescent Youth Psychopathic traits Inventory (YPI; Andershed et al., 2002). This child instrument, named the Youth Psychopathic trait Inventory-Child Version (YPI-CV), is an age-appropriate adaptation of the adolescent instrument that matches the cognitive, emotional and verbal development and social realities of 9–12 year olds. The validation study reported excellent results with respect to the internal consistency of the measure: a three factor structure similar to its adolescent counterpart, comprising the three core personality dimensions of psychopathy (Cooke & Michie, 2001; grandiose-manipulative traits, callous-unemotional traits and impulsive-

irresponsible traits and behaviors) and high Cronbach's alphas (.80–.92) and test-retest reliability coefficients (ICCs) over 2 and 6 months of .77 and .76, respectively. Furthermore, the convergent and divergent validity of the three individual dimensions was shown by demonstrating unique relations of each of these dimensions to external criterion measures assessing the same construct (narcissism, empathy and impulsivity/hyperactivity/inattention-problems, respectively). Finally, like the original adolescent YPI, the child version was shown to work equally well for boys and girls.

The current study sought to expand on these findings by investigating the stability of self-reported psychopathic traits over time and by examining the concurrent and prospective association between self-reported psychopathic traits and socially relevant behaviors that have typically been associated with these traits in both adults and children: conduct problems and aggression (e.g. Christian et al, 1997; Dadds et al., 2005; Frick et al, 2003a; Hare, 2003; Kosson et al., 1990). Based on our earlier positive indications regarding the reliability and validity of self-report of psychopathic traits in children (Van Baardewijk et al., 2008), we expected to replicate earlier findings with respect to externalizing behaviors.

First, we hypothesized significant stability of self-reported psychopathic traits between baseline and follow-up (18 months later). Second, we hypothesized a positive association between psychopathic traits and conduct problems both concurrently and at follow-up. In assessing conduct problems, both self, peer and teacher reports were used to provide a wide scope on children's behavioral problems. Third, we hypothesized psychopathic traits to be related to aggression at follow-up, particularly to proactive aggression. Finally, as recent research suggests that differences in levels of stability of psychopathic traits have predictive relevance for future externalizing behaviors, we hypothesized that children with the most stable high self-reported psychopathic traits would show the worst outcome in terms of follow-up conduct problems and aggression. As there has been some discussion about the relative value of the different psychopathy dimensions (e.g. Frick & White, 2008), both the YPI-CV total score and the individual dimensions were explored within these four hypotheses.

Method

Participants

The participants were obtained from the same four medium sized primary schools in the Netherlands that had participated in the YPI-CV validation study ($n=360$; Van Baardewijk et al., 2008). Before the follow-up assessment one school ($n=68$) declined cooperation stating it was a busy time of the year. Additionally, all children ($n=133$) who were in grade 8 (the final grade in Dutch primary schools) during baseline assessment had finished their primary education at follow-up, and had transferred to various high schools. These children could therefore not be retested and were not included in

the present study. This resulted in a final sample size of $n=159$ (51.6% boys). No differences were found between the current sample and the children that could not be followed up in gender ($\chi^2(1)=2.35$, $p=.14$), baseline psychopathy scores ($t(313)=.15$, $p=.88$), self rated conduct problems ($t(358)=-.29$, $p=.77$), teacher rated conduct problems ($t(363)=1.39$, $p=.16$) or peer rated conduct problems ($t(327)=.54$, $p=.94$). Age, however, did differ significantly between these samples as it were the oldest children at baseline assessment that finished their primary schooling and had continued their education in high school ($t(365)=11.64$, $p<.000$). Average age of the current sample was 10.4 ($SD=.67$; range 9.1–12.3) at baseline assessment, and 11.8 ($SD=.67$; range 10.6–13.7) at follow-up. Average age of children that were not followed up was 11.35 ($SD=.91$) at baseline assessment. Most children (85%) were Caucasian; 15% had other (e.g. Surinam/Lesser Antilles, North African) or mixed ethical/cultural origins.

