

Evaluating Callous-Unemotional Traits as a Personality Construct

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Abstract

We evaluate the importance of callous-unemotional (CU) traits as a personality construct in isolation from other facets of psychopathy. Specifically, we review research suggesting that these traits are useful for designating a subgroup of youth with serious conduct problems who differ from other antisocial youth on important biological, emotional, cognitive, and social characteristics. In addition, the temperamental features related to CU traits are risk factors for impairments in conscience development in young children. Thus, these traits could advance theoretical models explaining the development of severe antisocial behavior and psychopathy. CU traits also have important clinical utility because they designate a particularly severe and impaired subgroup of antisocial youth, leading to their inclusion in the *DSM-5*. As a result of this inclusion in diagnostic classification, there has been an increased focus on how to best assess CU traits, and we discuss several key issues in their assessment, highlighting several limitations in existing measures. Finally, the increased use of CU traits, separately from other facets of psychopathy, makes it important to determine how these traits relate to other personality constructs. Thus, we examine how measures of CU traits relate to the broader construct of psychopathy and to other basic personality dimensions.

The construct of psychopathy has been used to designate an important subgroup of antisocial adults for much of the past century. Specifically, only a small proportion of adult offenders show the affective and interpersonal features of psychopathy, but these offenders exhibit a more severe, violent, and chronic pattern of antisocial behavior (Leistico, Salekin, DeCoster, & Rogers, 2008) and they show distinct neurological, cognitive, and emotional characteristics that could implicate different causal factors leading to their antisocial behavior relative to other antisocial adults (Blair, Mitchell, & Blair, 2005). Thus, the construct of psychopathy has many important legal, mental health, and scientific implications. Further, adults with psychopathic traits typically have long histories of antisocial behavior that begin early in childhood (Forth, 1995). As a result, there have been a number of attempts to define developmental precursors to psychopathy in an effort to better understand the causes of this severe and impairing condition and to design interventions that can be implemented early in development when hopefully the features of psychopathy are more changeable. A comprehensive review of these attempts is beyond the scope of the current article (see Frick, 2009). Instead, the goal of this article is to describe and evaluate one method for exploring the early signs of psychopathy that has focused specifically on the affective facet of psychopathy that has been labeled callous-unemotional (CU) traits.

To accomplish this, we first provide a rationale for studying the affective facet of psychopathy in children and adolescents,

separately from other dimensions of psychopathy. This rationale is largely based on research showing that this facet has proven useful for designating an etiologically and clinically important subgroup of antisocial youth who show a number of characteristics similar to those displayed by adults high on psychopathic traits. This research is only briefly summarized here because it has been the focus of two recent comprehensive reviews (Frick, Ray, Thornton, & Kahn, 2014a, 2014b). However, unlike the previous reviews, the current discussion focuses more specifically on the utility of CU traits relative to other dimensions of psychopathy. Given the importance of CU traits for understanding subgroups of antisocial youth, they have been integrated into recent diagnostic criteria for conduct disorder (American Psychiatric Association [APA], 2013). As a result, there has been an increased focus on how to best assess this personality dimension, and we discuss several key issues in its measurement. Finally, the increased use of CU traits, separately from other dimensions of psychopathy, makes it important to determine how these traits relate to other personality constructs. We do this by examining how measures of CU traits relate to the broader construct of psychopathy and other basic personality dimensions.

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CALLOUS-UNEMOTIONAL TRAITS: FOCUSING ON THE AFFECTIVE DIMENSION OF PSYCHOPATHY

A number of attempts to explore early features of psychopathy have been tied to the multifaceted conceptualization of the construct that has emerged from research with the Psychopathy Checklist-Revised (PCL-R; Hare, 2003), one of the most widely used methods for assessing psychopathic traits in adults. Specifically, research on this clinical measure of psychopathy has consistently uncovered separate affective (e.g., lack of guilt and empathy, poverty of emotion), interpersonal (e.g., grandiosity and manipulativeness), and behavioral (e.g., impulsivity and irresponsibility) facets, in addition to antisocial behavior (Hare & Neumann, 2008). Direct attempts to extend items downward from the PCL-R for use with children and adolescents tended to find three very similar dimensions, and this structure has been replicated across boys and girls, across diverse settings (e.g., community, clinic-referred, and forensic samples), and across different assessment formats (Frick, Bodin, & Barry, 2000; Jones, Cauffman, Miller, & Mulvey, 2006; Kosson et al., 2013; Vitacco, Rogers, & Neumann, 2003). The results of these factor analyses and their consistency across development have led to great debate as to (a) whether psychopathy is best considered as the shared variance of these multiple facets, (b) whether psychopathy should be considered as a multidimensional composite of these facets, or (c) whether there are certain facets that are “core” to the construct, with others being secondary or less important to defining psychopathy (Jones et al., 2006; Skeem, Polaschek, Patrick, & Lilienfeld, 2011).

