Extending the Construct of Psychopathy to Youth: Implications for Understanding, Diagnosing, and Treating Antisocial Children and Adolescents

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This paper reviews several attempts to extend the construct of psychopathy to children and adolescents. The research suggests that the presence of callous–unemotional (CU) traits may be particularly important. Specifically, the presence of these traits designates a clinically important subgroup of youth with childhood-onset conduct problems who show a particularly severe, aggressive, and stable pattern of antisocial behaviour. Also, children with CU traits show numerous emotional, cognitive, and personality features that are distinct from other antisocial youth that are similar to features found in adults with psychopathy. The research on CU traits has important implications for understanding the different causal pathways through which children develop severe antisocial and aggressive behaviour, as well as implications for diagnosing and intervening with antisocial youth.

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Highlights

- The presence of CU traits seems to designate an important subgroup of youth with childhood-onset conduct problems who show a more severe, stable, and aggressive pattern of antisocial behaviour.
- Youth with conduct problems who show CU traits differ from other youth with conduct problems for numerous emotional, cognitive, and personality characteristics; these findings suggest that the 2 groups have distinct causal processes leading to their problem behaviour.
- The characteristics of youth with CU traits show many similarities to adults with psychopathy; thus using these traits to designate a subgroup of antisocial youth provides a useful developmental model for understanding precursors to psychopathy.

Key Words: youth, psychopathy, callous–unemotional traits, developmental pathways, emotional deficits

The construct of psychopathy has proven to be very important for designating a distinct and important subgroup of antisocial adults. Specifically, only a small proportion of adult offenders show the affective (for example, lack of guilt and empathy; poverty of emotion), interpersonal (for example, grandiosity and manipulativeness), and behavioural (for example, impulsivity and irresponsibility) features that define psychopathy. However, people with these traits exhibit a more severe, violent, and chronic pattern of antisocial behaviour. Further, antisocial people with significant psychopathic features show numerous neurological, cognitive, and emotional characteristics that seem to suggest that distinct causal factors lead to their antisocial behaviour, compared with antisocial adults without psychopathic traits. Based on this research, the construct of psychopathy is important to the legal system (for example, defining offenders who are a high risk for recidivism), to the mental health system (for example, defining a group of antisocial people who have unique treatment requirements), and for research attempting to explain the causes of antisocial and aggressive behaviour (for example, defining a group of antisocial people with unique causal processes). Importantly, research has shown
that adults with psychopathic traits often have long histories of antisocial behaviour that often extend well into childhood.³ As a result, there have been numerous attempts to define developmental precursors to psychopathy.

**Previous Attempts to Subtype Antisocial and Aggressive Youth: Implications for Developmental Models of Psychopathy**

**Childhood-Onset CD**

One method of subtyping children and adolescents with antisocial and aggressive behaviour that has extensive research support is distinguishing between those whose serious behaviour problems begin before adolescence (that is, the childhood-onset group) and those whose serious behaviour problems begin during adolescence (that is, the adolescent-onset group).⁹-¹¹ Importantly, children in the childhood-onset group show numerous characteristics that are similar to adults with psychopathy. First, children in this group tend to show more severe aggression in adolescence and they are at higher risk for antisocial and criminal outcomes in adulthood.¹² Second, children and adolescents with childhood-onset antisocial behaviour tend to show more dispositional vulnerabilities (for example, temperament risk factors and neurocognitive deficits) than those in the adolescent-onset group.¹³,¹⁴ Third, children in the childhood-onset group are more likely to show several of the affective (for example, lack of guilt and empathy) and behavioural (for example, impulsivity) features of psychopathy.¹³,¹⁵,¹⁶

Although children and adolescents with childhood-onset antisocial behaviour show many features similar to adults with psychopathy, there is also evidence that only a subset show a persistent level of antisocial behaviour across adolescence and adulthood.¹⁷ Further, there are several distinct temperamental styles that are found in youth with childhood-onset conduct problems, only some of which would be consistent with the construct of psychopathy. Specifically, there appear to be numerous children with childhood-onset conduct problems who show strong emotional arousal, deficits in verbal intelligence, and other cognitive deficits, and who appear to be distressed by the effects of their behaviour on others.¹⁰,¹⁸ All of these characteristics are not consistent with the construct of psychopathy. Thus there have been attempts to define a subgroup of youth within the larger childhood-onset group that may show characteristics more specific to the construct of psychopathy.