Measures

Youth Psychopathic trait Inventory – Child Version (YPI-CV) – Psychopathic traits were assessed using the Youth Psychopathic traits Inventory – Child Version (Van Baardewijk et al., 2008), a 50-item self-report instrument measuring the three core personality dimensions of psychopathy: grandiose-manipulative traits, callous-unemotional traits and impulsive-irresponsible traits and behaviors. The instrument was adapted from the original Youth Psychopathic trait Inventory intended for adolescents (YPI; Andershed et al., 2002). The current child version was developed for use in 9 to 12 year olds. Items are scored on a 4-point scale (1=does not apply at all – 4=applies very well). Sample items: “Feeling bad when you have done something wrong is a waste of time.”, “It’s fun to make up stories and try to get people to believe them.” and “I find rules to be nothing but a nuisance”. Van Baardewijk et al. (2008) reported the measure to be internally consistent. Confirmatory factor analyses showed the three factor structure to be similar to that of the original adolescent version. Cronbach’s alphas of the total score and factors ranged between .80 and .92 and test-retest reliability coefficients (ICC’s) over 2 and 6 months were .77 and .76 respectively. The instrument is available in English and Dutch.

Strengths and Difficulties Questionnaire (SDQ) – conduct problems scale – The Strengths and Difficulties Questionnaire (Goodman, 1997) is a widely used 25-item behavioral screening device, including both teacher/parent and self-report versions. In the current study, only the self-report version was used, which is intended for 11 to 16 year olds, but has been used successfully in 8 to 13 year old non-clinical children as well (Muris, Meesters, Eijkelenboom, & Vincken, 2004). The measure is scored on a three-point scale: *not at all true* – *somewhat true* – *certainly true*. The instrument assesses five domains: emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems and prosocial behavior. Each scale consists of 5

items. Only the conduct problems scale will be reported on in the current study. The internal consistency and test–retest stability of the SDQ have been reported to be satisfactory (Goodman, 1997, 2001).

Problem Behavior at School Interview (PBSI) – CD/ODD scales – Problem behavior was assessed using the ODD and CD scales from the Problem Behavior at School Interview (Erasmus MC, 2000) a 32-item teacher interview assessing externalizing behavior in children. In the current study a paper and pencil version was used. Teachers rated each child’s behavior on a 5-point scale. The ODD symptoms scale comprises 5 items, for example: “This child is disobedient”. The CD symptoms scale comprises 7 items, for example: “This child steals”. The two scales were taken together to form one problem behavior scale. Cronbach’s alpha of the combined problem behavior scale was .89.

Peer-report Measure of Internalizing and Externalizing Behavior (PMIEB) – peer-rated conduct problems – Peer-rated conduct problems was assessed using the Peer-report Measure of Internalizing and Externalizing Behavior (Weiss, Harris, & Catron, 2002), a well established peer-nomination inventory that assesses psychopathology in school-aged children. Participants were asked to select up to three of their classmates who best fit the description of conduct problems. For example: “Select up to three children who are not always honest” and “Select up to three children who take things that do not belong to them”. The PMIEB validation article reported a Cronbach’s alpha of .84 for this scale (Weiss et al., 2002).

Reactive and Proactive Aggression questionnaire – The RPQ (Raine, Dodge, Loeber, Gatzke-Kopp, Lynam, Reynolds, Stouthamer-Loeber, & Liu, 2006) is a brief 23 item self-report measure aiming at measuring reactive and proactive aggression. Sample items are: “How often have you had fights with others to show who was on top” (proactive aggression) and “How often have you damaged things because you felt mad” (reactive aggression). The validation study reported a significant fit for a two factor proactive–reactive model that was replicated in an independent sub sample. Cronbach’s alphas ranged from .81 to .86 for reactive aggression and .84 to .87 for proactive aggression. Additionally, the two forms of aggression differentially correlated to various types of problem behavior. The two forms of aggression were highly correlated in our sample ($r=.68$, $p<.000$). This is consistent with the RPQ validation study (Raine et al., 2006) and numerous other studies investigating proactive and reactive aggression. Therefore, in addition to calculating the ‘raw’ reactive and proactive aggression scores, Raine et al. (2006) proposed calculating residual scores as measures of ‘pure’ reactive and proactive aggression. This was done by regressing proactive aggression onto reactive aggression, and vice versa, and saving the standardized residuals.

