



Multidimensionality of Youth Psychopathic Traits: Validation and Future Directions

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Abstract

The seven articles featured in this Special Section on “Child Psychopathic Traits for Specifying Conduct Disorder” collectively prosecute an important tension in the field: despite evidence that psychopathic traits in children, adolescent, and adults are multidimensional, callous-unemotional (CU) traits have evolved to nearly eclipse the construct of youth psychopathic traits. That is, does inclusion of grandiosity and impulsivity, and related psychopathic constructs improve predictive models? Employing a rich array of methods, these studies converged to suggest that using the entire constellation of psychopathic traits significantly improved predictions of key criteria. Crucially, predictions were consistent across development, multiple external criteria, and diversely recruited samples (e.g., community, incarcerated). From a developmental psychopathology framework (Cicchetti 2008), I synthesize the theoretical and empirical implications of these studies and offer perspectives on future directions. In particular, there is an urgent need to elucidate mechanisms from psychopathic traits to important clinical, public health, and functional outcomes; identification of potential causal processes is necessary to establish the validity of psychopathic traits and to ultimately innovate intervention and prevention efforts.

Conduct problems and antisocial behavior (ASB), including aggression and delinquency, are problems of considerable clinical and public health significance. Particularly when present early in development and resulting in functional impairment, ASB potently predicts a highly dispersed pattern of negative outcomes. Consistent with multifinality, recent meta-analytic evidence reported that conduct disorder (CD) prospectively predicted elevated risk for school failure, psychopathology and substance use disorders, as well as criminality (Erskine et al. 2016). In addition to their prediction of disability, the costs of victimization secondary to conduct problems and ASB are staggering. In the landmark Pittsburgh Youth Study, ASB from one cohort of 500 school-age boys followed prospectively into adolescence, resulted in as much as \$110 million in cost to victims with respect to their suffering, loss of quality of life, etc. (Welsh et al. 2008). To accelerate innovations in intervention/prevention, the etiology and underlying architecture of youth ASB must be discerned to build more accurate predictive models.

Youth Psychopathic Traits

A cardinal feature of youth ASB is its heterogeneity – individual differences in youth ASB are sensitive to multiple causal influences (e.g., equifinality) and dynamically transact with other risk factors and environmental experiences, especially across development. Age of onset of ASB (Moffitt 2006) and traits of daring, negative emotionality, and prosociality (Lahey and Waldman 2003), for example, have significantly clarified the origins and development of ASB. Individual differences in youth psychopathic traits are positioned to similarly improve traction on the heterogeneity of ASB. Key dimensions of youth psychopathic traits include impaired interpersonal relations (e.g., lying, grandiosity), affective disturbance (e.g., callous, low guilt), as well as lifestyle (e.g., parasitic, irresponsible) and antisocial (e.g., delinquency) problems, which are reflected in commonly employed measures such as the Psychopathy Checklist Youth Version (Forth et al. 2003). There is consensus that youth psychopathic traits predict crucial outcomes and reflect naturally occurring individual differences (Neumann and Hare 2008). Waller et al. (2012) reported moderate stability in psychopathic traits in young children whereas later in development, Lynam et al. (2007) demonstrated that adolescent psychopathic traits robustly predicted adult psychopathic traits. This test of the incremental predictive validity of adolescent psychopathic traits rigorously

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controlled for demographic factors, parenting behavior, baseline ASB, IQ and (2) employed different sources/informants for the predictor and criterion, assessed 11 years after initial ascertainment. Reliable predictions, from total scores and individual facets, to adult psychopathic traits underscore the common features across development, as well as the opportunity to promote earlier detection and assessment.