**Presence of ADHD**

One such attempt focuses on the combination of 1) the inattentive, impulsive, and hyperactive behaviours associated with ADHD, with 2) significant conduct problems and antisocial behaviour.¹⁹ In support of this approach, there have been several reviews indicating that children with both types of problems show a more severe and aggressive pattern of antisocial behaviour than children with conduct problems alone.²⁰,²¹ In addition, children with ADHD and conduct problems have poorer outcomes, such as showing higher rates of delinquency in adolescence and higher rates of arrests in adulthood.²²,²³ Further, youth with co-occurring ADHD and conduct problems show deficits on laboratory tasks assessing response modulation and delay of gratification, all of which have been associated with psychopathic traits in adults.²⁴

Despite these findings supporting this method of subtyping antisocial youth, there are also some limitations. First, a substantial number of children with childhood-onset conduct problems show co-occurring ADHD; in fact, in many clinical samples it is the vast majority of childhood-onset children who show this comorbidity.²⁵ As a result, this method of subtyping often does not designate a group that is very distinct from the broader group defined by an early age of onset. Second, this method places a primary emphasis on impulsive and antisocial behaviours, which have not proven to be specific to adults with psychopathy.²⁶,²⁷ That is, impulsive–antisocial tendencies appear to be elevated in most adults with significant criminal histories and (or) a diagnosis of antisocial personality disorder. In contrast, what has been critical to adult definitions of psychopathy are the affective and interpersonal characteristics that may accompany this impulsive and antisocial lifestyle in some people. There is evidence that the same may be true in children and adolescents as well. That is, it appears to be only youth who are impulsive, antisocial, and who show the affective and interpersonal traits of psychopathy who are most likely to show many of the cognitive (for example, reward dominance) and personality (for example, fearlessness) characteristics that are similar to adults with psychopathy.²⁸

**Patterns of Aggression**

Another method that has been used to subtype children within the childhood-onset group focuses on the severity and type of aggression displayed. Specifically, research has indicated that 2 forms of aggression can be identified in samples of children or adolescents with conduct problems.²⁹,³⁰ Reactive aggression is characterized by impulsive–defensive responses to a perceived provocation or threat and is usually
accompanied by a display of intense physiological reactivity.\textsuperscript{31,32} In contrast, proactive or instrumental aggression is not associated with provocation but is defined as aggression in pursuit of an instrumental goal and is usually premeditated and planned.\textsuperscript{29,31} Importantly, studies in children and adolescents suggest that some youth with conduct problems show only mild levels of reactive aggression, whereas a second group shows high rates of both reactive and instrumental aggression.\textsuperscript{33,34} This latter group is similar to adult offenders with psychopathic traits who have been shown to be more aggressive overall and to differ from nonpsychopathic offenders by showing more instrumental and premeditated aggression.\textsuperscript{35,36}

In support of this method of subtyping, research has shown that children who show instrumental aggression often show deficits in emotional responding that are similar to those found in adults with psychopathic traits (for example, lower emotional arousal to provocation).\textsuperscript{37,38} Further, children and adolescents with this more pervasive pattern of aggression have shown to have higher rates of CU traits (for example, lacking guilt and empathy).\textsuperscript{33,34} Unfortunately, there are also 2 limitations with this approach. First, this distinction requires a method of distinguishing between the different types of aggression, and such a distinction has proven to be very hard to make reliably.\textsuperscript{39} Second, when both types of aggression and CU traits are assessed in the same sample, it appears that the emotional deficits that are consistently related to psychopathy tend to be more specifically related to CU traits, rather than to the aggressive behaviour.\textsuperscript{40}

**Summary**

In summary, all of these approaches to subtyping youth with serious conduct problems have shown some validity for designating children and adolescents who show characteristics similar to adults with psychopathy. However, all of these approaches also have some limitations and this is likely because they have not focused on the core affective and interpersonal traits that have been key to most definitions of psychopathy and, more importantly, that distinguish adults with psychopathy from other antisocial people. Therefore, it is not surprising that an approach to subtyping that has shown some of the strongest support for potentially designating a developmental precursor to psychopathy focuses directly on making a developmental extension of these core features of psychopathy to children and adolescents with serious conduct problems.