Procedure

Baseline (December 2005) and the follow-up assessment (June 2007) were 18 months apart. Teachers had worked with the children for at least 3 months at each assessment, children had known each other for several years. At both assessments, parental consent was obtained. At baseline assessment, 95% allowed their child to take part in the study, and 99% did so at follow up. All children with parental consent completed their self and peer report questionnaires. At each assessment children filled out their questionnaires during regular school time. It was pointed out to all participants that the results would remain confidential and that neither parents nor teachers would be informed of their individual answers. Additionally, teacher reports were collected at both time points. All questionnaires were filled out both at baseline and at follow-up assessment, except for the RPQ aggression questionnaire, which was only administered at follow-up. At baseline assessment, schools were paid €200 in gift vouchers for their cooperation.

Results

Table 1 displays the untransformed descriptive statistics for both the baseline and follow-up measures. Overall, behavior problems and aggression measures were positively skewed, which is common in non-referred samples as these are generally characterized by low levels of externalizing symptoms. Therefore, square root transformations were performed prior to further analyses.

Table 1. Descriptive statistics for baseline and follow-up measures.

	Baseline assessment				Follow-up assessment			
	Mean score	SD	Minimum	Maximum	Mean score	SD	Minimum	Maximum
YPI-CV Psychopathy total score	1.63	.40	1.02	3.40	1.63	.37	1.00	2.74
YPI-CV Callous-Unemotional dimension	1.61	.46	1.00	3.47	1.49	.40	1.00	3.13
YPI-CV Grandiose-Manipulative dimension	1.42	.41	1.00	3.40	1.40	.36	1.00	2.75
YPI-CV Impulsive-Irresponsible dimension	1.92	.54	1.00	3.60	2.05	.57	1.00	3.73
PBSI conduct problems (teacher)	.54	.64	.00	2.58	.74	.78	.00	3.79
SDQ conduct problems (self)	.40	.33	.00	1.40	.38	.32	.00	1.60
PMIEB conduct problems (peers)	1.63	2.62	.00	18	5.17	7.97	.00	34
RPQ reactive aggression					.72	.36	.00	1.82
RPQ proactive aggression					.17	.24	.00	1.33

Note: YPI-CV= Youth Psychopathic traits Inventory-Child Version, SDQ = Strengths and Difficulties Questionnaire, PBSI = Problem Behavior at School Interview, PMIEB = Peer-report Measure of Internalizing and Externalizing Behavior, RPQ = Reactive and Proactive Aggression Questionnaire

Stability of self-reported psychopathic traits – Stability of psychopathic traits measured using the YPI-CV was assessed over a period of 18 months. Consistent with previous studies in this field (e.g. Barry et al., 2008; Frick et al., 2003b) average measure intraclass correlation coefficients (ICCs), with an absolute agreement definition were used. ICCs are sensitive to rank order, as well as to absolute level of scores and are therefore preferred over correlation coefficients to assess stability of scores over time. ICCs were .73 for the YPI-CV total score, .63 for the Callous-Unemotional dimension, .59 for the Grandiose-Manipulative dimension and .76 for the Impulsive-Irresponsible dimension. These results indicate moderate to high stability over a period of 18 months.

Concurrent and prospective relationships between self-reported psychopathic traits and conduct problems – Table 2 shows zero-order correlations between baseline YPI-CV total score and factor scores and peer and teacher reported problem behavior measured at baseline and follow-up. The partial correlations between the YPI-CV scores and follow-up conduct problems, each controlled for the baseline score on the conduct problems measure, are displayed between brackets.

The zero-order correlations in Table 2 revealed significant associations between YPI-CV total score and factor scores and all measures of conduct problems, both concurrently and prospectively. The partial correlations showed that psychopathic traits

Table 2. Zero-order and partial correlations between baseline YPI-CV total score and dimension scores and conduct problems measured at baseline and follow-up.

