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Interpersonal and Affective Dimensions of Psychopathic Traits in Adolescents: Development
and Validation of a Self-Report Instrument

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Abstract

We report the development and psychometric evaluations of a self-report instrument designed to screen for psychopathic traits among mainstream community adolescents. Tests of item functioning were initially conducted with 26 adolescents. In a second study the new instrument was administered to 150 high school adolescents, 73 of who had school records of suspension for antisocial behavior. Exploratory factor analysis yielded a 4-factor structure (Impulsivity $\alpha = .73$, Self-Centredness $\alpha = .70$, Callous-Unemotional $\alpha = .69$, and Manipulativeness $\alpha = .83$). In a third study involving 328 high school adolescents, 130 with records of suspension for antisocial behaviour, competing measurement models were evaluated using confirmatory factor analysis. The superiority of a first-order model represented by four correlated factors that was invariant across gender and age was confirmed. The findings provide researchers and clinicians with a psychometrically strong, self-report instrument and a greater understanding of psychopathic traits in mainstream adolescents.

Key words: Adolescents, psychopathic traits, assessment, instrumentation

A psychopathic personality involves an arrogant and deceitful interpersonal style (including manipulation, dishonesty, grandiosity, and glibness), a defective emotional experience (e.g., shallow emotions, a pronounced lack of remorse and empathy, and lack of personal responsibility for one's own actions), and impulsive, irresponsible, and sensation-seeking behavior [1, 2]. Much is known about psychopathy in adults and in particular those who are incarcerated [3]. Although psychopathic traits are visible in children and adolescents [4, 5] and studies show a relationship between psychopathic traits and antisocial behavior in delinquent and non-delinquent youth [5], comparatively little is known about the construct in non-incarcerated populations [6].

To some extent this is understandable given that psychopathic personality cannot be diagnosed prior to 18 years of age [7] and that there has been some reluctance to apply the term with young people because of its negative connotations and potential harming effects [8-12]. Nevertheless, because individuals can often present with psychopathic traits before reaching the age of 18 years [13] there has been increasing numbers of studies conducted over the past decade using the term psychopathic traits [11, 14]. This research shows that psychopathic traits in adolescent offenders are associated with more severe and persistent forms of antisocial behavior [15, 16], greater versatility in offending, and higher rates of violent crimes [17] than in other offenders.

The classification of psychopathy in childhood and adulthood identifies a relatively homogeneous pathology when compared with Conduct Disorder (CD) [18]. That is, children with CD are a heterogeneous population (i.e., one child might be characterised by a marked reduction in empathy, anxiety and guilt associated with psychopathy, while, another may present with the opposite pathology). Unlike CD, psychopathy involves a pervasive pattern of emotional (reduced empathy and guilt) and behavioural (criminal activity and frequently violence) symptoms [19]. While both psychopathy and CD focus on behavioural problems

such as criminality and rule breaking, it is the emotional component which is the crucial feature of psychopathy (compared to the behavioural feature of antisocial behaviour which is the focus of CD) [18, 20].

The presence of callous-unemotional traits (i.e., the absence of empathy for victims and guilt for wrong doing and callous treatment of others for personal gain) are prominent in most conceptualisations of adult psychopathy and the characteristics of youth with CU traits are very similar to those displayed by adults with psychopathic traits [21]. Moreover, the existing research shows that the presence of CU traits designate more severe and chronic antisocial behavior in forensic [22], clinic-referred [19], and community [23] samples and that antisocial young persons with CU traits demonstrate a number of distinct cognitive, emotional and personality characteristics. These support the argument that causal processes leading to antisocial behaviour in those with CU are different to those operating for other antisocial behaviour [24].

From the limited research conducted with mainstream community adolescent populations, the prevalence of psychopathic traits has been reported to be between 5% and 6% [25]. Higher prevalence rates have been reported among boys than girls [26], but much less is known about the construct in females [6], primarily because most studies on psychopathic traits of adolescents have included normative samples or samples comprising only of male offenders [13].

While the findings to date are important in understanding psychopathy in children and adolescents its extension as a construct from adulthood has not been without controversy [27]. For example, a major concern was that that too many youth would meet the symptomatic definition even though they were not truly psychopathic [28]. There are also a number of significant assessment issues that remain unresolved [5, 29], including that little psychometric data on psychopathy measures exist [29, 30], and the data that do exist suggest significant

limitations to almost all psychopathy measures [5]. The main contention has been with the conceptual and empirical properties of the instruments constructed to assess psychopathy in youth, in that adapting adult measurement tools for use with young people, particularly through “downward extensions” is inappropriate [11, 29, 31, 32]. Specifically, three typical modifications have been identified within this downward translation [17]: (a) traits that are developmentally inappropriate have been omitted; (b) traits considered as developmentally appropriate have been added; and (c) broader and more general items that are representative in the assessment of psychopathy across the life course have been included. In addition, some researchers argue that it appears impossible to adequately assess psychopathy in young person’s as they are still developing [31] and that some behavioural dimensions (e.g., sensation seeking and impulsiveness) may reflect normal developmental problems as these peak in adolescence [31]. Finally, some items in adult instruments (e.g., “*parasitic lifestyle*”, “*many short term marital relationships*”) are not suitable for children and adolescents, while other items deemed as useful markers of psychopathy in adults may actually measure age appropriate behaviors (e.g., “*impulsivity*”, “*failure to accept responsibility*”, “*need for stimulation*”) in young people [see 28-30]. In an attempt to overcome some of these issues, the present research identified age appropriate items from a number of currently existing measures and then subjected these items to tests of item functioning (item affectivity and discrimination indices) prior to any further statistical tests.