**The Importance of CU Traits**

**Factor Analyses**

There have been several attempts to assess core features of psychopathy, with appropriate developmental modifications, in samples of children and adolescents using several different assessment formats.\textsuperscript{34,42,43} Importantly, in samples of clinic-referred and nonreferred children\textsuperscript{44} and in samples of incarcerated adolescents,\textsuperscript{44} factor analyses have consistently identified 3 personality dimensions, in addition to an antisocial behaviour factor, similar to those identified in adult samples. These personality dimensions have been labelled as CU, narcissistic, and impulsive traits. Although all 3 personality dimensions are often elevated in children and adolescents who show serious antisocial behaviour, CU traits seems to designate a specific subgroup of these antisocial youth. Unfortunately, most measures include only a limited number of items specifically assessing this dimension, often with as few as 4\textsuperscript{42} or 6\textsuperscript{43} items specifically assessing CU traits. Further, and possibly owing to this limited item pool, measures of CU traits often have had some significant psychometric limitations, such as displaying poor internal consistency in some response formats.\textsuperscript{45}

A more extended assessment (for example, 24 items) of CU traits has been developed and its factor structure has been tested in nonreferred samples of adolescents in Germany (\(n = 1443\))\textsuperscript{46} and Greek Cyprus (\(n = 347\))\textsuperscript{17} and in a sample of juvenile offenders in the United States (\(n = 248\)).\textsuperscript{48} Across all 3 samples, a very similar bi-factor structure seemed to fit the data best, with a general CU factor accounting for covariance among all items and 3 independent subfactors (uncaring, callous, and unemotional) reflecting unique patterns of covariance among particular groups of items. The items forming these 3 subfactors are provided in Table 1 and illustrate the features that define the construct of CU traits. Importantly, the total scores from this measure proved to be internally consistent in all 3 samples (\(\alpha = 0.77\) to 0.81), suggesting that this extended measure of CU traits may overcome some of the limitations of past measures with more limited item content.

**Stability**

Thus research suggests that CU traits seem to be present in a subgroup of antisocial youth. Importantly, some critical questions for assessing these traits in childhood and adolescence are: How early can these traits be reliably assessed? How consistent is the measurement structure across development? and, How stable are these traits prior to adulthood? To address the first question, although most studies have focused on samples of adolescents,\textsuperscript{49,50} there have been numerous studies of preadolescent children showing CU traits, with a few studies using samples aged as young as 3 and 4 years.\textsuperscript{51,52} To address the second question, Obradovic et al\textsuperscript{19} studied the structure of CU traits in a sample of 506 boys and found strong support for measurement invariance in parent reports of these traits from ages 8 to 16 years and in teacher reports from ages 11 to 16 years. Such invariance suggests that the indicators of CU traits were assessing the
Table 1 Dimensions of CU traits

| Uncaring | I work hard on everything I do. (l) |
|          | I always try my best. (l)          |
|          | I care about how well I do at school or work. (l) |
|          | I do things to make others feel good. (l) |
|          | I apologize (say I am sorry) to persons I hurt. (l) |
|          | I feel bad or guilty when I do something wrong. (l) |
|          | I easily admit to being wrong. (l) |
|          | I try not to hurt others’ feelings. (l) |
| Callousness | I do not care about doing things well. |
|           | I do not like to put the time into doing things well. |
|           | I do not feel remorseful when I do something wrong. |
|           | I do not care about being on time. |
|           | I do not care if I get into trouble. |
|           | I seem very cold and uncaring to others. |
|           | The feelings of others are unimportant to me. |
|           | I do not care who I hurt to get what I want. |
|           | I am concerned about the feelings of others. (l) |
|           | I do not like to put the time into doing things well. |
|           | What I think is right and wrong is different from what other people think. |
| Unemotional | I do not show my emotions to others. |
|            | I express my feelings openly. (l) |
|            | I hide my feelings from others. |
|            | It is easy for others to tell how I am feeling. (l) |
|            | I am very expressive and emotional. (l) |