	Baseline assessment			Follow-up assessment		
	SDQ conduct problems (self)	PBSI conduct problems (teacher)	PMIEB conduct problems (peers)	SDQ conduct problems (self)	PBSI conduct problems (teacher)	PMIEB conduct problems (peers)
YPI-CV Psychopathy total score	.47**	.35**	.31**	.36** (.18*)	.38** (.19*)	.37** (.20*)
YPI-CV Callous- Unemotional dimension	.36**	.29**	.21**	.29** (.14)	.34** (.18*)	.27** (.17*)
YPI-CV Grandiose- Manipulative dimension	.38**	.26**	.25**	.27** (.11)	.31** (.16)	.29** (.15)
YPI-CV Impulsive- Irresponsible dimension	.49**	.35**	.35**	.39** (.20*)	.35** (.16)	.41** (.20**)

Note: Partial correlations are in brackets. YPI-CV= Youth Psychopathic traits Inventory-Child Version, SDQ = Strengths and Difficulties Questionnaire, PBSI = Problem Behavior at School Interview, PMIEB = Peer-report Measure of Internalizing and Externalizing Behavior, ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed). $n = 127$ (PBSI conduct problems at follow-up) to $n = 149$ (PMIEB conduct problems at follow-up)

Table 3. Zero-order and partial correlations between baseline YPI-CV total score and dimension scores and residual proactive and reactive aggression at follow-up

	Follow-up assessment			
	RPQ proactive aggression	RPQ reactive aggression	RPQ residual proactive aggression	RPQ residual reactive aggression
Baseline assessment YPI-CV Psychopathy total score	.52** (.37**)	.44** (.31**)	.30** (.18*)	.10 (.07)
YPI-CV Callous-Unemotional dimension	.41** (.28**)	.31** (.18**)	.28** (.18*)	.02 (–.01)
YPI-CV Grandiose-Manipulative dimension	.39** (.25**)	.35** (.23**)	.21* (.10)	.10 (.08)
YPI-CV Impulsive-Irresponsible dimension	.55** (.41**)	.49** (.36**)	.31* (.19*)	.13 (.10)

Note: Partial correlations are in brackets. YPI-CV= Youth Psychopathic traits Inventory-Child Version, RPQ = Reactive and Proactive Aggression Questionnaire, ** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed)., $n=146$

were related to follow-up conduct problems even after controlling for initial levels of these problems, although a number of partial relations just failed to reach conventional levels of significance ($p=.06$ and $.07$), mainly those involving the Grandiose-Manipulative dimension.

Prospective relationships between self-reported psychopathic traits and proactive and reactive aggression – To investigate further the prospective relationship between self-reported psychopathic traits and externalizing behaviors, correlations between baseline YPI-CV scores and aggressive behaviors 18 months later were calculated. Correlations between baseline psychopathy scores and both ‘raw’ and residual proactive and reactive aggression at follow-up are displayed in Table 3. Partial correlations, controlled for baseline self-reported conduct problems (SDQ) are displayed in brackets. As can be read from Table 3 the YPI-CV total score and all dimension scores were positively related to ‘raw’ proactive and reactive aggression at follow-up. With respect to the residual aggression measures, the YPI-CV scores were positively related to residual proactive aggression, even when controlling for baseline conduct problems, but not to residual reactive aggression.

The relationship between stability of self-reported psychopathic traits and externalizing behaviors – To investigate whether the 18-month stability of psychopathy scores would be related to conduct problems and aggression at follow up, a stability variable was composed based on a median split on both baseline and follow-up YPI-CV scores following the procedure by Hawes & Dadds (2007). Three groups were created: 1) ‘stable-high’ ($n=51$) constituted participants with scores above the median at baseline and follow-up, 2) ‘stable-low’ ($n=58$) constituted those with