There is, however, a research literature that does not support criticisms of the juvenile psychopathy construct. To date, studies show that psychopathy is relatively stable from 7 to 17 years [33] and from 13 to 24 years of age [33], with moderate ($r = .43$) to high ($r = .81$) stabilities during childhood and adolescence [33, 34], and from youth to adulthood [24-28]. Furthermore, the hypothesised negative effects of the psychopathy label in juvenile justice contexts have not been found [35].

Developing age appropriate measures (as described here) that provide insight into the developmental trajectory of juvenile psychopathy is important for potential early identification and intervention [4], even though problems exist with its assessment and diagnosis in youth [5]. Moreover, to understand the full breadth of the manifestation of psychopathy and to gain insight into the relation between psychopathic traits and maladaptive behaviors in society there is a need to focus on non forensic samples [11, 36], particularly as the behavioral characteristics associated with psychopathy are thought not to form the core of the psychopathy construct [25].

Schools are appropriate places to conduct research with young people with psychopathic traits because understanding the developmental trajectories to psychopathy in younger community samples not affected by constant substance abuse and multiple incarcerations provides the best opportunities for developing effective treatments [37]. In such settings where records may be unavailable and assessment resources limited, self-report screening devices may be most appropriate [30] despite concerns such as the potential for response distortion and lack of comprehensive content validity [5, 14, 38]. However, self-report measures are an economical [39] and effective means of obtaining an accurate insight into the subjective dispositions (e.g., remorselessness, grandiosity, and lack of empathy) that can be difficult to obtain from third parties such as teachers and parents [40, 41].

Taking these issues into consideration, this report evaluates the psychometrics of a new self-report instrument designed to screen for psychopathic traits in community samples. Our first step was to modify a teacher version of the instrument we developed in 2007 (the Child and Adolescent Psychopathy Screening Instrument, CAPSI: [42]) into a self-report format. The CAPSI was based upon reviews of eight established instruments: The Antisocial Process Screening Device [43], The Child Psychopathy Scale [37], The Hare Psychopathy Checklist: Youth Version [44], The Psychopathic Personality Inventory [45], The Strengths and

Difficulties Questionnaire [46], The Millon Adolescent Clinical Inventory [47], The Youth Psychopathic traits Inventory [25], and the Self-Report Psychopathy Scale-II [48] and information generated from interviews conducted with 28 juvenile detention centre education officers and 13 mainstream schoolteachers specialising in the management of children and adolescents suspended from school. This resulted in 117 items being generated (70 from the review of the instrumentation and 47 from the interviews) subsequently reduced to 56 as a result of a panel of three academics identifying and removing duplicate items and items not appropriate for use with children and adolescents (e.g., “*many short-term marital relationships*”). Twenty seven teachers then completed the CAPSI for 11 to 17 year old school students some of who had been expelled or suspended from school for physical and verbal assault of teachers or peers. Item analyses were conducted using dual criteria: (a) a satisfactory q -value of between .2 and .8 for item affectivity and (b) a correlation of the item with the total score beyond .3 for item discrimination [49]. This reduced the number of items to 42 (overall Cronbach’s alpha coefficient $\alpha = .92$). An exploratory factor analysis was then conducted on data supplied by 137 teachers (for 137 suspended/non suspended high school students) to test the hypothesised dimensions of juvenile psychopathy. This yielded 42 items representing four clear factors with satisfactory levels of reliability: Callous/Unemotional ($\alpha = .81$), Narcissism ($\alpha = .86$), Thrill-Seeking ($\alpha = .77$), and Moral Detachment of Self ($\alpha = .72$). Three of these factors Callous-Unemotional, Narcissism, and Impulsivity are found in most models of adult and juvenile psychopathy and while there is disagreement in the literature on the number of psychopathic traits [50] most studies report a three factor structure [5].

The primary aim of this present research is to report on the development of a self-report instrument, based on the CAPSI [42], designed to screen for psychopathic traits among mainstream community adolescents. We include assessment of the extent to which different hypothesised measurement models account for responses, and the extent to which the measure

is equivalent across males and females, younger and older adolescents, and suspended and non-suspended adolescents. Finally, we report on the effects of these three variables (gender, age, status as suspended or not) on the Constellation of Affective and Interpersonal Behaviours Screening Instrument (CAIBSI) subscale scores.

Study 1

Methods

All 42 CAPSI items were first revised to be in a self-report, age-appropriate format. For example, the teacher-report CAPSI item, “*This child has a grandiose sense of self-worth*” was modified to “*I am more important than anyone else*” and “*This child is indifferent to adult approval or praise*” was altered to “*I do not care about adult approval or praise*”. In addition, 18 new self-report items were included in the new instrument following a review of the instruments measuring juvenile psychopathy: the Antisocial Process Screening Device [43], the Child Psychopathy Scale [37], the Eysenck Impulsivity Questionnaire [51], the Psychopathy Checklist: Youth Version [44] and the Youth Psychopathic traits Inventory [25]. The 60 items in total comprising the new self-report instrument, which was entitled the Constellation of Affective and Interpersonal Behaviours Screening Instrument was then administered to a sample of 13 to 17 year old high school adolescents to examine its item functioning (affectivity and discrimination indices). Internal reliability and reading statistics (Flesch-Kincaid Grade Level and the Flesch Reading Ease) were also examined.