These are items from the self-report version of the Inventory of Callous–Unemotional Traits (ICU). The 3 dimensions emerged from factor analyses in non-referred German and Greek Cypriot adolescents and detained adolescent in the United States.

I = inversely scored [Dr Frick: do you mean scored?] items.

* Items from the original CU scale of the Antisocial Process Screening device from which items on the ICU were developed.

construct similarly across this extended developmental period.

However, the most data are available to address the third question related to the degree of stability in CU traits. There are now numerous studies showing that these traits are relatively stable from late childhood to early adolescence, both when assessed by self-report or by parent report. For example, in a high-risk sample of children (mean age 10.65 years at initial assessment), the stability of parent ratings of CU traits was estimated at 0.71 across 4 years, using an ICC as the stability estimate. This level of stability for parent report is much higher than is typically reported for parent ratings of other aspects of children’s adjustment. As a second example of this level of stability, the stability of parent ratings of CU traits across a 9-year period from ages 8 to 16 years in a sample of inner-city boys was $r = 0.50$. Importantly, the stability of teacher ratings was significantly lower ($r = 0.27$) in this sample.

Thus, across childhood and adolescence, CU traits show levels of stability that are comparable to or exceed other forms of childhood psychopathology. There are also studies to support the stability of these traits into adulthood. CU traits were relatively stable ($r = 0.60$) from late adolescence (age 17 years) into early adulthood (age 24 years) and relatively stable ($ICC = 0.40$) over 6 years, from ages 16 to 18 years, to ages 22 to 24 years. Further, 2 studies have shown that measures of CU traits assessed in childhood are significantly associated with measures of psychopathy in adulthood, even controlling for childhood conduct problems and other risk factors for antisocial behaviour. Importantly, in one of these studies, the 11-year stability (from age 13 to 24 years) of CU traits in childhood to an adult measure of psychopathy was $r = 0.31$. This study also reported that only 21% of the boys who scored in the upper 10% on the measure of CU traits at age 13 years were elevated on measures of psychopathy at age 24 years. These stability estimates provide an important context for interpreting the stability of CU traits from childhood into adulthood. On the one hand, these stability estimates suggest that these traits are not immutable, and a large number of youth high on these traits are likely to show decreases in their rate across development. On the other hand, these traits are as stable or more so than other personality dimensions from childhood to adulthood. Further, although most people in the upper 10% of CU traits at age 13 years did not show elevated scores as adults, they were still 3.22 times more likely to show elevations, compared with those scoring lower on CU traits in childhood. Thus showing high rates of CU traits in childhood does convey some risk for showing significant levels of psychopathic traits as an adult.

Clinical Importance

As noted previously, a critical feature of psychopathic traits in adults is their ability to designate a more severe, aggressive, and chronic pattern of antisocial behaviour. There is evidence to suggest that this may also be true for CU traits in childhood and adolescence. Specifically, several recent qualitative and quantitative reviews have been published showing that CU traits, either alone or in combination with other dimensions of psychopathy, are predictive of a more severe, stable, and aggressive pattern of behaviour in antisocial youth. For example, Frick and Dickens reported on a qualitative review of 24 published studies using 22 independent samples. Ten of these studies showed a concurrent association between CU traits and measures of aggressive,
antisocial, or delinquent behaviour, and 14 studies showed a predictive relationship with follow-up intervals ranging from 6 months to 10 years. These authors further reported on 5 studies showing that CU traits were associated with poorer treatment outcomes. Importantly, these studies included community (n = 6), clinic-referred (n = 4), and forensic (n = 13) samples, and they included samples ranging in age from 4 to 20 years. Finally, Frick and White\(^5\) reviewed 8 additional concurrent studies published after the previous review and 3 additional longitudinal studies showing an association between CU traits and the severity of antisocial behaviour.