Despite persuasive evidence on the multidimensionality of psychopathic traits in youth and adults, ranging from incarcerated adolescents (Neumann et al. 2006) to traits self-reported in adults (Dotterer et al. 2017), there is an increasingly narrow focus on callous-unemotional (CU) traits. Of course, CU traits have transformed understanding of the etiology, development, and treatment of significant conduct problems, including delineating a subgroup of youth whose CP are significantly heritable (Viding et al. 2005); similarly, CU traits significantly reduce the benefits of efficacious interventions, including multisystemic therapy (Manders et al. 2013). However, particularly in studies of childhood, CU traits have evolved to become nearly synonymous with psychopathic traits, despite important divergent external correlates and factorial separability from grandiose-manipulative (GM), daring-impulsive (DI), and related designations (Salekin 2017). To address this limitation directly, the unifying theme of the studies in this Special Issue was to empirically address whether *other psychopathic traits*, those consistently derived from studies of youth and adult psychopathy, significantly enhanced predictions of outcome beyond the frequent exclusive focus on CU traits. Surprisingly few studies, particularly those properly attending to relevant developmental periods and themes, have considered psychopathic traits simultaneously – this approach is necessary to discern unique, incremental, and potential interactive associations with external criteria. As reviewed by Frick and White (2008), few studies directly compared CU traits to other psychopathic trait dimensions; and when they did, CU traits often correlated *less well* with criteria than impulsivity and grandiosity. In a recent exception, Jezior et al. (2016), based on two-year prospective follow-up data of 188 6–10 year-old children with and without attention-deficit/hyperactivity disorder (ADHD), found that grandiosity significantly incremented predictions of multi-informant rated conduct problems, controlling for CU traits, ADHD, IQ, and baseline ODD/CD. Thus, there is an immediate need for studies to attend to the entire constellation of psychopathic traits and to evaluate their criterion validity, with the goal to ultimately inform intervention development, delivery, and dissemination.

Studies of this Special Section

One of the most important features across these studies is the depth and richness of their methods. This includes large,

typically well-powered samples drawing from both community-based (e.g., Frogner et al. 2018; Fanti et al. 2018) and incarcerated (Gillen et al. 2018; Ridder and Kosson 2018) populations. Recruitment sources yield important clinical and demographic correlates: clinic-referred youth have an earlier onset of psychopathology and elevated comorbidity (Goodman et al. 1997) whereas Teplin et al. (2015) showed that rates of psychopathology in incarcerated youth far exceeded the general population, as well as important racial-ethnic and sex differences. Given these patterns, diverse methods are necessary to characterize racial-ethnic differences and similarities in psychopathic traits. The Skeem et al. (2004) meta-analysis reported negligible Black vs. White differences in psychopathic traits in *adults* drawn from 21 studies of correctional, substance, and psychiatric samples. In an independent meta-analysis, McCoy and Edens (2006) reported that African-American *adolescents* had modestly higher levels (Cohen's $d = .2$) of psychopathic traits relative to White adolescents. More recently, Horan et al. (2015) found that factorial invariance and patterns of association of psychopathic traits with external criteria were mostly similar in boys and girls in a community sample of Hispanic and Black adolescents. Finally, studies in this Special Issue were conducted with culturally and ethnically diverse youth from Sweden (Frogner et al. 2018), the island of Cyprus (Andershed et al. [this issue](#); Fanti et al. 2018), and Italy (Somma et al. 2018), revealing remarkable consistency among these studies and relative to the current literature based substantially on North American samples. Beyond these important endeavors, the field needs evidence on how familial and sociocultural factors *contextualize* youth psychopathic traits. For example, Weisz et al. (1988) heuristically revealed that Thai parents, teachers, and psychologists significantly differed from their American counterparts with respect to their appraisal and ratings (e.g., severity, stability) of child externalizing and internalizing behavior. Thus, studies must reveal not only its underlying architecture across racial-ethnic and cultural groups, but also *how* contextual influences shape the development and natural course of youth psychopathic traits.

As persuasively reasoned elsewhere (Achenbach and Rescorla 2016), studies of child psychopathology must carefully attend to developmental issues. This is true for youth psychopathic traits, which are developmentally-sensitive and particularly beholden to conceptual and methodological considerations. Several studies herein provide critical insights in this regard. Colins et al. (2018) intensively ascertained, with separate maternal and paternal ratings, nearly 700 preadolescent boys and girls; the use of all psychopathy dimensions improved predictions of escalating and stable CP relative to CU traits only. Similarly, employing a large sample of children ($N = 1599$, mean age = 9.5 years), Fanti et al. (2018) found improved predictions of CD when impulsivity, grandiosity, and CU traits were simultaneously elevated;

however, perhaps more importantly, these predictions were *clinically significant* given that all three psychopathic trait dimensions predicted an established threshold for clinically severe CD. Finally, a central tenet of developmental psychopathology is that development is characterized by continuity and discontinuity, including non-linear effects. Somma et al. (2018) found that CU traits positively predicted more delinquency in Italian youth in the presence of high grandiose-manipulative traits and impulsivity-irresponsibility than low grandiose-manipulative and impulsive-irresponsible traits. However, the *lowest* level of delinquency was among subjects with high grandiose-manipulative and CU traits, but low impulsivity-irresponsibility. Thus, beyond linear combinations of traits, specific configurations may be more predictive or at least differentially predictive.