Participants responded on the CAIBSI using a 4-point scale anchored with the descriptors *definitely not true* to *definitely true*. Scoring was on a one-to-four basis with higher scores being indicative of higher levels of psychopathic traits.

The readability level of the newly developed self-report scale was measured using The Flesch-Kincaid Grade Level (i.e., the number of years of education required to understand a standard reading passage) and The Flesch Reading Ease (i.e., the difficulty level of reading a

normal reading passage) [see 52, 53, respectively]. The CAIBSI was considered appropriate and comprehensible and easy (Reading Ease = 82.3) for Australian school students enrolled in Grade 5 (Flesch-Kincaid Grade Level; age 10 years and above).

Participants and settings

Twenty-six adolescents (12 males and 14 females) randomly selected from two separate high schools in the metropolitan area of the Western Australian capital city of Perth participated in this study. Of the 26, four were in Grade 8, eight in Grade 9, five in Grade 10, four in Grade 11, and five were in Grade 12. Their ages ranged from 13 to 17.3 years ($M = 14.9$ years, $SD = 1.2$). Twenty-one were mainstream students, while five had records detailing suspension from school for antisocial behavior comprising physical and verbal assault of teachers and/or peers. These five adolescents were located in a behavior centre attached to one of the schools. A support teacher with 20 years of teaching experience administered the CAIBSI in the school settings. To obtain the sample, 40 packages (each containing an Information Sheet, a Consent Form, and a CAIBSI) were initially distributed. The positive response rate of 26 represented a 65% return.

Procedure

Permission for the study (and the subsequent two studies) was obtained from the Human Research Ethics Committee of the administering institution. Convenience sampling was used to recruit the pilot sample. The parents of 40 randomly selected adolescents in Grades 8 to 12, who had participated in previous (unrelated) research were contacted by letter and invited to allow their son/daughter to participate. Of the 40 randomly selected individuals 21 mainstream adolescents completed the CAIBSI, while of the seven adolescents who had been suspended from school for verbal and physical assault of teachers or peers, five did so.

Data analyses and results

For item analyses, items were assessed using dual criteria: (a) a satisfactory q -value of between .2 and .8 for item affectivity and (b) a correlation of the item with the total score beyond .3 for item discrimination [49]. The item affectivity of the 60 CAIBSI items varied from .25 to .69, meeting the recommended item affectivity range ($>.2 - <.8$), and were therefore retained. Items difficult to endorse included “*I do not care about the rights of others*” and “*I create a sense of fear in others*”, whereas items considered easy to endorse were “*I seek excitement*” and “*I follow my own rules*”. Item discrimination indices were also examined to determine the quality of the items.

The item discrimination for each of the 60 CAIBSI items was assessed by computing the Pearson product-moment correlation coefficient (i.e., r). The discrimination power of the items ranged from -.05 to .75. Forty-one of the 60 items showed acceptable positive discrimination power of .3 or higher. Nineteen items, however, had a discriminatory power of less than .3, with two of these items (“*I talk first and think later*” and “*I am sarcastic when I want to*”) showing negative correlations. The item affectivity and item discrimination indices yielded were therefore examined concurrently, along with theoretical importance to the construct, to determine the retention, revision, or removal of these items. One item (“*I want others to confirm my status*”; $q = .42$; $r = .08$) was subsequently removed from the CAIBSI leaving 59 items. The internal reliability of the CAIBSI was found to be high ($\alpha = .89$). Members of the expert panel suggested that the scoring of the instrument be altered from 1-4 (*definitely not true - definitely true*) to 0-3.

Study 2

Methods

Participants and settings

Study Two used the data gathered from 150 high school adolescents aged 12 to 17 years, including 73 (41 males, 32 females) who had school records of suspension for antisocial behavior. The remaining 77 adolescents (39 males and 38 females) had no official records showing suspension, antisocial behavior, or behavioral problems. Participants were enrolled across different socio-economic status (SES) areas: one School was in a low SES area, another in a low-middle SES area, and the third was in a high SES area as indexed by their postal codes from the Socio-Economic Indexes for Areas within Western Australia [54].

All participants completed the CAIBSI in their regular classrooms under examination-like conditions. In the schools, each administration was conducted in groups of approximately 15 students. In some instances, where participants had records of antisocial and behavioral problems, the administration was carried out in smaller groups of about five students.

Measures

Based on feedback from Study One, the CAIBSI retained its 4-point scale anchored with the descriptors *definitely not true* to *definitely true*, but its scoring was changed to zero to three, with higher scores still indicative of higher levels of psychopathic traits.

Procedure

Three schools were randomly selected (one from each of the three previously mentioned SES statuses) and then approached via telephone. All schools agreed to participate and were provided with CAIBSI forms and an instruction sheet to ensure standardised administration of the instrument. In total, consent was obtained for 150 students, which represented an approximate affirmative return rate of 53%. To ensure confidentiality, each participant placed

their completed questionnaire in an A4 envelope, which they then sealed before submitting to the test administrator.

