**Dimensions of youth psychopathy differentially predict concurrent pro- and antisocial behavior**

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**Running title:** Pro- and antisocial behavior in youth

**Objective**: We investigated the unique contribution of narcissism and impulsivity in addition to callous-unemotional (CU) traits in explaining concurrent prosocial and antisocial behavior.

**Method**: 249 school children (53% female; 9-12 years), who completed the self-report Strengths and Difficulties Questionnaire (SDQ) and the Antisocial Process Screening Device (APSD).

**Results:** Two models were tested predicting conduct problems (CP) and prosocial behavior (PB). In the first one, CU traits and gender were entered into the equation. The second model added narcissism and impulsivity. Gender, narcissism and impulsivity, but not CU were statistically significant predictors of CP in the second model (F(3,226) = 45.07, p < .001, R2 = 43.7%; Betas: Gender = -.20, Narcissism = .29, Impulsivity = .36, CU = .06). PB was significantly predicted by all domains except for gender (F(3,226) = 42.57, p < .001, R2 = 42.4%; Betas: Gender = .08, Narcissism = -.16, Impulsivity = -.23, CU = -.41).

**Conclusion:** Our results confirmed that CU traits refer to a distinct manifestation of psychopathy in youth, but we also found that narcissism and impulsivity are equally important when predicting CP. Previous reports of sex differences on APSD and SDQ domains were also supported.

**Key-words:** Child Psychiatry; Diagnosis and Classification; Personality Disorders -

Cluster B (Antisocial-Borderline-Histrionic-Narcissistic);

Violence/Aggression; Gender Differences.

**Introduction**

Children with dysfunctional levels of aggression and antisocial behavior may meet criteria for a diagnosis of Conduct Disorder (CD). CD is characterized by behavior that violates the rights of others, or of societal norms1 and interfere with typical social and/or academic functioning2. The presence of conduct problems (CP) during childhood and adolescence puts individuals at risk to serious outcomes such as delinquency, criminal involvement, substance misuse, problems in relationships, and severe psychopathy3. Within the most recent iteration of the DSM-V, the definition of CD has been developed to include a specifier to this diagnosis for those who also display ‘limited prosocial emotions’, such as deficits in empathy and in of expression of guilt2. These characteristics overlap with the concept of callous-unemotional (CU) traits.

‘CU traits’ are a category of behavior characterized by persistent, negative acts intended to harm others, as well as the absence of emotional responsiveness and little to no empathy. In this sense, CU traits can be considered as a developmental precursor to psychopathy1. To date, it has been proposed that CU traits may be associated with genetic, brain-based, and environmental factors4-5, which predispose a child to this particular and persistent interpersonal style. CU traits are typically associated with adverse outcomes such as increased CP, substance use and risk-taking behaviors. Elevated levels of CU traits have been shown to delineate a group of individuals with more severe behavioral difficulties and with very similar rates of CD and Oppositional Defiant Disorder as opposed to those with non-elevated CU6 who tend to be more heterogeneous with regards to behavioral symptoms. Additionally, the combination of early psychopathic traits such as impulsivity, CU traits and aggression have established influences on propensity, situational context, and deterrence of violent offending trajectories7-9.

Although CU traits may play a key role in youth psychopathy there is yet no consensus on whether the presence of CU traits is sufficient to classify this subgroup of youth. To date, researchers have repeatedly neglected the contribution of traits such as narcissism and impulsivity to the development of psychopathy – realms that are equally important in determining potential prospects of future psychopaths10,11. This is to some extent alarming since early treatment is imperative to attenuate the numerous consequences related to psychopathy along lifespan. For instance, longitudinal research has shown that narcissism, impulsivity and CU traits as measured by the APSD significantly predicted the ‘Meanness’ (e.g., lack of empathy, callousness, cruelty) domain of the Triarchic Psychopathy Measure (TriPM) later on, in young adulthood (β = .39, .24, and .44, respectively)12. In addition, data from child sample highlights the role of narcissism as an important predictor of aggression above and beyond CU traits10. Nevertheless, so far no studies have investigated the magnitude to which impulsivity and narcissism explained concurrent pro- and antisocial behaviors in school children. In order to shed some light on this topic, this study aimed to investigate the unique contribution of narcissism and impulsivity in addition to CU traits in explaining those behaviors, taking also into account the role of gender.

**Methods**

*Participants and procedures*

A total of 249 school children participated in this research (54.9% girls). Participants’ ages were between 9 to 12 years old and attended mainstream primary schools in the London area. This research was approved by the ethics committee of the Department of Psychology, Goldsmiths, University of London. Informed consents were obtained for parents or guardians of each participant. The data presented in this study was collected as part of a larger study of child behavioral difficulties. All measures were completed by the participants and there were no a priori exclusion criteria.

*Measures*

Antisocial Process Screening Device (APSD; Frick & Hare, 2001)13. The APSD is one of the most widely used measures to assess psychopathic traits in youth. It is a 20-item rating scale that can be completed by parent or teachers, or self-rated. It is comprised of three subscales (Callous-Unemotional, Narcissism, and Impulsivity). In the current study, self-reported APSD yielded adequate indices of internal consistency (Cronbach's α = .71 and Gutmann's λ6 = .79).

