

Learning to 'talk the talk': the relationship of psychopathic traits to deficits in empathy across childhood

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Background: Psychopathy is characterised by profound deficits in the human tendency to feel and care about what other people feel, often known as 'affective empathy'. On the other hand, the psychopath often has intact 'cognitive' empathy skills, that is, he is able to describe what and why other people feel, even if he does not share or care about those feelings. Despite a rapidly advancing neuroscience of empathy, little is known about the developmental underpinnings of this psychopathic disconnect between affective and cognitive empathy. **Methods:** The parents of $N = 2760$, 3–13-year-olds reported on the levels of empathy, callous-unemotional traits (CU), and antisocial behaviour (AB). Consistent with current theory and measurement practice, an index of 'psychopathic traits' was derived from the CU and AB measures. **Results:** There are important gender and developmental differences in empathy deficits related to psychopathic traits. As expected, psychopathy is associated with severe deficits in affective empathy across all ages for males; however, no such deficits were found for females. Contrary to adult findings, psychopathic traits are associated with deficits in cognitive empathy in childhood for both sexes; however, males with high psychopathic traits appear to overcome these deficits in cognitive empathy as they move through the pubertal years. **Conclusions:** In contrast to cognitive empathy, low affective empathy does not appear to be associated with psychopathic traits in females. The characteristic disconnect between cognitive and affective empathy seen in adult male psychopathy crystallises in the pubertal years when they appear to learn to 'talk the talk' about other people's emotions, despite suffering severe deficits in their emotional connection (affective empathy) to others. **Keywords:** Antisocial behaviour, emotion recognition, empathy, psychopathy, sociopathy.

Psychopathy is characterised by the two-factors of impulsive, antisocial behaviour and a cluster of temperamental variables of low empathic regard, low emotionality, and callousness (Hare, 1995). In the popular characterisations, the psychopath is someone who knows or can verbalise the 'how' and 'why' of other people's feelings, that is, has normal levels of *cognitive* empathy, but remains emotionally unmoved himself, that is, has deficits in *affective* empathy. The scientific literature supports this: in adults, there is considerable support for the idea that psychopathy is associated with a specific deficit in affective empathy, and the psychopath's ability to report on other people's emotion remains in tact (see Blair, 2005).

Little is known, however, about how, when or why these deficits develop. Considerable work has focused on empathy in childhood antisocial behaviour, but not with reference to psychopathic traits. This is unfortunate as the psychopathy construct has clear utility in childhood and adolescence; it adds predictive value over and above measures of the antisocial behaviour in terms of the severity of presentation and prognosis (see Frick et al., 2003), neuropsychiatric and biological correlates (Viding,

Blair, Moffitt, & Plomin, 2005; Dadds et al., 2006; Dadds, El Masry, Wimalaweera, & Guastella, 2008a; Loney, Butler, Lima, Counts, & Eckel, 2006), and treatment outcomes (Hawes & Dadds, 2005). Definitions of childhood psychopathy consistently emphasise low levels of empathy (or related constructs such as behavioural indifference; Zahn-Waxler et al., 1992) as a core feature of this construct (Blair, 2005; Frick & Morris, 2004), and various studies have shown that psychopathic traits are associated with deficits in recognition of specific emotions (Blair, 2005; Dadds et al., 2006); however, no known studies of psychopathic traits in children have mapped their relationship to empathy across the childhood years.

In contrast to this, a substantial body of research has looked at the relationship of empathy to childhood antisocial behaviour without reference to the psychopathy construct. Substantial reviews of this literature appeared in 1988 (Miller & Eisenberg) and 2007 (Lovett & Sheffield) but both cautioned that few robust conclusions could be made. The strongest existing evidence is that self-reported levels of trait empathy are negatively related to antisocial behavior in adolescents; however, findings for more rigorous measures of empathy are mixed and little is known about the relationship of more specific forms of

Conflict of interest statement: No conflicts declared.