Data analysis and results

Exploratory Factor Analysis of the Constellation of Affective and Interpersonal Behaviours Screening Instrument: The final proportion of the full data set for the CAIBSI following Guttman interpolative procedures was 98.7% ($n = 148$). Data from the 148 participants were thus included in this analysis. A parallel analysis was carried out with Monte Carlo PCA. As can be seen in Table 1 the distribution of eigenvalues derived from the parallel analysis of random data sets indicated that up to four factors could be extracted.

[Table 1 around here]

The assessment of the adequacy of extraction and the number of factors to be retained for interpretation were determined by the following six criteria: (a) Kaiser-Guttman's eigenvalue of greater than 1.0 rule [55, 56]; Cattell's scree test [57]; (c) Horn's parallel analysis method [58]; (d) the cumulative percentage of variance criterion [59]; (e) the evaluation of factor loading patterns [60]; and (f) the interpretability criterion of factor loading [59].

Before performing the factor analysis, the matrix data were examined to verify if they were suitable for factor analysis. Bartlett's test of sphericity [61] reached statistical significance ($\chi^2 = 3819.43$, $df = 1711$, $p < .001$) and the value of Kaiser-Meyer-Olkin's MSA [62] was .80 ("meritorious"). Collectively, the results established the factorability of the CAIBSI matrix.

The 59 items were then subjected to Maximum Likelihood factor analysis with (orthogonal) varimax rotation with SPSS version 14.0. A methodical evaluation of the factor loadings of the two - to seven-factor solutions for interpretability was then conducted. The two, three-, five-, six- and seven-factor solutions produced more complex factor solutions which lacked clarity and interpretability. In contrast, the four-factor solution comprising 26

items was interpretable and obtained the best fit to the data. Table 2 shows the items that loaded on Factor 1 reflected behaviors executed on impulse, and was thus labelled *Impulsivity*. The items loading on the second factor were concerned with a sense of “me”, and were named *Self-Centredness*. The third factor (*Callous-Unemotional*) items referred to a lack of concern for others and shallowness. Items depicting conceited manipulative behavior and interpersonal exploitiveness loaded on the *Manipulativeness* factor. These factors map well to previous models [5] comprising a defective emotional experience (i.e., CU traits: shallow emotions, a pronounced lack of remorse and empathy) and Impulsivity. The factor in previous models representing an arrogant and deceitful interpersonal style (including manipulation, dishonesty, grandiosity, and glibness) appears to be represented by two distinct factors in the CAIBSI, namely Self-centredness and Manipulativeness.

The Cronbach’s alpha coefficient overall was .86, and was acceptable for each subscale: Impulsivity ($\alpha = .73$), Self-Centredness ($\alpha = .70$), Callous-Unemotional ($\alpha = .69$) and Manipulativeness ($\alpha = .83$).

[Table 2 around here]

Study 3

Study Three used data from a representative sample of suspended and non suspended high school students to test the four factor model suggested by the EFA in Study 2.

Methods

Participants

Study Three used data gathered from 328 high school adolescents (174 males, 154 females) 130 of who had school records of suspension for antisocial behavior (76 males, 54 females). The remaining 198 adolescents (98 males and 100 females) had no official records showing suspension, antisocial behavior, or behavioral problems. Of the total sample, 132 were classified as lower high school (12-13 years of age; 47 suspended) and 196 were

classified as upper high school (14-17 years of age; 83 suspended). Participants were enrolled across nine different schools (not included in the previous study) representing differing socio-economic status (SES) areas.

Measures

The measures used in Study Three were exactly the same as used in Study Two.

Procedure

Nine randomly selected schools (three from each SES status) agreed to be involved in Study 3. The CAIBSI was delivered to the schools along with standardised written instruction sheets. In total, consent to participate was obtained for 328 students, which represented an approximate affirmative return rate of 60%. To ensure confidentiality, each participant placed their completed questionnaire in an A4 envelope, which they then sealed before submitting to the test administrator.

Data analysis

First, AMOS 18.0 was used to evaluate competing measurement models using confirmatory factor analysis. Single-factor, two-factor, three-factor, and a four-factor model are all evaluated. As might be expected given the nature of the study, many items were skewed and therefore bootstrapping with maximum likelihood estimation was employed [63]. We used four indices to assess the goodness of fit of a first-order measurement model: the comparative fit index (CFI: above .95 indicates good fit, above .90 indicates adequate fit), the root mean-square error or approximation (RMSEA: .05 or less indicates good fit, .08 or less indicates adequate fit), the CMIN/DF (lower than 2-3 indicates good fit) [64] and chi-square (non-significant values represent good fit). This was to confirm the hypothesized relationships between item indicators and latent variables.

The structural equivalence of the strongest measurement model was then compared across gender, across age, and across the suspended and non suspended groups using the

change in chi-square, $\Delta\chi^2$, statistic. Finally, differences in mean levels of the four CAIBSI factors were examined across gender, age, and whether young people were suspended or not using ANOVA.