Another key aspect of development reflected herein is the explicit emphasis on adolescence, a developmental period characterized by dynamic neural and physiological changes that precipitate, maintain, and that are influenced by commensurate changes in peer and family interactions (see excellent review of Galván & Tottenham, 2016). Andershed et al. (this issue), for example, employed developmentally indicated expansion into alcohol, nicotine, and substance use domains; that youth psychopathic traits showed predictive utility for this crucial constellation of adolescent behaviors suggests that early detection intervention of psychopathic traits may reduce the adolescent alcohol/substance problems and/or make them more amenable to interventions. Finally, Fanti et al. (2018) found that high baseline CD + high CU trait youth were as likely as high CD and low CU youth to display elevated CD one year later. One possible explanation for this finding is that adolescent CD is a heterogeneous group (Moffitt 2006); therefore, CU traits may not always increment predictions, but rather designate severity and stability among youth already with significant conduct problems (Frick and White 2008). However, Ridder and Kosson (2018), using an incarcerated sample of adolescents, reported that interpersonal and lifestyle facets of psychopathic traits each incremented predictions of key outcomes (e.g., violence, non-violent crime). Going forward, future tests of the clinical and predictive utility of youth psychopathic traits, both collectively and with respect to their individual dimensions, must consider the developmental nature of relevant criteria – Odgers et al. (2008) reported that early onset (i.e., age 15) alcohol/substance use was causally related to adult outcomes (independent of correlated risk factors); if psychopathic traits are related to this specific type of alcohol/substance use, earlier detection and intervention may reduce their collective burden.

There is increasing consensus that person-centered research strategies meaningfully characterize individual differences across development (Bergman et al. 2006). There are often competing considerations in traditional variable based

and person-oriented approaches, spanning concerns about statistical power to concerns over clinical significance and interpretability. Farrington and Loeber (2000) addressed this in their treatise on the conceptual and empirical aspects of dichotomization, for example, in studies of ASB. In the current issue, reflecting long traditions in psychology, several studies employed group-based designation across multiple psychopathic trait dimensions. For example, circumplex models of personality (Russell 1980) and emotion (Plutchik 1997) provide economical coverage of individual differences from two dimensions (e.g., valence, arousal). That is, these approaches prioritize *configurations* of correlated (but separable) traits, thereby subgrouping individuals. Frogner et al. (2018) and Colins et al. (2018) employed a .5 standard deviation to designate elevated traits, thus creating mutually exclusive groups of youth based on all psychopathic traits. Andershed et al. (this issue) showed that youth with elevated CP plus elevations in all psychopathic trait dimensions (relative to groups of youth formed on the basis on configurations of levels of the other traits) exhibited the most stable conduct problems, aggression, and substance use. Although there are important limitations to this approach, including sample specific thresholds with unknown generalizability, establishing criterion validity strengthens the plausibility of these groups. Thus, these specific groups are unlikely to be completely arbitrary. Another corollary of configural or person-centered research methods is that they explicitly recognize interactive influences among traits. Somma et al. (2018) found evidence convergent with the notion that combinations of traits are plausible, perhaps even necessary. For example, adolescent self-reported delinquency was sensitive to CU traits, but especially in the presence of youth who were elevated on grandiose-manipulative and impulsive-irresponsible dimensions. Consistent with a developmental psychopathology framework wherein interactive and transactional influences underlie typical and atypical development, these studies collectively suggest that predictions of outcome may not only be contingent upon co-occurring levels of psychopathic traits, but also other moderating constructs (e.g., emotional IQ as resilience promoting in Gillen et al. (2018)).