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Published by Blackwell Publishing, 9600 Garsington Road, Oxford OX4 2DQ, UK and 350 Main Street, Malden, MA 02148, USA

empathy or antisocial behaviour, sex differences, or the developmental progress and timing of these relationships. In support of the need to better specify samples and measures, Zahn-Waxler et al. (1994) found that while males with behaviour problems show deficits in affective empathy, females may show the reverse, with high levels of affective empathy being a risk factor for behaviour problems.

Lovett and Sheffield (2007) concluded that two of the main priorities for future research should be to improve the specificity of definitions and measurement of both empathy, especially 'affective' empathy, and antisocial behaviour which cannot be considered a unitary construct. Given the increasing utility of the psychopathy construct, it is likely that a re-analysis of the role of empathy, parsed into cognitive and affective dimensions, and antisocial behaviour that is precise about individual differences in levels of psychopathy, will yield useful new information.

In this paper, we use a new measure of empathic *performance* as reported by the primary caregiver to present the first study of the relationship of psychopathic traits to the development of cognitive and affective empathy across childhood. From here on, the term 'empathy' specifically refers to observable demonstrations as reported by the primary caregiver, that the child *understands* (cognitive) and has *congruent emotional reactions to* (affective) other people's feelings and circumstances. Because our measured constructs are based on observed day-to-day behaviour, two aspects of our working definitions should be noted: first, cognitive empathy in this paper cannot be equated with terms such as 'mentalising' and 'theory of mind' which are based on attribution and representation of mental states to another person. Second, our measured construct of affective empathy reflects the propensity to demonstrate congruent emotions to those being displayed by another person. It does not include judgements about the depth or genuineness of these emotions as measured in psychopathy, and does not measure affective responses to other kinds of information about other people's situations (e.g. 'Sarah's mother has died').

Based on existing studies of the development of empathy in childhood and adolescence, we hypothesised: 1) that both forms of empathy would be higher in females; and 2) affective empathy would remain stable or decrease while cognitive empathy would increase with age as formal verbal operations improved (Hoffman, 1984; see also, Singer, 2006). Given the lack of literature on psychopathy and empathy in children and adolescents, we used the adult literature to guide hypotheses about their inter-relationships. Thus, we hypothesised that 3) psychopathic traits would not be associated with deficits in cognitive empathy either for males or females; 4) psychopathic traits would be associated with deficits in affective empathy for males but not females (Zahn-Waxler et al., 1994).

Method

Participants

Participants consisted of $n = 2760$ (1393 male and 1367 female) children between the ages of 3 and 13 years ($M = 7.79$, $SD = 3.00$) categorised into the following four age groups; 3–4 years = 18.7%, 5–6 years = 22.5%, 7–9 years = 36.0%, 9–13 years = 22.8%). Participants were recruited from primary and secondary schools in Brisbane and Sydney, Australia, after a letter was sent to parents providing information about the study and informed consent given. Overall, the sample was approximately 81% Caucasian with minorities of Asian, Indigenous, Semitic, and Pacific-Islander families. English was the first language spoken by 81% of the families who participated in the study. Two-parent families (biological mother and father both living with the child) accounted for 58.2% of families, with 21% being single-parent families, 9.2% blended families (step-parent) and 1.9% of children living with grandparents or guardians. Mothers' and fathers' education levels were recorded as the highest education level obtained; 14% junior certificate, 35% senior certificate, 12% trade or apprenticeship, 16% tertiary level; 2% no schooling. Fathers' education levels were: 12% junior certificate, 20% senior certificate, 25% trade or apprenticeship, 9% tertiary level. The range of family income were as follows; under \$20,000, 25%; \$20,001–\$30,000, 14%; 30,001–\$40,000, 12%; \$40,001–\$50,000, 6%; and income greater than \$50,000, 18.5%. (Australian median income ~\$27,000, mean income ~\$51,000: Household, Income and Labour Dynamics in Australia Survey (HILDA, 2006).