Results

A one-factor model, where all items loaded on a single factor, did not evidence satisfactory levels of fit: χ^2 (df = 299) = 942.42, $p < .001$, CMIN/DF ratio = 3.15, CFI = .71, RMSEA = .08 (90% confidence interval [CI]: .08, .09). Next we assessed a two-factor model which conceptualised the items as belonging either to an Impulsivity factor or to another factor combining the other interpersonal and affective items, both of which were correlated. This evidenced marginally better fit, but was still unsatisfactory: χ^2 (df = 298) = 894.47, $p < .001$, CMIN/DF ratio = 3.00, CFI = .73, RMSEA = .08 (90% CI: .07, .08). A third model was also tested, one with three correlated factors representing Impulsivity, Callous/Unemotional, and Self-Centred/Manipulative traits. This third model substantially improved the degree of fit, and several indices supported the utility of this model: χ^2 (df = 296) = 613.72, $p < .001$, CMIN/DF ratio = 2.07, CFI = .86, RMSEA = .06 (90% CI: .05, .06). We then assessed a final model, which considered the items to be best represented by four correlated factors, and this model represented satisfactory levels of fit: The first-order model was an acceptable fit to the data, χ^2 (df = 293) = 517.28, $p < .001$, CMIN/DF ratio = 1.76, CFI = .90, RMSEA = .05 (90% CI: .04, .06).

Invariance of the four-factor measurement model across gender, age, and status as suspended or non-suspended

Invariance was assessed incrementally; first by assessing a model where the factor loadings, correlations between latent factor scores, and variance in factor scores were allowed to vary across the groups under investigation (e.g., males and females were permitted to differ on all these elements). This model was compared to a second model that additionally

constrained all factor loadings to be equal across groups. A third model added the constraint that correlations between latent factor scores also had to be equal across groups. A fourth model added the constraint that variance in factor scores was equal across groups. Each model was compared to all preceding models. Change in chi-square ($\Delta\chi^2$) was used to assess the relative merits of the competing models, with a significant $\Delta\chi^2$ indicating that the unconstrained model should be accepted (i.e., indicating that there DO exist differences across the groups on the relevant parameters).

Gender. No $\Delta\chi^2$ values were significant, supporting a model, which was completely invariant across gender.

Age. Two age groups were created by splitting the sample at 13/14 years as no other split created groups of adequate size to permit the multiple groups analyses. The Younger age group were aged 12 to 13 years ($n = 132$), and the Older age group were 14 to 18 years ($n = 196$). No $\Delta\chi^2$ values were significant, indicating that an age invariant model was the best explanation of the data.

Suspension status. The $\Delta\chi^2$ was not significant when comparing the second model (where factor loadings were constrained to be equal) with the first model. This indicated that factor loadings did not differ across young people who were suspended and those who were not. However, all other $\Delta\chi^2$ were significant, indicating that specific correlations between latent variables, and the variances of latent variables, differed across the groups (see Table 3).

[Table 3 around here]

The Critical Ratios for Differences between Parameters, provided by AMOS 18.0, were used to ascertain which specific values differed across which groups. These indicated that two latent variable correlations differed across the groups. First, the correlation between the Manipulativeness and the Callous/Unemotional latent variables was stronger ($p < 0.05$) among Suspended ($r = .51^{***}$) than Non-Suspended ($r = .31^{**}$) young people. Second, the

correlation between the Callous/Unemotional and the Impulsivity latent variables was weaker ($p < 0.05$) among Suspended ($r = -.02$, non-significant) than Non-Suspended ($r = .37^{**}$) young people.

The Critical Ratios for Differences between Parameters also indicated that the variance for one latent variable, Callous/Unemotional, differed significantly across the two groups. There was significantly more variance ($p < 0.01$) in the Suspended group (0.46, S.E. = 0.11) than in the Non-Suspended group (0.21, S.E. = 0.05).

Effects of gender, age, and status as suspended or non-suspended on factor scores

Using the formula $W = BS^{-1}$, where B is the matrix of covariances between the unobserved and observed variables, and S is the matrix of covariances among the observed variables, AMOS 18.0 calculated factor score weights for each of the items based on the accepted measurement model. To use these, each participant's score on each item is multiplied by the factor score weight for that item, and this is then added to a similar score for the following item, and so on. Factor score weights are shown in Table 4, and mean scores are shown by gender, age and suspension status in Table 5.

[Tables 4 and 5 around here]

To examine the effects of gender (male, female), age (younger, older) and suspension status (suspended, not suspended), four separate three-way independent ANOVAs were conducted, one for each factor score. For the Impulsivity factor, there was a small, significant main effect of gender, $F(1, 320) = 3.97$, $p = .047$, $\eta_p^2 = .01$, indicating that boys ($M = 0.59$, $SD = 0.39$) had higher scores than girls ($M = 0.52$, $SD = 0.31$). There was also a small, significant effect of suspension status, $F(1, 320) = 20.57$, $p < .001$, $\eta_p^2 = .06$, indicating that suspended pupils ($M = 0.65$, $SD = 0.28$) had higher scores than non-suspended students ($M = 0.50$, $SD = 0.30$). There were no other significant main effects or interactions for Impulsivity.

For Manipulativeness, the effects mirrored those of Impulsiveness: a small, significant main effect of gender, $F(1, 320) = 8.43, p = .004, \eta_p^2 = .03$, and a small, significant main effect of suspension status, $F(1, 320) = 19.01, p < .001, \eta_p^2 = .06$. Again, boys ($M = 0.68, SD = 0.35$) had higher scores than girls ($M = 0.54, SD = 0.36$), and suspended students ($M = 0.73, SD = 0.38$) had higher scores than non-suspended ($M = 0.54, SD = 0.32$).