This debate has yet to be resolved, and practically speaking, the most important dimension of psychopathy may depend on the purpose for which the construct is being used. For example, diagnostic classification for children with externalizing disorders has long had methods for classifying highly impulsive children, such as through the diagnosis of attention-deficit/hyperactivity disorder (ADHD). Importantly, the presence of ADHD has been used to designate distinct and important subgroups of children with serious conduct problems (Lynam, 1996). However, most classification systems for serious conduct problems do not provide substantial content focusing on the other dimensions of psychopathy. Thus, if the goal is to provide better representation of dimensions of psychopathy that are not currently included in most classification systems, the affective and interpersonal dimensions would be most important.

As another example of the relative importance of the different dimensions of psychopathy being somewhat dependent on the purpose for which it is being used, meta-analyses of the utility of measures of psychopathy predicting various types of antisocial outcomes (e.g., recidivism, aggression) generally have concluded that the impulsive and irresponsible behavioral facets tend to show some of the strongest levels of prediction (Edens, Campbell, & Weir, 2007; Leistico et al., 2008). Thus,

if the goal is the prediction of general patterns of antisocial behavior, these facets seem most important. However, this strong prediction of antisocial behavior may not be the most important piece of evidence in determining which dimension of psychopathy has the most utility in detecting distinct subgroups *within* antisocial individuals. If this is the goal, then it is important to determine which facet(s) of psychopathy is most specific to the outcomes and to the causal processes of interest within antisocial individuals, rather than which facet is most highly associated with antisocial behavior more generally. In fact, for this purpose, one would want only a modest correlation between the facet and general antisocial behavior, given that only a minority of antisocial individuals would be expected to demonstrate psychopathy.

This line of reasoning contributed to the method for extending the construct of psychopathy to youth that is the focus of this review. Specifically, this method has focused solely on the affective facet of psychopathy or CU traits. That is, serious offenders and children with early-onset serious conduct problems show higher rates of the interpersonal (i.e., narcissism) and behavioral (i.e., impulsive) facets of psychopathy when compared to various types of control groups, but these dimensions often do not designate unique and important subgroups within these antisocial youth. For example, within a sample of adjudicated adolescents, narcissistic and impulsive traits did not differentiate among nonviolent offenders, violent offenders, and violent sex offenders, whereas violent sex offenders exhibited higher levels of CU traits (Caputo, Frick, & Brodsky, 1999). Similarly, a cluster analysis of the dimensions of psychopathy and conduct problems in a clinic-referred sample of children (ages 6–13) revealed two clusters of children with childhood-onset conduct problems who did not differ on their level of impulsivity and narcissism but did result in one particularly severe cluster that was also high on CU traits (Christian, Frick, Hill, Tyler, & Frazer, 1997).

CALLOUS-UNEMOTIONAL TRAITS AND DEVELOPMENTAL PATHWAYS TO ANTISOCIAL BEHAVIOR

The utility of CU traits for predicting a more severe subgroup of antisocial youth is explored further below. However, in addition to designating a more severe subgroup, CU traits seem to designate a subgroup of antisocial youth who show a number of distinct biological, cognitive, emotional, and social characteristics that (a) could implicate different causal processes leading to their antisocial behavior and (b) are consistent with findings on adults with psychopathy (see Frick et al., 2014b, for a comprehensive review). Specifically, Viding, Blair, Moffitt, and Plomin (2005) reported that in a large ($N = 7,374$) population-based study of 7-year-old twins, the genetic influences on childhood-onset conduct problems were considerably greater in those high on CU traits (81%) than for those who showed normative levels of CU traits (30%), and

this was independent of conduct problem severity and the child's level of hyperactivity-impulsivity at age 9 (Viding, Jones, Frick, Moffitt, & Plomin, 2008). In contrast, the association between harsh and coercive discipline seems to be more strongly associated with conduct problems in youth with normative levels of CU traits compared to youth elevated on CU traits (Frick et al., 2014b). The differential association between harsh discipline and conduct problems is not found when other facets of psychopathy are considered as moderators (Edens, Skopp, & Cahill, 2008).

Another finding consistent with research on psychopathy in adults is that children with serious conduct problems and CU traits show abnormalities in the way they process punishment cues. Specifically, children with conduct problems who are also elevated on CU traits show insensitivity to punishment cues, using tasks with an increasing ratio of punished to rewarded responses (Frick, et al., 2003b). Children with conduct problems and CU traits also respond more poorly to gradual punishment schedules (Blair, Colledge, & Mitchell, 2001). These differences in responsiveness to punishment cues may be reflected in different patterns of brain activity in antisocial youth with elevated CU traits (Finger et al., 2008; White, Brislin, Meffert, Sinclair, & Blair, 2013). Importantly, these differences in punishment sensitivity are not found when subgroups of antisocial youth are formed using measures of impulsivity (Barry et al., 2000).

Another finding consistent with research on adult psychopathy is that children and adolescents who display both serious conduct problems and elevated CU traits show reduced responding to signs of fear and distress in others. This attenuated emotional responsiveness is found when it is assessed through self-report measures of physiological arousal (Marsh et al., 2011), cognitive tasks assessing attentional orienting to emotional pictures (Kimonis, Frick, Cauffman, Goldweber, & Skeem, 2012; Kimonis, Frick, Fazekas, & Loney, 2006), psychophysiological responses to emotionally evocative films (de Wied, van Boxtel, Matthys, & Meeus, 2012), and amygdala responses to fearful faces (Viding et al., 2012). Importantly, children with serious conduct problems without elevated CU traits, who typically show high rates of impulsivity and narcissism, show an enhanced emotional response to fear and distress in others (Kimonis et al., 2006; Viding et al., 2012).