Parent-report measures

The Griffith Empathy Measure (GEM; Dadds et al., 2008b) is a 23-item parent report measure in which the respondent answers each item on a nine-point Likert scale from strongly disagree (–4) to strongly agree (+4). The GEM has been extensively validated as a total score or using subscales of Cognitive (e.g., my child has trouble understanding other people's feelings) and Affective (e.g., seeing another child sad makes my child feel sad) empathy, with good test-retest reliability over 1-week ($r > .89$) and 6-month intervals ($r > .69$), internal consistencies, a stable factor structure across age and gender groups, inter-parental agreement ($r > .47$), and convergence with child reports ($r = .41$) (Dadds et al., 2008b).

Psychopathic traits were indexed using maternal reports on the measurement system described by Dadds et al. (2005). This system uses pooled items from the *Antisocial Process Screening Device* (Frick & Hare, 2002) and the *Strengths and Difficulties Questionnaire* (Goodman, 1997) to produce a parent-report measure of psychopathic traits that has superior psychometric properties to the original APSD using childhood samples (Dadds et al., 2005). The 20-item *Antisocial Process Screening Device* (APSD; Frick & Hare, 2002) is a well-validated measure of temperamental and behavioural aspects of antisocial behavior in children and adolescents. The *Strengths and Difficulties Questionnaire* (SDQ; Goodman, 1997) is a

25-item rating scale of five subscales: Hyperactivity, Conduct Problems, Emotional Symptoms, Peer Problems, and Prosocial Behavior. In the present study, combined APSD-SDQ was completed by the primary caregiver, predominantly the mother. This system produces a CU traits factor consisting of the original APSD items, plus items from the Prosocial Behavior scale of the SDQ, an Antisocial factor based on items from the Impulsivity/Conduct Problems and Narcissism scales of the APSD and Conduct Problems scales of the SDQ, as well as scales measuring Hyperactivity, Anxiety, and Peer Problems. Similar to Dadds et al. (2005), data from the current sample indicated significant measurement improvement of the pooled items strategy over that obtained from the original APSD and SDQ scales; alphas for the new scales were: CU traits, $\alpha = .79$, Antisocial, $\alpha = .78$, compared to alphas of $\alpha = .57$, and $\alpha = .66$ for CU traits and Conduct Problems respectively from the original scales.

Given our large sample size and the value of treating psychopathic traits as a categorical variable (e.g., see Vasey et al., 2005), we split the sample into four levels of psychopathic traits scores. This was done as follows: first, participants were split into the top 25%, middle 50%, and low 25% on measures of CU traits and Antisocial Behaviour, respectively. Our previous research (e.g., Dadds et al., 2006, 2008a) has shown that using cut-offs of the top 15 to 25% effectively identifies high CU traits and antisocial behaviour in Australian school samples. This was done separately for males and females to allow for differences in mean levels and distributions across sex. The overall psychopathic traits index was then created by multiplying the CU traits category by the Antisocial category to produce an index reflecting four group levels, zero (40.7%), low (30.9%), moderate (15.6%) and high (12.8%) levels of psychopathic traits scores, such that the highest level represents those in the highest ranges on *both* CU traits and antisocial behaviour.

Results

The bivariate correlation confirmed that the GEM produces indices of cognitive and affective empathy that are largely orthogonal ($r = .063$). There were no significant differences between any of the groups on mother's or father's education, average household income, English language in the home, and the child's school achievement. There were some small but significant variations in the frequency of sole versus two-parent family structure across age and sex groupings but family structure (married, sole parent, de facto, other) was unrelated to the empathy constructs, $F(4, 4696) = 1.418$, $p = .225$, and was not considered further. Internal consistency of the GEM Cognitive and Affective empathy scales were .62 and .77 respectively.

Table 1 shows means and SDs for CU Traits and Antisocial Behaviour scores broken down by age, sex, and level of psychopathic traits groupings. There were main effects for both sex, $F(2, 232) = 37.622$, $p < .001$, and age, $F(6, 4648) = 5.290$, $p < .001$. Follow-up univariate tests showed that, as expected, males scored more highly on both CU traits and Antisocial Behaviour. Age effects were evident only for Antisocial Behaviour, $F(3, 2324) = 6.789$, $p < .001$, whereas decreases were noted in the oldest group compared to all other groups.