For Self-Centredness, only the three-way interaction was significant, $F(1, 320) = 4.38, p = .037, \eta_p^2 = .01$. To investigate this interaction, follow-up two-way independent ANOVAs were conducted: the possible effects of gender and age were evaluated for suspended students and then separately for non-suspended students; the possible effects of gender and suspension status were evaluated for younger and then for older students; and finally, the possible effects of age and suspension status were evaluated for girls and then for boys. None of the main effects or interactions in any of these six ANOVAs was significant, leading us to conclude that the three-way interaction was spurious.

Finally, for Callous/Unemotional traits, there was a small, significant effect of gender, $F(1, 320) = 12.95, p < .001, \eta_p^2 = .03$, and a small, significant main effect of suspension status, $F(1, 320) = 62.20, p < .001, \eta_p^2 = .16$. These main effects were qualified by a significant interaction between gender and suspension status, $F(1, 320) = 5.30, p = .022, \eta_p^2 = .02$. This interaction revealed that there is no significant gender difference among non-suspended young people, $F(1, 196) = 1.67, p = .198, \eta_p^2 = .01$, but that suspended boys ($M = 1.01, SD = 0.42$) had significantly higher C/U trait scores than suspended girls ($M = 0.73, SD = 0.57$), $F(1, 196) = 10.30, p = .002, \eta_p^2 = .08$.

Discussion

Limited psychometric data exist on psychopathy measures in mainstream community children and adolescents [5] and that which is available suggests significant limitations in these measures [30, 65]. Developing valid measures of psychopathic traits for use in

mainstream populations is a necessary step towards developing effective interventions [36]. The present study provides researchers and clinicians with a new easy-to-administer self-report instrument with which to measure psychopathic traits in adolescents. In separate administrations with samples of typically developing adolescents we examined the psychometric properties of this new instrument through calculation of item functioning indices, internal reliabilities, and both EFA and CFA. To date, most instruments for assessing psychopathic traits in youth have been teacher- and parent-reports and as such limit insight into the core affective traits such as empathy that self-report formats may provide. Indeed, covert acts are generally obscure to these third party informants [66, 67] and these modes of assessment leave the adolescents' own perspective out of consideration [36].

Emotions such as empathy, guilt and narcissism are closely related to the affective and interpersonal components of psychopathy. Children as young as nine years old are able to reliably report on these dimensions [36], and so the first study reported here revised a recently developed teacher report into a self-report, age-appropriate format. This is not to say, however, there are no disadvantages associated with self-report, particularly with those characterised by psychopathic traits (e.g., response distortion, lack of insight into nature of problems) [68, 69].

An EFA of the items reported in Study 2 suggested a four-factor structure consisting of Manipulativeness, Callous Unemotionality, Impulsivity, and Self-Centredness. This is quite similar to the Grandiose-Manipulative, Callous-Unemotional and Impulsive-Irresponsible dimensions proposed in an earlier study [25]. Furthermore, it maps fairly well onto current thinking that psychopathic traits in juveniles, like adult psychopathy, is a constellation of personality dimensions: an Arrogant and Deceitful Interpersonal Style (e.g., lying, manipulation, glibness, and superficial charm); a Deficient Affective Experience (e.g., a lack of guilt and remorse, shallow affect and callousness); and an Impulsive and Irresponsible

Behavioral Style (e.g., impulsiveness and excitement seeking) [see 11, 17, 36, 40, 50, 70]. Previous research [36, 40, 71] also highlighted the importance of manipulative behavior and interpersonal exploitiveness, and self-centredness and self-admiration which allow adults with psychopathic traits to take advantage of others – elements which were also reported as prominent among suspended adolescents [42].

The results of the confirmatory factor analysis indicated that the four-factor structure of the CAIBSI fit adequately to the data and was superior to the single, two and three factor models tested. In other studies using established measures the two factor structure (impulsivity and callous-unemotional) in adolescents has not received clear support [44]. For example, research using the PLC:YV reported that three or four factors might be more appropriate [72]. Although some research using the APSD has reported adequate fit with two factors (impulsivity/conduct problems and callous-unemotional) [19], the three factor model (an additional narcissism factor) [23] was thought to be a more useful way to examine psychopathic traits in young people. Similarly, research using the YPI [25] has proposed the three-factor model (grandiose/manipulative, callous unemotional, impulsive-irresponsible), which is consistent across gender, may be a more useful way to examine psychopathic traits in young people. In some research, although a three-factor structure has been found to have adequate fit, a four-factor structure (interpersonal, affective, lifestyle, antisocial) has been reported as more robust overall [73].

Most of the extant literature to date has focused on the two and three factor models and the four-factor model is relatively recent and therefore more data are required to determine its stability and interpretability [30]. The population in the present research comprised suspended and non suspended mainstream high school adolescents. None of these individuals had received periods of incarceration for criminal activities and it is highly likely that they did not present with the same severity or profile of psychopathic traits as those from the forensic or

clinic referred settings included in previously reported research [74 - 75]. Thus, the four-factor solution generated by the CAIBSI may be more congruent with the mainstream adolescent population and as such goes some way to addressing the calls for developing self-report instruments of psychopathic traits in mainstream children and adolescents [36].