Thus, CU traits seem to designate a distinct group of children and adolescents with serious conduct problems who differ on important social, biological, cognitive, and emotional characteristics, whereas the other dimensions of psychopathy do not lead to such distinctions. Importantly, the differences in children with and without elevated CU traits seem to be present very early in development (Barker, Oliver, Viding, Salekin, & Maughan, 2011; Willoughby, Waschbusch, Moore, & Propper, 2011). These early temperamental differences highlight another reason for focusing on CU traits in developmental extensions of psychopathy. Specifically, CU traits provide a direct link to developmental theories of how conscience develops in young children. Conscience has long been

a construct of interest to developmental psychologists studying moral emotions that promote prosocial behavior (Hoffman, 1970). Conscience is typically defined by two primary constructs, guilt and empathy (Thompson & Newton, 2010), which are also two of the key components to CU traits (Frick et al., 2000).

Importantly, developmental research has provided both empirical links and theoretical explanations for how the temperamental style associated with CU traits (e.g., punishment insensitivity, reduced emotional response to others' distress) can hinder conscience development (see Frick et al., 2014a, for a comprehensive review). Further, empathy and guilt are considered moral emotions because they help to encourage prosocial behaviors, and CU traits have been negatively associated with self-report measures of prosocial behavior (Roose, Bijttebier, Decoene, Claes, & Frick, 2010) and with scores from a laboratory task measuring altruistic behavior (Sakai, Dalwani, Gelhorn, Mikulich-Gilbertson, & Crowley, 2012). Children with CU traits also show more deficits in evaluating moral transgressions by making less clear distinctions between moral (i.e., actions defined by the consequences to others, such as hurting someone else) and conventional (i.e., actions defined by breaking social rules, such as talking in class) transgressions and by making fewer references to the welfare of others when making these distinctions (Blair, Monson, & Frederickson, 2001; Dolan & Fullam, 2010). In summary, unlike the other dimensions of psychopathy, there is a clear link between CU traits and the different aspects of conscience that have been critical for theories of moral development. As a result, these traits could advance causal theories of psychopathy by allowing for an integration of the research on the normal development of conscience with the development of psychopathic traits (Frick et al., 2014a).

Callous-Unemotional Traits and Diagnosis of Conduct Disorder

From the research reviewed above, it seems clear that CU traits, as a personality dimension separate from other aspects of psychopathy, are important for etiological theories on the development of serious antisocial behavior. Another important consideration in evaluating CU traits as a personality construct is its clinical utility. As noted previously, CU traits have been associated with antisocial behavior in children, although this association is not as strong or consistent as the association found for the impulsive dimension of psychopathy. Specifically, Frick et al. (2014b) reviewed 91 studies showing an association between CU traits and measures of antisocial behavior, with the strength of the association varying greatly ($-.15$ to $.84$) and an average correlation of $.33$. However, as noted above, a critical issue is whether or not CU traits designate a unique subgroup *within* antisocial children and adolescents.

In support of this possibility, research has indicated that within youth with childhood-onset conduct problems (Kahn,

Frick, Youngstrom, Findling, & Youngstrom, 2012; Pardini, Stepp, Hipwell, Stouthamer-Loeber, & Loeber, 2012) or within adjudicated adolescents who show serious antisocial behavior (Kruh, Frick, & Clements, 2005; Lawing, Frick, & Cruise, 2010), CU traits designate a particularly aggressive subgroup. Besides showing more severe aggression that results in more harm to others, youth with elevated CU traits display more instrumental (i.e., for personal gain or dominance) and premeditated aggression compared to other antisocial youth (Frick, Cornell, Barry, Bodin, & Dane, 2003a; Kruh et al., 2005; Lawing et al., 2010). Further, CU traits are associated with a more stable pattern of conduct problems (Frick, Stickle, Dandreaux, Farrell, & Kimonis, 2005; Rowe et al., 2010). Importantly, even controlling for severity and age of onset of conduct problems, children with CU traits show more antisocial outcomes in adulthood when compared to other children with conduct problems without CU traits (McMahon et al., 2010).

Such findings, combined with evidence for different responses to treatment for antisocial youth with and without elevated CU traits (Frick et al., 2014b), led the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5; APA, 2013)* to include in the criteria for conduct disorder (CD) a specifier to designate those youth with serious conduct problems who also show elevated rates of CU traits. The specifier “With Limited Prosocial Emotions” is given if the individual (a) meets criteria for CD and (b) shows two more of the following CU traits persistently over 12 months in more than one relationship or setting: lack of remorse or guilt; callous–lack of empathy; unconcern about performance at school, at work, or in other important activities; and shallow or deficient affect. These four criteria and the diagnostic cut-off were chosen based on extensive secondary data analyses of CU traits across large samples in different countries. These analyses indicated that these four criteria consistently were the best indicators of the overall construct of CU traits, and the presence of two symptoms, if shown persistently, designated a more severely impaired group of antisocial youth (Kimonis et al., 2014).