The correlations between psychopathic traits and empathy were as follows: males, Cognitive empathy, $r = -.41$, $p < .001$, Affective empathy, $r = -.17$, $p < .001$; females: Cognitive empathy, $r = -.39$, $p < .001$, Affective empathy, $r = -.02$, $p = .38$. Figure 1 shows the scatterplots of these affective and cognitive empathy scores regressed against psychopathic trait scores for males and females separately. Males show clear relationships of higher psychopathic trait scores to lower levels of empathy

Table 1 Means and SDs on CU traits and Antisocial Behaviour scores broken down by sex, age group of child, and level of psychopathic traits

Age group	Psychopathic traits Level	CU traits				Antisocial Behaviour			
		Male		Female		Male		Female	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
1	Zero	4.81	2.41	3.28	1.87	1.95	1.59	1.40	1.36
	Low	5.66	1.05	3.93	1.80	5.21	1.17	3.04	1.85
	Mod	7.48	1.85	5.77	1.63	7.45	2.69	4.62	2.08
	High	9.54	1.84	7.58	1.55	10.69	2.45	7.60	3.40
2	Zero	4.44	2.34	3.16	1.88	2.34	1.76	1.64	1.82
	Low	5.67	1.17	3.94	1.81	5.28	1.15	2.83	1.82
	Mod	7.94	2.29	5.55	2.04	7.48	3.02	5.38	2.42
	High	9.24	1.68	7.81	1.68	10.83	2.77	8.06	2.71
3	Zero	4.07	2.22	2.97	1.76	2.44	2.52	1.26	1.43
	Low	5.44	1.04	3.82	1.81	5.21	1.10	3.00	1.79
	Mod	7.20	1.86	5.66	2.04	8.43	3.26	5.25	2.67
	High	9.67	1.70	7.67	1.70	11.53	3.21	8.88	3.60
4	Zero	4.13	2.26	3.83	2.14	1.85	1.97	.85	1.11
	Low	5.19	1.93	4.00	1.75	5.00	1.21	2.69	1.74
	Mod	7.49	1.95	5.94	1.97	7.49	3.17	4.46	2.32
	High	9.43	1.34	7.78	1.58	12.64	2.87	8.97	3.00

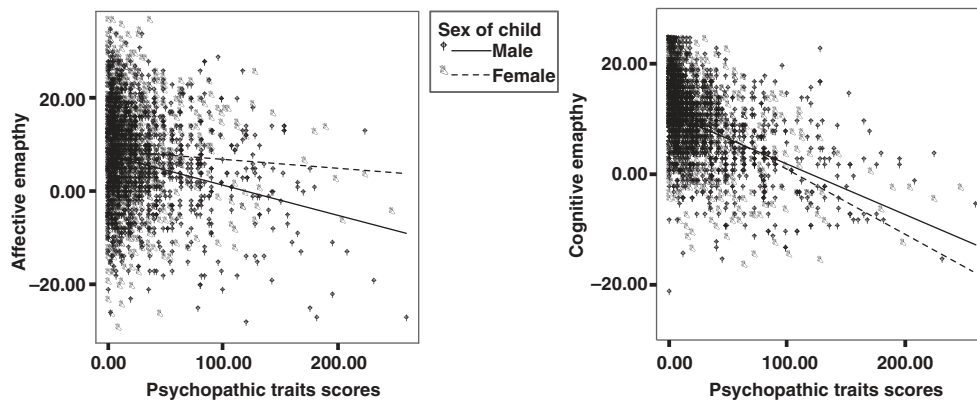


Figure 1 Scatterplot showing affective and cognitive empathy scores regressed against psychopathic trait scores for males and female

throughout the range of scores. For females, there is a clear relationship of higher psychopathic trait scores to lower cognitive empathy; however, no relationship exists for affective empathy despite females scoring across the full range of psychopathic trait scores.