Strengths and Difficulties Questionnaire(SDQ; Goodman, 2001)14. SDQ assesses five dimensions: peer relations (PR), conduct problems (CP), emotional problems (EP), prosocial behaviors (PB), and hyperactivity. It comprises 25 items on a 3-point likert scale (0 being ‘not true’, 1 as ‘somewhat true’ and 2 as ‘certainly true’). Again, self-report SDQ presented adequate indices of internal consistency in the current study (Cronbach's α = .75 and Gutmann's λ6 = .82).

*Data analysis*

The dataset was coded and analyzed using SPSS 20 and JASP 0.8 software. In order to characterize the sample, frequencies, correlations, means and standard deviations were calculated for the variables of interest. Inferential t-tests were used to make comparisons between means for boys and girls. Hierarchical regression analyses were performed to understand the unique contributions of the predictors ‘callous-unemotional traits’, ‘narcissism’, and ‘impulsivity’ to pro- and antisocial behaviors defined as outcomes.

**Results**

*Descriptive statistics and gender differences*

For SDQ PB and CP, means were *M* = 7.99 (*SD* = 1.80), and *M* = 2.77 (*SD* = 1.99), respectively. Means for APSD CU traits, narcissism and impulsive behaviour were, respectively, 2.99 (*SD* = 1.77), 4.04 (*SD* = 2.67) and 4.18 (*SD* = 2.02). Aside from CU traits, all other variables showed statistically significant differences between boys and girls. Boys scored higher on CP, impulsive behavior, and narcissism than girls (*t* (1,228) = -4.89, *p* < .001, *d* = - .65; *t* (1,226) = -2.27, *p* = .02, *d* = - .30; *t* (1,226) = -3.53, *p* < .001, *d* = - .47, respectively), whereas girls displayed elevated scores on PB (*t* (1,225) = 2.89, *p* = .004, *d* = .39).

*Correlations and predictors*

As expected, CP was negatively linked with PB (*r* = -.46), and positively associated with CU traits (*r* = .34), narcissism (*r* = .53) and impulsivity (*r* = .55). PB was negatively associated with CU traits, narcissism, and impulsivity (*r*'s = -.56, -.45, and -.46, respectively). CU traits were associated with narcissism (*r* = .39) and impulsivity (*r* = .36). Finally, narcissism was positively linked with impulsivity (*r* = .46). All correlations were significant at *p* < .001.

Table 1 around here

Hierarchical regression analyses were performed with CU traits and gender as predictors firstly (Model 1). To understand the increment in the model, narcissism and impulsivity were added on the second step (Model 2). Interestingly, when using gender and CU traits to predict conduct problems alone the model explained 19.4% of the variance. Nevertheless, adding narcissism and impulsivity resulted in a substantial increase in the amount of variance explained by the predictors (from 19.4 to 43.7%), although CU traits failed to retain its statistical significance. For the model exploring predictors of prosocial behaviors, the second model displayed better results when compared to the model that considered exclusively CU traits and gender. The amount of variance explained increased from 34% (first model) to 42.4% (second model), and gender failed to retain its statistical significance from step one to two.

**Discussion**

In the current study, we primarily sought to examine the extent to which impulsivity and narcissism predicted concurrent pro-social and antisocial behaviors in school children over and above CU traits alone. To achieve these goals, hierarchical regression models were used. We found that there are differential predictors of the domains of pro and antisocial behavior, which should not simply be seen as two sides of the same coin.

For PB, CU traits are the strongest (negative) predictor, although narcissism and impulsivity are also significant (negative) predictors. For antisocial behavior, on the other hand, when a model including CU traits, narcissism and impulsivity is tested, CU traits is not a statistically significant predictor of antisocial behavior in this community child sample. This finding is particularly interesting given the recent addition of the ‘limited prosocial emotions’ specifier in DSM-V2.

One of the key reasons for including this specifier into the DSM-V is to allow for specialized care, treatment and research pathways for children who show both negative (i.e. antisocial behaviors) and positive behaviors (i.e. display of appropriate prosocial emotions). Our research has shown that early personality features (narcissism) and behavioral features (impulsivity) also make important contributions to child behavioral presentation. It should be noted that impulsivity was a statistically significant variable in all models tested in this study. In this sense, therapies directed at aggressive behaviors may be particularly relevant10. A similar pattern was observed for narcissism which was also a statistically significant predictor of pro- and antisocial behavior, although less strong than impulsivity. Here, the implications for clinical treatment might include transferring the excessive focus from the individual (i.e. avoid fostering egocentricity features) and stressing perspective-taking abilities and empathy15-16.

To conclude, it is certainly relevant to consider gender and CU traits as important risk factors for the development of the psychopathic personality. However, a more comprehensive examination including the exploration of narcissism and impulsivity not only gives us a more robust picture - as explained by significant increase in the variance explained, but it has also implications in terms of intervention designs that aim to prevent CP and promote prosocial behaviors among at-risk populations13. In addition, understanding the role of CU traits along with narcissism and impulsivity in predicting CP may help researchers in the accurate identification if homogenous groups, being also appropriate in capturing a richer picture of etiologies and trajectories of antisociality17-18.

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