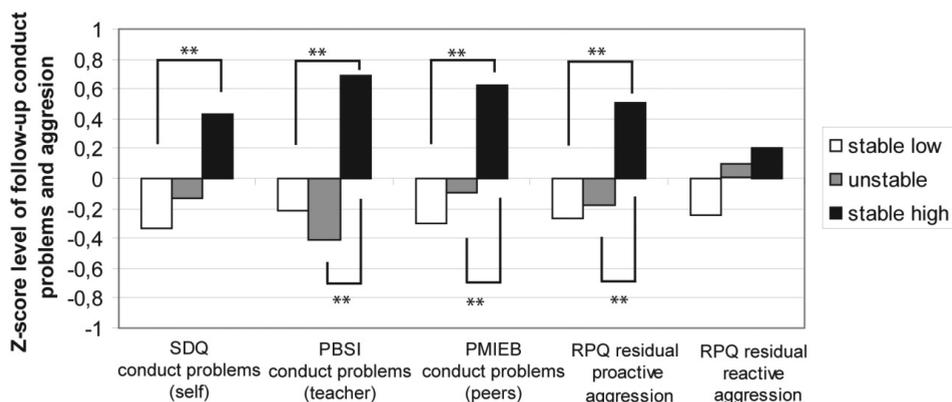
scores below the median at both measurements and finally, 3) the 'unstable' group ($n=50$) constituted those whose scores had changed from above to below the median between baseline and follow-up, or vice versa. This procedure was performed for the YPI-CV total score and the factor scores individually, thus creating 3 stability groups for each of these four scores. A series of ANOVA analyses were conducted to determine whether groups differed in levels of follow-up conduct problems and aggression. Significant main effects were found for the YPI-CV total score and all factor scores on all measures of conduct problems (ranging from $F=4.00$, $p<.05$ to $F=16.92$, $p<.000$) and on residual proactive aggression (ranging from $F=6.09$, $p<.01$ to $F=8.16$, $p<.000$). For residual reactive aggression, no significant main effects were found for group. To identify the differences in levels of conduct problems and residual proactive aggression at follow-up among the three stability groups, posthoc analyses with Bonferonni correction for multiple comparisons were performed. Because a number of outcome measures had been transformed before analyses to correct for a positive skew, all scores were standardized (Z-scores with $M=0$ and $SD=1$) to aid in the interpretation. Table 4 shows the difference in levels of follow-up conduct problems and aggression between stability groups. With few exceptions, the 'stable high' groups displayed significantly higher scores than both other groups on conduct problems and residual proactive aggression at follow-up. This pattern was found for the YPI-CV total score as well as for the three factors. The 'unstable'

Table 4. Differences between the three YPI-CV stability groups on standardized mean scores of follow-up conduct problems and residual aggression.

		Follow-up conduct problems			Follow-up aggression	
		SDQ conduct problems (self)	PBSI conduct problems (teacher)	PMIEB conduct problems (peers)	RPQ residual proactive aggression	RPQ residual reactive aggression
		Stable high	Stable high	Stable high	Stable high	Stable high
YPI-CV Psychopathy Total score	Unstable	.45	1.09**	.69**	.66**	.10
	Stable low	.76**	.92**	.93**	.72**	.41.
YPI-CV Callous-Unemotional dimension	Unstable	.27	.70**	.51*	.32	.11
	Stable low	.55**	.77**	.79**	.72**	-.02
YPI-CV Grandiose-Manipulative dimension	Unstable	.50*	.48.	.50*	.42	-.16
	Stable low	.73**	.86**	.76**	.68**	.30
YPI-CV Impulsive-Irresponsible dimension	Unstable	.67**	.95**	.81**	.56*	.22.
	Stable low	.89**	.79**	.74**	.64**	.31

Note: Differences are calculated columns-rows. YPI-CV= Youth Psychopathic traits Inventory-Child Version, SDQ = Strengths and Difficulties Questionnaire, PBSI = Problem Behavior at School Interview, PMIEB = Peer-report Measure of Internalizing and Externalizing Behavior, RPQ = Reactive and Proactive Aggression Questionnaire, ** Difference is significant at the 0.01 level (2-tailed). * Differences is significant at the 0.05 level (2-tailed). n (Stable high)=51, n (Unstable)=50, n (Stable low)=58.