More research testing this method of operationalizing CU traits is needed, but there is some promising evidence supporting this approach. Kimonis et al. (2014) reported that, in a sample of 643 incarcerated adolescents, item response theory analysis supported the four symptoms used in the specifier as good indicators of the overall construct of CU traits, and the two symptom cut-offs designated boys and girls who showed more proactive aggression and violent delinquency. In a population-based sample ($N=5,326$), Rowe et al. (2010) reported that children with both CD and the specifier were five times more likely to continue to have a diagnosis of CD 3 years later, compared to those with CD with fewer than two CU symptoms. Similarly, Kahn et al. (2012) studied both community ($n=1,136$) and clinic-referred ($n=566$) samples and reported that those children who met the criteria for the specifier were more severe than those with CD only, especially by

being more aggressive and cruel. Pardini et al. (2012) tested the new specifier in a community sample of 1,862 girls ages 6–8 and reported that girls who met criteria for CD and the specifier showed more bullying, more relational aggression, and more global impairment both at baseline and across a 6-year follow-up period compared to girls with CD alone. Finally, McMahon et al. (2010) reported that CU traits assessed in seventh grade significantly predicted adult antisocial outcomes (e.g., adult arrests, adult antisocial personality symptoms) and that the combination of a CD diagnosis and the specifier showed greater positive predictive power for adult antisocial outcomes than the diagnosis of CD alone.

ASSESSING CALLOUS-UNEMOTIONAL TRAITS

Given the etiological and clinical importance of CU traits as a personality construct separate from other dimensions of psychopathy, and given that it is now included in a major classification system for mental disorders, it is critically important to evaluate this construct in terms of its measurement. Importantly, the use of CU traits separately from other dimensions of psychopathy has highlighted a number of limitations in the available methods of assessments. Specifically, CU traits have been assessed using several different formats (Frick, 2009). However, because these traits were typically assessed as one part of the broader construct of psychopathy, the number of items specifically assessing CU traits often has been quite limited, typically with as few as four (Forth, Kosson, & Hare, 2003) or six (Frick et al., 2000) items. Further, the response options for rating the severity or frequency of the CU items on these scales have also been limited, often with only three response options (Forth et al., 2003; Frick et al., 2000). The few items, the limited range in response options, and the fact that ratings of CU traits are negatively skewed in most samples (Frick et al., 2000)—all contributed to measures of CU traits showing significant psychometric limitations, such as displaying poor internal consistency (Poythress, Dembo, Wareham, & Greenbaum, 2006).

In an effort to overcome these limitations in the assessment of CU traits, the Inventory of Callous-Unemotional Traits (ICU; Kimonis et al., 2008) was developed to include 24 items, all assessing CU traits that are anchored on a 4-point Likert scale ranging from 0 (*Not at all true*) to 3 (*Definitely true*). Several studies have tested the construct validity of the ICU using factor analyses and reported that the best-fitting model tends to be one specifying a general CU factor and three subfactors: callousness (capturing a lack of empathy and remorse), uncaring (capturing an uncaring attitude about performance on tasks and others’ feelings), and unemotional (capturing deficient emotional affect). This structure has been supported in a sample of 1,443 German adolescents aged 13–18 (Essau, Sasagawa, & Frick, 2006), in a sample of 248 juvenile offenders aged 12–20 from the United States

(Kimonis et al., 2008), and in a community sample of 347 Greek Cypriot adolescents aged 12–18 (Fanti, Frick, & Georgiou, 2009). A similar factor structure has been found in younger samples, including a sample of 540 Italian middle school children (Ciucci, Baroncelli, Franchi, Golmaryami, & Frick, 2014) and a sample of 622 Spanish preschool children (Ezpeleta, de la Osa, Granero, Penelo, & Domenech, 2013). Further, Roose et al. (2010) reported that this factor structure was similar for both self-reports and other-reports (i.e., parents and teachers) in a community sample of 455 Dutch adolescents, and both Essau et al. (2006) and Ciucci et al. (2014) reported that this structure was invariant across boys and girls.

Based on this research, it appears that this three-dimensional model of CU traits is fairly robust across age, language, rater, and gender (see Feilhauer, Cima, & Arntz, 2012, for an exception in a Dutch sample). Also, across these samples there appears to be an overarching dimension of CU traits, the total score of the ICU shows acceptable internal consistency, and the total score shows similar correlations with antisocial behavior and other emotional and cognitive characteristics that have been reported in studies using other measures of CU traits. Thus, the total score from the ICU appears to be an appropriate measure of the overall construct of CU traits that overcomes some of the limitations of past measures. However, there are significant limitations in the available research on the three dimensions of CU traits that consistently emerge in factor analyses of the ICU. First, although the three subfactors, with an overarching general factor, consistently emerge as the best-fitting model across these very diverse samples, the fit indices tend to be modest and typically only reach acceptable fit with post hoc modifications of the model. Further, there was no a priori specification for this three-factor structure for CU traits based on a clear theoretical model, nor have the subfactors shown consistent associations with external criteria, especially for the unemotional dimension. Third, it is possible that the factors to some extent represent method variance, in that the callousness dimension tends to be largely positively scored items (e.g., “I do not care who I hurt to get what I want”), whereas the uncaring dimension tends to be largely negatively scored items (e.g., “I try not to hurt others’ feelings”); Hawes et al., 2014). Thus, until these issues are clarified, the utility of the different factors of the ICU is quite limited in contributing to an understanding of the overall construct of CU traits.