Perhaps the most unique aspect of many of the studies is their inclusion of female participants. Although the field has made great conceptual and empirical strides with respect to aggression and externalizing problems in girls, including relational aggression (Crick and Grotpeter 1995) and ADHD (Hinshaw 2002), persistent questions remain about the nature of psychopathic traits in girls. Beginning with etiology (although many other dimensions are also crucial), neurobiologically, gray matter volume negatively correlated with psychopathic traits among incarcerated adolescent females, including some regional specificity (e.g., orbitofrontal cortex) consistent with prevailing evidence (Cope et al. 2014). However, Yang et al. (2015) found that psychopathic traits

were inversely associated with cortical thickness (e.g., middle frontal gyrus) in girls and positively correlated with cortical thickness (e.g., superior temporal gyrus) in boys. With respect to genetic influences, Ficks et al. (2014) found that CU traits and grandiosity were similarly heritable in boys and girls, although nonshared environmental influences were more salient to impulsivity in boys. In the current suite of studies, Frogner et al. (2018) found that the entire constellation of psychopathic traits better predicted fearlessness and ADHD relative to CU in boys and girls. A common strategy in the studies of this Special Issue was to calibrate cutoffs (e.g., for creation of groups) *within sex*. Thus, the mutually exclusive groups featured in many of the studies herein reflect reasoning that gender-specific “norms” or comparisons may be necessary to adequately capture potential sex differences in thresholds. In fact, Colins et al. (2018) found that youth with conduct problems and elevated psychopathic traits (across all dimensions) were the most at risk, regardless of whether .5 *SD* or .75 *SD* was used as the threshold to form groups. This was equally true in both boys and girls. However, caution must be exercised when evidence is based exclusively on statistical prediction, factorial invariance, etc. Heterotypic continuity suggests that phenotypic similarities may betray differences in underlying mechanisms. Alternatively, similar mechanisms may underlie phenotypic differences, as Lilienfeld (1992) hypothesized with respect to somatization in women and antisocial personality disorder in men.

Challenge and Opportunities for Future Research on Youth Psychopathic Traits

Despite the wealth of knowledge generated by the studies in this Special Issue, they simultaneously reveal key challenges and opportunities in future research on youth psychopathic traits. First, given that psychopathic traits consist of naturally occurring individual differences, there may be potentially adaptive levels of these traits and/or individuals with these configurations may have unique correlates. For example, the “Successful Psychopath” (Hall and Benning 2005) may function differently from unsuccessful criminal psychopaths (in adults) given differences in autonomic stress reactivity and executive functions (Ishikawa et al. 2001). However, in children, the interpersonal factor of psychopathic traits was unrelated to adaptive functioning (e.g., enhanced IQ) (Isen et al. 2018). Next, evidence of discontinuity in psychopathic traits is highly informative, including studies of resilience and resilience-promoting factors, such as emotional intelligence (Gillen et al. 2018). Similarly, with respect to continuity, the field must dissociate homotypic continuity from heterotypic continuity, attending not just to phenotypic similarities across gender, cultural contexts, etc. but, more importantly, to the causal mechanisms underlying these individual differences.

For example, putatively “comorbid” or co-occurring problems (e.g., hyperactivity, conduct problems) may actually reflect different points in the same developmental process (Patterson et al. 2000). Thus, predictions of early-onset alcohol and substance problems from psychopathic traits may not constitute strong evidence of criterion validity if they reflect different behaviors anchored in the same disrupted construct or causal processes (e.g., behavioral inhibition) (Iacono et al. 2008). I advocate for the use of conceptually-driven, but potential criteria that are less susceptible to these concerns. For example, Gillen et al. (2018) innovatively employed face and voice processing criteria to examine the utility of all psychopathic traits relative to CU traits alone. Future studies should similarly consider more granular criteria, thus affording opportunities to refine understanding of youth psychopathic traits.