Figure 1 Differences in follow-up conduct problems and aggression between stability groups of YPI-CV total score



Note: YPI-CV= Youth Psychopathic traits Inventory-Child Version, PBSI = Problem Behavior at School Interview, SDQ = Strengths and Difficulties Questionnaire, PMIEB = Peer-report Measure of Internalizing and Externalizing Behavior, RPQ = Reactive and Proactive Aggression Questionnaire** Difference is significant at the 0.01 level (2-tailed). * Difference is significant at the 0.05 level (2-tailed). N (Stable high)=51, n (Unstable) = 50, n (Stable low) = 58.

and 'stable low' groups did not differ significantly on any of the measures and are not displayed in the table. As no main effect was found, no difference by group was found for residual reactive aggression at follow-up. To aid in the interpretation, Figure 1 shows the standardized mean scores of all outcome variables as a function of stability of psychopathic traits (total score of the YPI-CV). For space limitations, only the figure with the YPI-CV total score is presented, as the pattern for the individual factors was generally the same.

Discussion

The current study investigated the 18-month stability of self-reported psychopathic traits and their associations with conduct problems and aggression in a sample of 9–12 year old children from the community. Furthermore, we investigated whether individuals showing higher levels of stability of psychopathic traits had higher levels of follow-up conduct problems and aggression. As expected, YPI-CV scores were found to be moderately to highly stable over 18 months. These stability indices were largely comparable to previous findings over comparable periods, both in adolescents and children (Barry et al., 2008; Dadds et al., 2005; Forsman, Lichtenstein, Andershed, & Larsson, 2008; Frick et al., 2003b; Muñoz & Frick, 2007) supporting the notion that psychopathic traits are, even at this young age, stable temperamental characteristics and, specifically, that self-report can capture these traits. Furthermore, we found self-reported psychopathic traits to be related to higher rates of conduct problems both concurrently and at follow-up. Importantly, these relations remained even after controlling for initial conduct problems. Furthermore, our findings were consistent

over reporters. Not just the participants themselves, but also their peers and their teachers reported higher levels of conduct problems at follow-up for those who had reported higher psychopathic traits at baseline. Findings pertaining to the relation with aggression were also generally consistent with our hypothesis. They showed self-reported psychopathic traits to be associated with proactive as well as reactive aggression at follow-up. Again, these findings could not fully be attributed to baseline conduct problems. When controlling for the overlap between proactive and reactive aggression, thereby separating the two and creating 'pure' measures of proactive and reactive aggression, only the relation between psychopathic traits and proactive aggression remained. This is in line with earlier findings in adult, adolescent and child psychopathy research that has shown psychopathic traits to be related to both types of aggression, but particularly to premeditative, goal-directed and 'cold blooded' proactive forms of aggression not shared by those with low psychopathic traits (Flight & Forth, 2007; Frick et al., 2003a; Porter & Woodworth, 2006; Waschbusch & Willoughby, 2008; Woodworth & Porter, 2002).

Regarding stability of psychopathic traits, the current study showed that children with persistently high levels over a period of 18 months exhibited higher levels of externalizing behaviors (conduct problems and proactive aggression) at follow-up than those with unstable or stable low psychopathic traits. These findings are consistent with the few studies that have investigated the predictive value of stability of psychopathic traits in youth and that found high stability of psychopathic traits to predict seriousness of antisocial behavior in adolescents (Pardini & Loeber, 2008) and worse outcome of a parent-training intervention in clinic-referred preadolescent boys (Hawes & Dadds, 2007). Interestingly, hardly any differences in follow-up externalizing were found between children showing consistently low levels of psychopathic traits and those with high levels on one measurement only. This finding carries clinical value, as the present study and previous studies also show that a single assessment of psychopathic traits is related to future externalizing behaviors. Findings on stability thus may suggest that repeated assessment of psychopathic traits in children may add to the prediction of these behaviors.

The difference between children who have stable psychopathic traits versus unstable or low stable traits may be explained by factors not measured in the current study, such as social relations, parenting, or biological markers. For example, Barry et al. (2008) showed social competence and social status to influence the stability of the narcissistic and impulsive-irresponsible components of psychopathic traits in aggressive children. Social impairments were associated with persistence of psychopathic traits. It may also be that the psychopathic traits of children who scored occasionally high in our study have a different genetic etiology than those scoring persistently high. Several investigators have speculated that the stability of psychopathic traits is largely driven by neurobiological factors (Blair, Peschardt, Budhani, Mitchell, &

Pine, 2006; Kiehl, 2006). Recent twin studies have indeed shown substantial genetic contributions to the stability of psychopathic traits during adolescence (age 16–19; Forsman et al., 2008) and from adolescence into adulthood (Blonigen, Hicks, Krueger, Patrick, & Iacono, 2006). Regardless of the causes, the current study supported the notion that higher stability is related to higher levels of problematic outcome and suggests that multiple assessments rather than single assessments could add to the predictive accuracy of psychopathy assessment in youth.