Thus there is quite a compelling body of research to suggest that CU traits designate a clinically important group of children and adolescents with conduct problems. There are several important issues in interpreting this body of research and for comparing the use of CU traits to other typologies that have been proposed to designate developmental precursors to psychopathy. First, CU traits predict more severe behaviour problems within preadolescent samples and even controlling for their level of conduct problem behaviours,\(^5\) suggesting that these traits add predictive utility to a childhood onset of conduct problems. Second, the association between CU traits and a more severe pattern of behaviour cannot be accounted for by higher levels of impulsivity\(^6\) or diagnoses of ADHD.\(^6\)

Third, children and adolescents with CU traits not only show a more severe and pervasive pattern of aggressive behaviour but also tend to show aggression that is both reactive and instrumental. In contrast, youth without CU traits tend to show less aggression overall and, when they do show aggressive behaviour, it tends to be largely reactive in nature.\(^33,34\)

Thus CU traits account for the patterns of aggression that have been used to designate distinct subgroups of youth with conduct problems.

**Distinct Correlates in Children and Adolescents With CU Traits**

Frick and White\(^5\) also reviewed a significant body of research demonstrating several differences in the social, cognitive, emotional, and personality characteristics of antisocial youth with and without CU traits. First, they reviewed 4 studies showing that the conduct problems of children or adolescents without CU traits are more strongly related to dysfunctional parenting practices. Second, Frick and White reviewed 10 studies showing differences in how antisocial youth with and without CU traits process emotional stimuli, with youth high on CU traits showing deficits in the processing of negative emotional stimuli and, even more specifically, showing deficits to signs of fear and distress in others. Third, they reviewed another 10 studies showing several distinct cognitive characteristics of antisocial youth with CU traits, such as being less sensitive to punishment cues (especially when a reward oriented response set is primed), showing more positive outcome expectancies in aggressive situations with peers, and being less likely to exhibit verbal deficits than other antisocial youth. Fourth, they reviewed 7 studies showing that antisocial children and adolescents with CU traits have unique personality characteristics, such as showing more fearless or thrill-seeking behaviours and less trait anxiety or neuroticism, compared with antisocial youth without these traits.

Other research has demonstrated important differences in the genetic contribution to conduct problems for children with and without CU traits. For example, in a large sample of twins aged 7 years, conduct problems in children with CU traits were found to be under strong genetic influence (heritability of 0.81) with little influence of shared environment.\(^6\) In contrast, antisocial behaviour in children without elevated levels of CU showed a more modest genetic influence (heritability of 0.30) and substantial environmental influence (shared environmental influence = 0.34, nonshared environmental influence = 0.26). Importantly, the differences in heritability could not be attributed to differences in the severity of conduct problems in this sample of twin aged 7 years. Finally, these findings were replicated when the children were aged 9 years, and this latter study also demonstrated that the difference in heritability remained even after impulsivity–hyperactivity scores were controlled.\(^6\)

Unfortunately, these studies do not indicate what biological mechanisms may account for the genetic risk in children with CU traits. However, one contemporary theory that accounts both for the higher genetic risk and for some of the emotional characteristics of youth with CU traits (for example, the deficit in response to others’ distress) suggests that youth with CU traits may show deficits in the functioning of the amygdala.\(^6\) In support of this possibility, 2 studies used a measure that included CU traits and explicitly tested the hypothesis that children with these traits would show amygdala hyporeactivity to others’ distress.\(^57,6\) Both studies employed an implicit emotion-processing task (gender recognition) and found amygdala hyporeactivity to fearful faces in antisocial youth with CU traits. Thus, although much more work on the neurological correlates of CU traits is needed, these initial findings from brain imaging studies are promising in uncovering possible neurological bases to some of the cognitive and affective deficits found in this subgroup of antisocial youth.