Furthermore, we confirmed that this measurement model did not differ with respect to factor loadings, correlations between latent factor scores, or variance in factor scores when comparing males and females. These three parameters were also invariant when comparing younger (12 to 13 years old) with older (14 to 18 years old) adolescents. Factor loadings also did not differ across young people who had been suspended and those who had not. However, while the correlation between Manipulative and Callous/Unemotional traits was significant among both suspended and non-suspended young people, it was stronger for the former group. In contrast, the correlation between Callous/Unemotional and Impulsivity traits was non-significant among suspended young people but was significant and of moderate strength among non-suspended adolescents. Finally, there was greater variation in scores on the Callous/Unemotional scale among suspended than non-suspended young people. This pattern of results indicates that while the items which make up the specific trait scales do not differ across gender, age and suspension status, it is also true to say that suspension status is related to the degree to which scores vary and the relationships that exist between scale scores.

With regard to the specific facets which make up psychopathic traits, for the Impulsivity and Manipulative scales, males scored higher than females and suspended students scored higher than non-suspended students. For Callous Unemotional traits, males again had significantly higher scores than females, but this was only true among the suspended group. Generally, among males and females recruited from clinical and community samples, the former tend to have higher psychopathy scores [76-78]. With adjudicated delinquents some studies report none or very few gender differences [79, 80] while others report that females

score higher than males on impulsivity and conduct problems, but not on Callous Unemotional traits [81]. Conversely, males scored higher than females on impulsivity and conduct problems [19], while males scored higher than females on the Interpersonal and Affective traits (arrogant and deceitful interpersonal style and deficient affective experience), but similarly on Impulsivity [82].

Overall, the present findings show that the CAIBSI assesses psychopathic traits equally as well for boys as for girls and is to a large extent consistent with past research indicating that males tend to score higher than females on dimensions of psychopathy, including the CU dimension [83]. Furthermore, the findings are in line with the general results showing that psychopathic traits in adults are more prevalent in males than females [84]. Since very little is known about the construct in females [6], the present research provides greater understanding about the psychopathy construct in mainstream suspended and non suspended girls. Furthermore, the measure's demonstrated strength in assessing the construct in both boys and girls will hopefully encourage more research in female populations as called for by some researchers [5].

No age related differences were evident in psychopathic traits between younger (12 to 13 years old) and older (14 to 18 years old) adolescents. Some research has reported that 15-16 year old adolescents score significantly higher than 13-14 year old and 17-18 year old adolescents on Callous Unemotional traits [28, 31]. This is consistent with developmental research suggesting that in early and middle adolescence some level of rebelliousness and antisocial attitudes is common, but this declines in later adolescence [85].

It must be acknowledged that although the CAIBSI seems to effectively measure the present definition of psychopathy there was no comparison to other measures of psychopathy in youth. The reasons for this are primarily related to the difficulties associated with conducting research in regular mainstream schools. In Australia, school principals are

reluctant to allow researchers to administer several (and or long) instruments since they often necessitate lengthy periods of time and interfere with normal school routines and students learning. In addition, the titles of some of the instruments that could have been used in comparison with the CAIBSI are highly emotive to school principals (eg The Antisocial Process Screening Device [43], The Child Psychopathy Scale [37], The Youth Psychopathic traits Inventory [25], and the Self-Report Psychopathy Scale-II [48] and hence preclude their administration. Thus, demonstrating convergent and discriminant validity must be a strong focus of future research if the reliability and validity of the CAIBSI is to be established. It must also be acknowledged that our results are based solely on self-report data. Some researchers suggest that corroborative information such as file data and observations be used, yet there is “surprisingly little research bearing on the question of whether other modes of assessment confer incremental validity above and beyond self-reports in the assessment of psychopathy” [69, p. 125]. Nevertheless, it has been argued that multi-method approaches of assessing psychopathic traits are most advantageous for determining the way in which contextual processes (e.g., family structure) shape the development of psychopathy over time [86].

Summary

The development and validation of the CAIBSI means that researchers and clinicians now have access to an easily administered self-report instrument that screens for psychopathic traits in mainstream adolescents. Research has demonstrated that psychopathic traits manifest early in children [36] and designate a group of early and late adolescents who are at risk for serious and versatile antisocial behavior [87]. Therefore, from the perspectives of mental health and juvenile justice the assessment and identification of psychopathic traits in non-referred mainstream adolescents is crucial. This will also assist in understanding psychopathic traits for the purposes of prevention and intervention planning in schools and in other systems

that serve the development of young people [88]. Indeed, the earlier identification of psychopathic traits is important because it might allow for more effective preventive intervention [3] and therefore a reduction in the harmful sequelae (e.g., prison, substance use), associated financial costs, and substantial harm to society.

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Table 1.

Results of the Parallel Analysis for the CAIBSI

No of Factors Extracted	Random Eigenvalue	Actual Eigenvalue
1	2.5327	12.60
2	2.3745	3.85
3	2.2625	2.39
4	2.1398	2.14
5	2.0818	2.00
6	2.0005	1.90
7	1.9240	1.81
8	1.8520	1.62
9	1.7960	1.47
10	1.7327	1.46

Table 2.