Figures 2 and 3 show means and SE of the mean for Cognitive and Affective empathy scores split by sex, age, and psychopathy groups. These means were analysed by ANOVA (SPSS v.15). For Cognitive empathy, there were main effects for age, $F(3,2310) = 3.82, p < .01$, sex, $F(1,2310) = 54.36, p < .01$, psychopathy, $F(3,2310) = 96.61, p < .01$, and interactions between age and psychopathy, $F(9,2310) = 2.78, p < .01$, and age, sex and psychopathy, $F(9,2310) = 2.68, p < .01$. As Figure 1 shows, females showed higher levels of Cognitive empathy overall. Contrary to our hypotheses coming from the adult literature, psychopathic traits are associated with significant deficits in Cognitive empathy. These deficits are evident for both males and females through childhood but males with high psychopathic traits show a clear recovery to comparatively healthy levels of Cognitive empathy in the oldest 9- to 12-year-old age group. Females with high psychopathic traits show no such recovery.

For Affective empathy, there were main effects for sex, $F(1,2310) = 37.37, p < .01$, and psychopathy,

$F(3,2310) = 13.59, p < .01$, and an interaction between sex and psychopathy, $F(3,2310) = 4.81, p < .01$. As Figure 2 shows, females showed higher levels of affective empathy overall. For males, high levels of psychopathy are associated with low levels of affective empathy; however, affective empathy showed no clear relationship to psychopathic traits in females.

Discussion

We tested the relationship of parent-rated cognitive and affective empathy to psychopathic traits in a large sample of community children and adolescents. Empathy was conceptualised and measured using maternal reports of two dimensions, cognitive and affective empathy, roughly translating into knowing and understanding how others feel, and being susceptible to shared feelings or emotional contagion, respectively. Thus, the following results pertain to the ‘performance’ of empathic behaviours as observed in day-to-day life.

As expected, psychopathic traits were associated with patterns of empathy deficits that varied according to the type of empathy being measured and sex and age of the child. First, the hypothesis

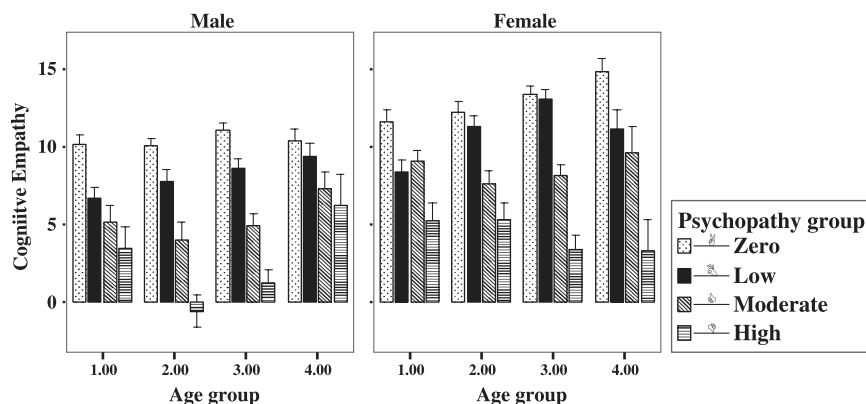


Figure 2 Cognitive empathy levels split by zero, low, moderate, and high psychopathic traits, sex and age group (1 = 3–4, 2 = 5–6, 3 = 7–8, 4 = 9–12 years)

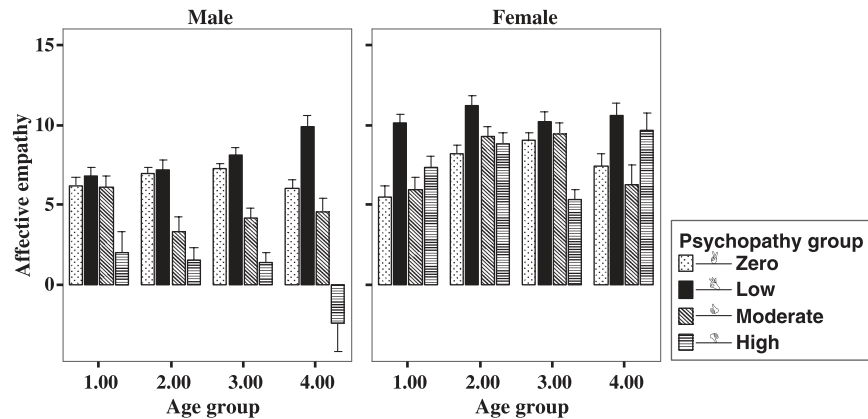


Figure 3 Affective empathy levels split by zero, low, moderate, and high psychopathic traits, sex and age group (1 = 3–4, 2 = 5–6, 3 = 7–8, 4 = 9–12 years)