THE ASSOCIATION OF CALLOUS-UNEMOTIONAL TRAITS WITH OTHER MEASURES OF PERSONALITY

Callous-Unemotional Traits and Global Measures of Psychopathy

The etiological and clinical importance of CU traits also makes it critical to understand how this construct relates to other

personality dimensions. Because CU traits first emerged as part of the broader construct of psychopathy, it is important to determine how this one dimension relates to general measures of psychopathy. This is important in order to determine how, if at all, the broader research on psychopathy may contribute to an understanding of CU traits and how, if at all, research on CU traits may relate to an understanding of the broader construct of psychopathy. We relate CU traits to psychopathy in three ways. First, we review how well the dimension of CU traits correlates with total scores on psychopathy measures. These data provide an indication of how well CU traits are related to total psychopathy scores when they are assessed using the same method. Second, we summarize the association between measures of CU traits and the Psychopathy Checklist Youth Version (PCL-YV; Forth et al., 2003). The PCL-YV is a clinical assessment of psychopathy that is most closely tied to the PCL-R, which, as noted previously, is the most commonly used measure for assessing psychopathy in adults. These data provide an indication of how well measures of CU traits relate to this widely used measure of psychopathy. However, it is important to note that this involves correlations across methods, with the measures of CU traits typically being assessed by self-report and the PCL-YV involving a clinician rating. Third, we summarize the correlations of the ICU with other measures of psychopathy to determine how well this expanded assessment of CU traits relates to other measures of psychopathy.

We identified 10 studies that reported a total of 14 correlations between CU traits and total psychopathy scores using the same measure, such as correlating the CU subscale of the Antisocial Process Screening Device (APSD; Frick & Hare, 2001) with the total score on this measure ($n = 6$ correlations; Fisher & Blair, 1998; Javdani, Sadeh, & Verona, 2011; Kubak & Salekin, 2009; Loney, Frick, Clements, Ellis, & Kerlin, 2003; Salekin, Leistico, Trobst, Schrum, & Lochman, 2005; Seals, Sharp, Ha, & Michonski, 2012), the Affective dimension of the PCL-YV with total scores on this measure ($n = 2$ correlations; Chauhan et al., 2014; Salekin et al., 2005), the CU scale of the Youth Psychopathic Traits Inventory (YPI; Andershed, Kerr, Stattin, Levander, 2002) with total scores on this measure ($n = 4$ correlations; Chabrol, van Leeuwen, Rodgers, & Gibbs, 2011; Chauhan et al., 2014; Colins, Noom, & Vanderplasschen, 2012; Seals et al., 2012), the Affective scale of the Child Psychopathy Scale (CPS; Lynam, 1997) with total scores on this measure ($n = 1$ correlation; Salekin et al., 2005), and the Affective Callous dimension of the Self-Report Psychopathy scale (SRP; Paulhus, Neumann, & Hare, in press) with total scores on this measure ($n = 1$ correlation; Vitacco, Neumann, & Pardini, 2014). These studies assessing the association between measures of CU traits and total psychopathy scores using the same measure reported correlations ranging from .59 to .89, with an average correlation of .75. Next, we identified eight studies that reported 11 correlations between self-report measures of CU traits and the total score of the PCL-YV (Andershed, Hodgins, & Tengstrom, 2007;

Cauffman, Kimonis, Dmitrieva, & Monahan, 2009; Chauhan et al., 2014; Kubak & Salekin, 2009; Lee, Vincent, Hart, & Corrado, 2003; Salekin et al., 2005; Skeem & Cauffman, 2003; Vitacco et al., 2003). As would be expected because of the different methods used, these correlations were lower and ranged from .20 to .62, with an average correlation of .37.

To date, only two studies have examined the convergent validity of the ICU with the PCL-YV. Fink, Tant, Tremba, and Kiehl (2012) reported that the ICU self-report version correlated positively ($r = .27$) with total scores on the PCL-YV in a sample of 190 detained adolescent offenders. These authors reported that the parent version of the ICU was unassociated with the PCL-YV, and, when examining associations with the factors of the ICU, only the self-reported uncaring factor was significantly correlated with the affective factor of the PCL-YV ($r = .40$). Feilhauer et al. (2012) also reported on the convergence between the self-report version of the ICU and the PCL-YV in a Dutch sample of youth from mixed settings (e.g., detained, community, and treatment). They reported that the ICU total score was uncorrelated with the PCL-YV, although the uncaring factor again was positively correlated with the total score ($r = .29$), as well as with both factors of the PCL-YV (affective/interpersonal: $r = .27$; antisocial: $r = .25$).