Factor Loadings from the Exploratory Factor Analysis of the CAIBSI

Item Description	Factor Loadings			
	1	2	3	4
Factor 1: Impulsivity				
41. I have got into trouble because I do not think before I act.	.653			
48. I think about my actions before doing something. ®	.667			
36. I talk first and think later.	.656			
77. I am not concerned about the consequences of my behaviour on myself.	.400			
42. I know I have done wrong but it is not really my fault because others have set me up.	.344			
Factor 2: Self-Centredness				
73. I am able to hide my real emotions when I want to.		.495		
32. I will stop no matter what I am doing if there is a chance to do something fun.		.649		
17. I follow my own rules.		.361		
76. I am sarcastic when I want to.		.544		
54. I do things for my own self satisfaction.		.390		
67. I seek excitement.		.408		
Factor 3: Callous/Unemotional				
10. I show respect for those in authority. ®			.719	
12. I feel that when others have problems, it is often their own fault; therefore, we should not help them.			.433	
6. I am willing to help others when they need help. ®			.501	
34. I feel bad when I do something wrong. ®			.478	
9. I fulfil the promises I made to others. ®			.474	
16. I take responsibility for my behaviour. ®			.418	
Factor 4: Manipulativeness				
38. I can pretend to be genuine when I want to.				.603
39. I am able to make up answers that sound believable when others ask me something.				.525
58. I can get others to believe in me even if I have made something up.				.620
60. I am cunning when I want to.				.627
50. I let others take the blame for things I have done.				.438
74. I easily get others to do what I want.				.528
53. I have good excuses even when others tell me I am wrong.				.469
14. I lie easily and skilfully.				.393
64. I act charming and nice, even with people I do not like, in order to get what I want.				.377

® = Reverse scored item

Table 3.

Model Comparisons for Suspension Status.

Model	Comparison Model	DF	CMIN	<i>p</i>
1. FLC ¹	Null	22	20.22	.569
2. CC ²	Null	28	49.20	.008
	1. FLC	6	28.98	.000
3. VC ³	Null	32	65.37	.000
	1. FLC	10	45.15	.000
	2. CC	4	16.17	.003

¹Factor Loadings Constrained; ²Correlations Constrained; ³Variances Constrained

Table 4.

Factor Score Weights

Item Description	Factor Score Weights			
	1	2	3	4
Factor 1: Impulsivity				
41. I have got into trouble because I do not think before I act.	.114			
48. I think about my actions before doing something. ®	.035			
36. I talk first and think later.	.120			
77. I am not concerned about the consequences of my behaviour on myself.	.075			
42. I know I have done wrong but it is not really my fault because others have set me up.	.064			
Factor 2: Self-Centredness				
73. I am able to hide my real emotions when I want to.		.062		
32. I will stop no matter what I am doing if there is a chance to do something fun.		.071		
17. I follow my own rules.		.060		
76. I am sarcastic when I want to.		.058		
54. I do things for my own self satisfaction.		.054		
67. I seek excitement.		.054		
Factor 3: Callous/Unemotional				
10. I show respect for those in authority. ®			.184	
12. I feel that when others have problems, it is often their own fault; therefore, we should not help them.			.071	
6. I am willing to help others when they need help. ®			.162	
34. I feel bad when I do something wrong. ®			.070	
9. I fulfil the promises I made to others. ®			.115	
16. I take responsibility for my behaviour. ®			.111	
Factor 4: Manipulativeness				
38. I can pretend to be genuine when I want to.				.051
39. I am able to make up answers that sound believable when others ask me something.				.056
58. I can get others to believe in me even if I have made something up.				.084
60. I am cunning when I want to.				.055
50. I let others take the blame for things I have done.				.065
74. I easily get others to do what I want.				.060
53. I have good excuses even when others tell me I am wrong.				.070
14. I lie easily and skilfully.				.055
64. I act charming and nice, even with people I do not like, in order to get what I want.				.037

® = Reverse scored item

Table 5.

Means (and Standard Deviations) by Age, Gender, and Suspension Status.

			CAIBSI Factor			
Age	Gender	Suspension Status	I	SC	CU	M
Younger	Male	Not Suspended (N=39)	0.48 (0.30)	0.57 (0.24)	0.50 (0.37)	0.55 (0.37)
		Suspended (N=29)	0.75 (0.27)	0.65 (0.26)	1.03 (0.48)	0.76 (0.39)
	Female	Not Suspended (N=46)	0.47 (0.31)	0.61 (0.20)	0.45 (0.36)	0.55 (0.37)
		Suspended (N=18)	0.60 (0.27)	0.58 (0.18)	0.71 (0.57)	0.65 (0.41)
Older	Male	Not Suspended (N=59)	0.55 (0.27)	0.58 (0.22)	0.53 (0.32)	0.60 (0.30)
		Suspended (N=47)	0.65 (0.27)	0.57 (0.21)	0.99 (0.38)	0.83 (0.30)
	Female	Not Suspended (N=54)	0.48 (0.32)	0.55 (0.23)	0.45 (0.39)	0.46 (0.26)
		Suspended (N=36)	0.59 (0.31)	0.65 (0.26)	0.74 (0.58)	0.63 (0.42)

I = Impulsivity; SC = Self-Centredness; CU = Callous/Unemotional; M = Manipulativeness

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