that psychopathic traits would be associated with deficits in affective empathy for males only was supported. Across all ages, the greater the psychopathic traits, the lower were the levels of affective empathy for males. In contrast, there was no clear pattern of deficits in affective empathy and psychopathic traits in females. This is potentially a critical finding as deficits in empathy are by definition part of the construct of psychopathy. As far as we could detect, this is the first time this has been shown in females. It is consistent, however, with the findings of Zahn-Waxler et al. (1994; see also Eisenberg & Lennon, 1983) who studied a younger group of females using behavioural measures, but similarly found that affective empathy is associated with higher antisocial behaviour (they did not measure psychopathic traits).

This gender interaction is also consistent with the growing evidence for distinct causal mechanisms in the development of antisocial behaviour in females (Silverthorn & Frick, 1999) and a growing recognition of specific differences in the presentation of psychopathy in female adults (Cale & Lilienfeld, 2002; Salekin, Rogers, Ustad, & Sewell, 1998; Vitacco, Neumann, & Jackson, 2005; Vitale, Smith, Brinkley, & Newman, 2002). No one explanation is likely for the lack of affective empathy deficits in females with high psychopathic traits and, relatedly, the positive association between affective empathy and antisocial behaviour in females; however, greater overlap or comorbidity with anxiety and depression in females, greater susceptibility to stressful family and peer environments, and poorer emotion regulation may plausibly underlie these sex differences. Until these specific mechanisms can be tested, we can conclude that deficits in affective empathy are not associated with psychopathic traits in females; they may in fact be an important risk for antisocial behaviour in females, and are thus worthy of concerted study.

Our hypothesis that psychopathic traits would be independent of levels of cognitive empathy was not supported. In contrast to adult models where psy-

chopathy is considered independent from cognitive empathy, both males and females who were high in psychopathic traits showed clear deficits in cognitive empathy. Analyses of cognitive empathy by age and sex revealed, however, that psychopathic traits were associated with reduced cognitive empathy in females of all ages. For males, however, deficits in cognitive empathy were considerably diminished in the adolescent group. At this age they appeared to catch up with their peers even though their levels of affective empathy remained compromised. This 'catch up' in the older male group may point to important developmental processes in the development of psychopathy. There may be several different interpretations of the process. First, it is possible that people with high psychopathic traits really do improve their understanding of how other people feel as they get older. It is also possible and perhaps more likely that adult 'psychopaths' simply learn to appear as if they know how other people feel by overcoming the outward signs of deficits in their understanding. Third, it is possible that other changes, such as increased effectiveness of manipulative behaviour or avoiding situations that directly confront their skills, could diminish the visibility of deficits in their understanding. Unfortunately, the measures used in the current study reflect the parents' rating of the performance of cognitive and affective empathy in day-to-day life and, as such, do not allow for an in-depth examination of the cognitive, behavioural, or social interactional mechanisms of change that may be occurring.

Developmental models of empathy (e.g., see Singer, 2006; Hoffman, 1984) posit that the more cognitive aspects of empathy emerge after, and grow out of, more primitive shared affect aspects. That is, the infant is motivated to develop propositional knowledge about other people's emotions because they are emotionally moved by it. For children high in psychopathic traits, cognitive aspects of empathy may show a developmental lag because of deficits in the underlying affective motivation. As adulthood

approaches, however, the high CU male child appears to those close to them to learn to 'talk the talk' of how other people feel without really having an affective understanding of it.

Several limitations of the current study should be noted. First, our conclusions about the developmental aspects of empathy are based on multiple samples measured cross-sectionally. Although we were unable to detect any cohort differences that may have inadvertently contributed to our findings, it is impossible to rule out such a possibility. Clearly, the most powerful design to test the model we put forward would be to follow a large sample with repeated measurement over time. Other limitations of the current study include reliance on parent report. While observations would be difficult to conduct in such a large community sample, direct observations or multi-informant convergence of the measures of empathy, antisocial behaviour and CU traits would strengthen the findings.