In summary, these results suggest that when measured by the same method, CU traits are substantially correlated with total scores on measures of psychopathy. However, this association is much more modest and often not significant when CU traits and global psychopathy are assessed using different methods. Finally, although based on only a very few studies, it appears that the uncaring factor from the ICU shows the strongest associations with global measures of psychopathy.

Callous-Unemotional Traits and Other Personality Dimensions

In general, there is growing recognition of the importance of integrating research on pathological aspects of personality that contribute to problems in adjustment, such as CU traits, with research on normal personality dimensions found in the general population (Lynam & Widiger, 2001). Such research could determine how well CU traits can be described by these other personality dimensions and, subsequently, how well research on the etiology of the normative personality dimensions can be used for understanding the development of CU traits. For example, as noted above, CU traits have been associated with reduced responsiveness to various types of emotional stimuli and to cues of punishment. As a result, many causal models for these traits propose that a temperament characterized by reduced emotional responsiveness to negative emotional cues plays a prominent role in the development of these traits (see Frick et al., 2014a, for a review). Based on such theoretical models, one would predict that CU traits would be negatively related to measures of fear and anxiety.

Fear and Anxiety. The available research employing measures of fearlessness (or thrill seeking or harm avoidance) generally reported findings consistent with this prediction. That is, studies have generally reported positive associations between CU traits and measures of fearlessness in bivariate associations, with an average correlation of $r = .27$ (Frick, Lilienfeld, Ellis, Loney, & Silverthorn, 1999; Kubak & Salekin, 2009; Marini & Stickle, 2010; Roose et al., 2010), and these associations typically remain significant when controlling for the child's level of conduct problems (Frick, O'Brien, Wootton, & McBurnett, 1994; Frick et al., 1999; Kubak & Salekin, 2009; Pardini, 2006; Roose, Bijttebier, Claes, & Lilienfeld, 2011). Further, studies comparing differences in fearlessness across subgroups of youth with conduct problems who differ on their levels of CU traits typically report that those characterized by high levels of CU traits have higher mean levels of fearlessness compared to those low on CU traits (Barry, Frick, & Killian, 2003; Frick et al., 2003b; Frick, Kimonis, Dandreaux, & Farell, 2003c).

In contrast to these studies on fearlessness, research does not consistently find that CU traits are negatively related with measures of anxiety. That is, the majority of studies testing this prediction reported that CU traits were either unrelated to measures of anxiety (Bijttebier & Decoene, 2009; Dolan & Rennie, 2006; Essau et al., 2006; Skeem & Cauffman, 2003) or display a positive association with anxiety (Berg et al., 2013; Dadds, Fraser, Frost, & Hawes, 2005), with correlations ranging from $r = -.01$ to $r = .51$ (mean $r = .11$) across these studies. However, when studies examined the association between CU traits and anxiety while controlling for level of conduct problems, the expected negative association between CU traits and anxiety often emerged (Frick et al., 1999; Hipwell et al., 2007; Kubak & Salekin, 2009; Pardini & Fite, 2010; Roose et al., 2011). Further, when studies identify groups of antisocial youth who differ on their levels of CU traits, rates of anxiety are typically lower among those with CU traits (Barry et al., 2000; Frick et al., 2003b; Pardini et al., 2012).

Frick et al. (1999) provided an interpretation of this somewhat confusing pattern of associations among CU traits, conduct problems, and anxiety. That is, they interpreted this pattern of relations as suggesting that children with conduct problems, with or without CU traits, display elevated levels of anxiety that may be secondary to their behavioral problems and that are a result of the many psychosocial impairments associated with these conduct problems. However, when controlling for the level of conduct problem severity (either statistically or by dividing groups of children all high on conduct problems), children high on CU traits show lower levels of anxiety, suggesting that they are less distressed by the effects of their behavior on themselves and others, given a similar level of impairment.

Another important issue for interpreting the research on CU traits and anxiety is a growing body of research suggesting that there may be distinct subgroups of children and adolescents

elevated on CU traits who differ on their level of anxiety. That is, using various clustering techniques, research has consistently identified one group high on CU traits with normative or low levels of anxiety and a second group with elevated levels of anxiety (Kahn et al., 2013; Kimonis, Skeem, Cauffman, & Dmitrieva, 2011; Kimonis et al., 2012; Tatar, Cauffman, Kimonis, & Skeem, 2012; Vaughn, Edens, Howard, & Toney-Smith, 2009). Further, those with elevated CU traits and elevated levels of anxiety have higher rates of physical and sexual abuse in their histories (Kahn et al., 2013; Kimonis et al., 2012; Tatar et al., 2012), whereas it is only those low on anxiety who show deficits in emotional responding to distress stimuli (Kimonis et al., 2012). These findings suggest that there may be different causal pathways to the development of CU traits, similar to what has been proposed for the development of psychopathic traits in adults (see Skeem, Poythress, Edens, Lilienfeld, & Cale, 2003). Thus, the association between CU traits and anxiety may differ depending on the type of sample under study, in that samples with higher rates of trauma and abuse may contain more individuals who show high CU traits accompanied by anxiety (Kahn et al., 2013), whereas more normative samples will contain fewer individuals with both CU traits and elevated anxiety, resulting in weaker associations (Humayun, Kahn, Frick, & Viding, 2014).