The nomological network of youth psychopathic traits consists of additional constructs that require careful consideration. I highlight several key examples: (1) historically, adult psychopathy was defined by the absence of significant anxiety (Cleckley 1941) but recent work has revealed heterogeneity within psychopathy, including the secondary variant that often exhibits elevated anxiety and related biomarkers for emotion dysregulation (e.g., affective startle) (Kimonis et al. 2017). Given that youth anxiety consists of separable fear and worry and psychophysiological dimensions (e.g., Chorpita and Daleiden 2002), integrating these multiple dimensions, as well as their underlying biological substrates, is necessary to clarify how anxiety and threat more broadly are related to psychopathic traits. (2) IQ was average to above average in historical conceptualizations of psychopathy in adults (Cleckley 1941) but this is not easily reconciled with longstanding evidence on lower (verbal) IQ in youth with externalizing problems (Moffitt 1990) and positive correlations between psychopathic traits and IQ (Salekin et al. 2004). Youth grandiosity was positively associated with multi-informant ratings of ODD and CD, controlling for age, sex, ADHD, and CU traits; but it was moderated by IQ such that grandiosity was more strongly associated with ODD and CD in the presence of high IQ (McKenzie and Lee 2015). Thus, more effort is required to integrate IQ and related executive functions into models of the development of youth psychopathic traits, including predictions of outcome and response to interventions. Finally, contextual influences on psychopathic traits should not be prioritized. Related constructs such as daring, for example, predicted more ASB but it was moderated by neighborhood such that predictions were amplified dangerous neighborhoods (Trentacosta et al. 2009). Similarly, predictions of ASB from youth impulsivity were stronger in low SES neighborhoods (Meier et al. 2013) in boys and girls. Contextual influences including neighborhoods, but also family (e.g., parenting, emotional climate), peer, as well as school factors should also be prosecuted. Overall, studies of youth psychopathic traits must

drill deeper to identify interactive associations, including properly attending to key contextual factors.

A key strength in several of the studies was the use of prospective longitudinal designs. Repeated measures designs are recognized for their diverse advantages including improved statistical power, temporal ordering to infer causal mechanisms, and the ability to chart (and predict) trajectories of traits and groups of individuals (Krull et al. 2016; Kraemer et al. 2001). Future studies may benefit from being more “agnostic” with respect to discerning groups based on psychopathic traits – employing, latent profile, latent class, or latent trajectory analyses from psychopathic trait data are a logical extension compared to purely empirical derivations (e.g., .5 *SD* cut-off) – see Klingzell et al. (2016) and Wall et al. (2016) for recent examples. Although repeated measures designs afford quantitative advantages, the literature on youth psychopathic traits should not rely exclusively with statistical approaches to validation (e.g., prediction of criteria). In other words, the goal should not simply be prediction, but rather *explanation*. As noted by Meehl (1992), “No statistical procedure should be treated as a mechanical truth generator” (p. 152). Consistent with this formulation, a reformulation of the concept of validity (Borsboom et al. 2004) espouses that validity is derived from causation and causal processes rather than epistemological and correlational inferences (which characterize factor analytic approaches, for example). This perspective is heuristic, especially from a developmental psychopathology framework where ontogeny and elucidation of causal processes and mechanisms necessitate prospective longitudinal designs. I return once again to Meehl (1992) who commented: “In particular, the factor analytic method can generate a variety of “truths,” according to the bent or desires or avoidances of the particular factor analyst” (p. 6). This specifically is evident in the literature on youth psychopathic traits which is hampered by terminological imprecision and inconsistency in which items and scale content are described, labeled, and ultimately interpreted (Salekin 2017). Without improved clarity and consistency, efforts to uncover explanatory processes underlying youth psychopathic traits and its underlying architecture will be stifled. That is, purely derivative approaches, without commensurate effort to identify causal processes, are susceptible to these limitations. Bilder et al. (2013) advocated for a comparable conceptual framework wherein relations among constructs, including their biological validity, are prioritized to improve traction on major dimensions of psychopathology. Taken together, these perspectives suggest that future studies of youth psychopathic traits must transcend largely deductive, quantitative procedures that are rooted in calculation and interpretation of “fit” indices, for example. Developmentally-sensitive, repeated measures designs, across multiple levels of analysis, are necessary to elucidate causal pathways and to detail *how* psychopathic traits affect development over time.

Conclusion

I reviewed the articles in this Special Issue with alacrity. The innovations reflected in these important contributions should catalyze deeper thinking and more refined efforts at understanding the origins, development, and nature of youth psychopathic traits. Their collective consistency in implicating multiple dimensions of youth psychopathic traits as predictors of important outcomes challenges assumptions around the primacy of CU traits. Future studies must be executed with careful attention to developmental issues with respect to the selection and assessment of external criteria, elucidation of causal mechanisms, and their implications for intervention and prevention. Given the clinical and public health significance of youth conduct problems and related ASB, particularly when accompanied by elevated psychopathic traits, developing predictive models and identifying their underlying explanatory processes are urgently needed.

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