It is important not to equate the measures of empathy used in this study with the related but more precise constructs of 'theory of mind' or 'mentalising skills'. The measure we used for empathy taps into the performance of empathy as observed by the parent in day-to-day life. The items reflecting affective empathy are unambiguous in that they refer to a specific and observable behaviour; that is, the child shows emotions that he or she observes in other people. The items for cognitive empathy, however, generally tap more unobservable behaviours and require, instead, the parent to infer the mental state of the child, e.g., 'it's hard for my child to understand why someone else gets upset'. As noted above, the measure does not shed light on how or why such skills would change and more precise measures of associated attentional, cognitive, and social interactional processes would be required to clarify the developmental changes noted here for high psychopathic traits boys.

This study operationalises 'psychopathy' as 'psychopathic traits, that is, the combination of callous-unemotional traits and antisocial behaviour, generally operationalised parent-, teacher-, or self-reports on dimensional measures'. This dimensional approach to psychopathy is appropriate to the study of developmental pathways in young people and has yielded considerable progress in the last few decades (Frick & White, 2008), including in our recent studies (Dadds et al., 2006, 2008a). While it is generally inappropriate both scientifically and ethically to talk of a categorical diagnosis of 'psychopathy' in children, it is possible that the use of more extreme groups of offenders would yield different results to those found here. It is important that the current findings are replicated using more extreme forensic and clinical samples. It should be noted that the GEM

Cognitive empathy measure has been shown to correlate with verbal IQ at a low but significant level (Dadds et al., 2008b). As verbal IQ measures were not available for the current sample, it is impossible to rule out the influence of this variable in the current findings. A final limitation was that the sample was largely Caucasian, urban and suburban, and contained no socioeconomic extremes by world standards. While we are unaware of any data to indicate that these constructs are not robust to cultural differences, generalisation should again be made with caution. Strengths of the current study include the sample size and the GEM assessment measure which has been validated using child and father reports, diagnostic interviews, and independent observations of behaviour.

In summary, the current study mapped the relationship of cognitive and affective empathy, as measured by the parental report on the Griffith Empathy Measure, to psychopathic traits in children and adolescents. The results show that they are distinct but overlapping constructs that show unique patterns of association across age, sex and type of empathy. The results are consistent with a broader model that is sensitive to both developmental changes and gender. That is, affective empathy, the more primitive aspect of sensitivity to other people's emotions, leads to the gradual development of cognitive expertise with others' emotions. Boys with low affective empathy are likely to have high psychopathic traits, and show a lag in their development of cognitive empathy. As they move through adolescence towards adulthood, outward signs of their understanding of other people's emotions (*viz.*, cognitive empathy) approach those seen for their healthy peers. The affective component of their empathy, however, remains low. In females, only deficits in cognitive empathy are associated with psychopathic traits and there is no evidence that these diminish with age. In contrast to males, affective empathy is intact in high psychopathy and further research is needed to explore the mechanisms underlying these gender differences.

Acknowledgements

This research was supported by research grants to the first author from the National Health and Medical Research Council of Australia.

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Key points

- Psychopathic traits, as defined by high levels of parent reported antisocial behaviour and callous-unemotional traits, show important relationships to deficits in cognitive and affective empathy through the child and adolescent years.
- As expected, psychopathy is associated with severe deficits in affective empathy across all ages for males, however, no such deficits were found for females.
- Contrary to adult findings, psychopathic traits are associated with deficits in cognitive empathy in childhood for both sexes;
- Males with high psychopathic traits, however, appear to overcome or compensate for these deficits in cognitive empathy as they move through the pubertal years.
- The characteristic disconnect between cognitive and affective empathy seen in adult male psychopathy appears to crystallise in the pubertal years when they appear to learn to 'talk the talk' about other people's emotions, despite suffering severe deficits in their emotional connection (affective empathy) to others.

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Manuscript accepted 13 October 2008