Impulsivity. Another personality dimension that has played a prominent role in many causal theories of CU traits is impulsivity or disinhibition (Lynam, 1996). For the most part, research has confirmed a positive association between CU traits and impulsivity/disinhibition, with an average correlation of $r = .44$ across studies (Bijttebier & Decoene, 2009; Dadds et al., 2005; Frick et al., 2000; Loney et al., 2003; McMahon et al., 2010; Pardini, Obradovic, & Loeber, 2006; Skeem & Cauffman, 2003). However, as noted previously, impulsivity is often associated with serious and early-onset antisocial behavior, even in the absence of CU traits. Thus, the positive association between impulsivity and CU traits is reduced (Roose et al., 2011), becomes nonsignificant (Frick et al., 2000; Hipwell et al., 2007; van Baardewijk, Stegge, Bushman, & Vermeiren, 2009), or becomes negative (Poythress et al., 2006) when controlling for conduct problems.

The Five-Factor Model of Personality. One of the most commonly used systems for describing normal personality traits is the Five-Factor Model (FFM; Costa & McCrae, 1989). Tests of the link between psychopathy and the FFM in adult samples have generally found that psychopathy can be characterized by low Agreeableness and low Conscientiousness; low levels of the anxiety and warmth facets of Neuroticism and Extraversion, respectively; and high levels of the angry/hostility and impulsive facets of Neuroticism and the assertiveness and excitement-seeking facets of Extraversion (Miller, Lynam, Widiger, & Leukefeld, 2001). There has been relatively less research tying the FFM to psychopathy in child

or adolescent samples, but this too has led to findings similar to those reported for adults (Lynam et al., 2005; Salekin, Debus, & Barker, 2010). However, the most relevant research for the current article is the few studies that have tested the association of CU traits specifically with dimensions of the FFM.

The most consistent finding from these studies is that, like measures of psychopathy more generally, measures of CU traits are consistently negatively associated with Agreeableness, with an average association of $r = -.36$ (de Wied, van der Baan, Raaijmakers, de Ruiters, & Meeus, 2014; Essau et al., 2006; Muris, Meesters, & Timmermans, 2013; Roose et al., 2010, 2012; Salekin et al., 2005, 2010). Further, these negative associations tend to be consistent across the lower-order facets of Agreeableness (i.e., trustfulness, straightforwardness, altruism, compliance, modesty, and tender-mindedness; Decuyper, De Bolle, De Fruyt, & De Clercq, 2011; Roose et al., 2012; Salekin et al., 2010) and across the Callousness and Uncaring subscales of the ICU (Decuyper et al., 2011; Essau et al., 2006; Roose et al., 2010). The only exception to this general pattern of findings is that the Unemotional subscale of the ICU is generally unrelated to Agreeableness (Decuyper et al., 2011; Roose et al., 2010).

Another consistent finding is that CU traits are negatively associated with Openness, with an average correlation across studies of $r = -.21$ (de Wied et al., 2014; Essau et al., 2006; Muris et al., 2013; Roose et al., 2010, 2012; Salekin et al., 2005, 2010). This negative association is generally consistent across the facets of Openness (i.e., fantasy, aesthetics, feelings, actions, ideas, and values; Decuyper et al., 2011; Roose et al., 2012; Salekin et al., 2010). However, the associations with the specific subscales of the ICU have not been consistent across samples. Specifically, Decuyper et al. (2011) found negative associations between the three subscales of the ICU and the facets of Openness. In contrast, both Essau et al. (2006) and Roose et al. (2010) reported that the negative association between Openness and the total ICU was largely due to associations with the uncaring factor.

The findings regarding CU traits and Neuroticism (mean $r = -.03$) have, however, been quite mixed, with some finding the two are unrelated (Roose et al., 2012; Salekin et al., 2005, 2010), negatively related (de Wied et al., 2014; Essau et al., 2006; Roose et al., 2010), and positively related (Muris et al., 2013; Salekin et al., 2005). However, like the findings for anxiety, a negative association between CU traits and Neuroticism typically emerges when controlling for level of impulsivity and/or conduct problems. For example, Roose et al. (2012) found that Neuroticism was unrelated to CU traits ($r = -.10$, $p = ns$); however, the association became significant once the variance of the other subscales (i.e., Grandiose-Manipulative and Impulsive/Irresponsible) of the YPI was removed (partial $r = -.16$; $p < .05$). Importantly, few studies have examined specific associations with the lower-order facets that contribute to the overall construct of Neuroticism. In one notable exception, Roose et al. (2012) reported a significant negative association

between CU traits and anxiety ($r = -.19; p < .05$) but a positive association with anger-hostility ($r = .18; p < .05$). Thus, future research needs to further test the potential differential associations across the lower-order facets of Neuroticism. Research examining the associations of Neuroticism across the factors of the ICU has been less consistent. For instance, Decuyper et al. (2011) reported significant negative correlations with Neuroticism across all three factors of the ICU, whereas Essau et al. (2006) reported negative associations for the uncaring and unemotional factors and a positive association for the callousness factor. Roose et al. (2010) reported a negative association with Neuroticism, but only for the callousness factor after controlling for the other two factors.