Concluding, with respect to the stability and concurrent and prospective associations between psychopathic traits and externalizing behaviors, our findings confirm past findings in both adolescents (e.g. Andershed et al., 2002, Campbell, Porter, & Santor, 2004; Pardini & Loeber, 2008) and children using teacher and parent report (Christian et al., 1997; Dadds et al., 2005; Hawes & Dadds, 2007; Lynam, 1997). Preadolescent children should hence be considered reliable and valid reporters of psychopathic traits, and the YPI-CV a useful instrument for such assessment.

Our study has several strengths. First, we used a restricted preadolescent age-range, so that no contamination by age-appropriate adolescent behavioral problems occurred that could have clouded the results. A second strength was the use of different informants, both the child itself, peers and teachers provide a unique perspective on behavioral and social functioning, which in the current study showed consistent. However, the present study should also be seen in the light of a number of limitations that will need addressing in future research. First, the YPI-CV has currently only been tested in community samples and it is a, yet unanswered, empirical question whether it can be used successfully in aggressive, adjudicated or high-risk groups. Second, the current study only supports the reliability and validity of self-reported psychopathic traits in a research situation. No conclusion can be drawn from the current research about the utility of the YPI-CV when anonymity is not guaranteed and, particularly, for making predictions about individual children (e.g. clinical practice). Third, with respect to results on the predictive utility of stability of psychopathic traits, the current limited design did not allow for a separation of stability of psychopathic traits from overlapping stability of conduct problems in predicting outcome. Therefore, even though they are consistent with previous research, the present findings should be interpreted with caution. Future studies should continue to investigate the predictive value of repeated assessment of psychopathic traits with more advanced designs and methodologies (e.g. growth curve modeling techniques). Fourth, because a number of criterion variables (SDQ conduct problems, RPQ aggression) were, like psychopathy, measured through self-report, some correlations could have been inflated due to shared method variance. Finally, the current study did not actively compare the value of self-report to that of external measures of psychopathic traits. While the present study as well as the previous study investigating the YPI-CV (Van Baardewijk et al., 2008) clearly show self-report of psychopathic traits to be

reliable and valid in children, previous research has shown that parent/teacher reports measure psychopathic traits reliably and validly as well (e.g. Christian et al., 1997; Dadds et al., 2005; Kimonis et al., 2006; Lynam, 1997; Piatigorsky & Hinshaw, 2004). Future research could compare the relative importance of each type of informant. It would be worth investigating whether pooling information from multiple sources (i.e. parents, teachers and children) has greater diagnostic and predictive power than relying on a single source (Frick & Hare, 2001). Ideally, this pooling would extend beyond questionnaire measures which are dependent on rater characteristics. For example, Kimonis and colleagues (2007), showed that combining scores on the ICU (Essau et al., 2006) with the processing of emotional pictures increased the predictive accuracy for externalizing behaviors over one of the two predictive variables alone. In reference to the current study, as proactive aggression seems typically associated with psychopathic traits (and tends to overlap using questionnaire measures) one could test whether scores on laboratory aggression paradigms distinguishing these two (e.g. Reidy, Zeichner, Miller, & Martinez, 2007) could be used to increase diagnostic power for psychopathic traits in children.

To conclude, the cross-sectional validation study of the YPI-CV showed this instrument to be highly reliable and supported its construct validity (Van Baardewijk et al., 2008). The current study expanded on these findings, showing that scores on the YPI-CV were related to concurrent and future socially harmful behaviors, were relatively stable over time and that higher stability was related to higher levels of externalizing behaviors. These findings thus further support the notion that psychopathic traits can be measured at a young age and that self-report, by means of the Youth Psychopathic traits Inventory – Child Version can provide an important additional point of view.