A fourth component of the FFM, Conscientiousness, is highly related (negatively) to impulsivity and disinhibition. Thus, it is not surprising that research using this dimension reported results similar to studies using other measures of impulsivity. That is, at the bivariate level, studies consistently find a negative association, with an average correlation of $r = -.19$ (de Wied et al., 2014; Essau et al., 2006; Muris et al., 2013; Roose et al., 2010, 2012; Salekin et al., 2005, 2010), but this association is typically no longer significant when controlling for antisocial behavior (de Wied et al., 2014; Roose et al., 2012; Salekin et al., 2010). Importantly, the zero-order association appears to be largely due to the uncaring factor of the ICU (Decuyper et al., 2011; Essau et al., 2006; Roose et al., 2010).

Finally, research examining the association between CU traits and Extraversion reveals an overall negative association (mean $r = -.18$), although the findings are generally quite mixed, with some studies finding that the two are unrelated (de Wied et al., 2014; Muris et al., 2013; Roose et al., 2012; Salekin et al., 2005) and others reporting a negative association between the two (Essau et al., 2006; Roose et al., 2010; Salekin et al., 2010). A few studies examining these associations at the facet level provide one potential explanation for these inconsistent findings. Specifically, these studies report a negative association between CU traits and the facets of warmth, gregariousness, and positive emotions but a positive association between CU traits and assertiveness (Roose et al., 2012; Salekin et al., 2010). It is also important to note that the findings from the three studies examining associations of Extraversion with the individual subscales of the ICU suggest that the negative association with Extraversion at the domain level is unique to the Uncaring and Unemotional subscales (Decuyper et al., 2011; Essau et al., 2006; Roose et al., 2010).

In summary, the most consistent findings from the available research are that CU traits are negatively associated with the dimensions of Agreeableness and Openness. The associations between CU traits and the other dimensions of the FFM tend to be dependent on other factors. For example, CU traits show a negative association with Neuroticism, but only when controlling for impulsivity or antisocial behavior, and the association seems to be positive for the angry-hostility facet. The association between CU traits and Extraversion also tends to differ

depending on the facet, with negative associations emerging with warmth, gregariousness, and positive emotions but a positive association emerging with assertiveness. Finally, CU traits seem to be negatively associated with Conscientiousness, although this association tends to be eliminated when controlling for antisocial behavior. Across studies, there is some indication that the factors of the ICU show different associations with personality dimensions (see also Latzman, Lilienfeld, Latzman, & Clark, 2013), but the results are not consistent enough to make firm conclusions.

SUMMARY AND CONCLUSIONS ON CALLOUS-UNEMOTIONAL TRAITS AS A PERSONALITY CONSTRUCT

CU traits have historically been considered one component of the broader construct of psychopathy. In this article, we chart the development of CU traits as an important dimension of personality, separate from the other facets of psychopathy, for guiding research investigating developmental models of psychopathy and the different pathways through which children and adolescents develop serious conduct problems. Specifically, these traits have proven to be useful for designating a subgroup of children and adolescents with serious conduct problems who differ on important emotional, cognitive, and contextual characteristics that would seem to implicate distinct causal processes leading to their antisocial behavior relative to antisocial youth who are normative on CU traits. Further, these traits help to integrate clinical and forensic research on antisocial behavior with developmental research on the normal development of conscience, and this integration could help to advance etiological models of psychopathy. CU traits have also designated a particularly severe, stable, and aggressive group of antisocial youth, and this association with current and future impairment has led CU traits to be integrated into diagnostic criteria for conduct disorder in the *DSM-5*.

However, there is much additional work needed on the development of CU traits as a personality construct. Most importantly, there have been significant limitations in its measurement, largely as a result of it historically being considered part of the larger psychopathy construct and not as an important dimension on its own. As a result, many existing measures have only limited coverage of CU traits, and they have a number of psychometric limitations. Thus, the development of comprehensive measures of these traits is an important area of future work. One measure, the ICU, was developed to assess CU traits in a comprehensive and psychometrically sound manner, and its assessment of the overall construct shows great promise. However, studies assessing facets of CU traits (i.e., callousness, uncaring, unemotionality) using this measure have not resulted in a consistent pattern of results. As a result, more research is needed to determine whether there are facets of CU traits that add important information to our understanding of the overall construct. Further, the research tying CU

traits to normal personality dimensions has been somewhat limited to date. There is some evidence that these traits are negatively related to measures of fearlessness, Agreeableness, and Openness, irrespective of the level of conduct problems and negatively related to measures of anxiety/Neuroticism, when controlling for level of conduct problems. However, more research is needed to clarify how CU traits relate to other personality dimensions, especially in tying CU traits to specific facets of Neuroticism and Extraversion.

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