**CU Traits and Other Dimensions of Psychopathy**

Based on this research, it seems clear that the presence or absence of CU traits designates an important subgroup of antisocial children and adolescents. However, as noted previously, these traits are only one of several personality dimensions that have been used to define psychopathy. Other
models that have attempted to extend the construct of psychopathy to youth have emphasized other dimensions, such as elevations on impulsivity and antisocial behaviour or have conceptualized psychopathy as involving high scores on all 3 component personality dimensions (that is, CU traits, narcissism, and impulsivity), as well as antisocial behaviour. In support of the latter definition of psychopathy, all 4 facets of the construct seem to be important for predicting the severity and chronicity of antisocial behaviour and, as a result, combining them often provides the best method of predicting future antisocial behaviour in samples of youth. However, the model focusing on CU traits also has several positive features for developmental models of psychopathy.

Specifically, the CU dimension shows the least amount of overlap with traditional definitions of conduct problems and antisocial behaviour in samples of children and adolescents. Further, and likely owing to this lower overlap, the CU dimension, but not the other dimensions of psychopathy, consistently designates an important subgroup within 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. Similarly, a cluster analysis of the dimensions of psychopathy and conduct problems in a clinic-referred sample of children revealed 2 distinct clusters of children with childhood-onset conduct problems. Both groups were diagnostically similar in their rates of ADHD and conduct problem diagnoses. Although the groups did not differ on their level of impulsivity and narcissism, one group showed higher levels of CU traits and this group showed more severe conduct problems and had higher rates of police contact.

Importantly, because children and adolescents with CU traits often show the highest rates of impulsivity, narcissism, and antisocial behaviour, using high scores on CU traits and using composite scores on all dimensions of psychopathy often designate very similar groups of youth. However, CU traits seem to be more specifically related to many of the unique emotional, cognitive, and social characteristics that were reviewed previously. For example, as noted previously, the higher level of heritability of antisocial behaviour in youth with CU traits could not be accounted for by higher levels of impulsivity. Similarly, the reduced reactivity to negative emotional stimuli in some antisocial youth has been specifically related to high levels of CU traits but not to elevated levels of impulsivity and narcissism. As a final example, the differential association between dysfunctional parenting and conduct problems in those high and low on CU traits was not found for the other dimensions of psychopathy. Thus CU traits seem to be especially important for designating a unique subgroup of antisocial youth who show many features consistent with the construct of psychopathy.

Concerns About Extending the Construct to Youth

Before discussing some of the implications of this research on CU traits in children and adolescents, it is important to note some concerns that have been expressed about attempts to extend the construct of psychopathy to youth. Some concerns are not about the construct of psychopathy itself but focus instead on potential misuses of it, such as the use of the construct to support transferring youth who commit serious crimes to adult court. Other concerns are not specific to psychopathy but are issues that are relevant to all forms of childhood psychopathology, such as the fact that some level of symptomatology is present in normally developing youth. However, there are some concerns that are specific to the construct of psychopathy. Most important, the term psychopathy connotes a stable and untreatable dispositional tendency. The appropriateness of this assumption is questionable, even in adults. However, it is even more questionable in children, for whom there is clear evidence that the features can change across development. Also, it is important to note that research suggests that the term psychopathy may not have any more negative or stigmatizing connotations than the terms CD or antisocial behaviour. In fact, one problem in not recognizing that only a small percentage of antisocial youth or youth with CD show characteristics associated with psychopathy is that these terms can become viewed as interchangeable. Given our focus on only one dimension related to psychopathy, we have chosen to use the purely descriptive term CU traits in research. While such a term still does not denote characteristics that would be socially desirable, it is important to maintain clarity as to the core features of the construct being assessed. That is, early attempts to operationalize psychopathic traits in youth were hindered when the name was changed to undersocialized aggression in an attempt to use a less pejorative label. Unfortunately, this led to attempts to define undersocialization that bore no resemblance to the core affective and interpersonal features of psychopathy.

Implications for Causal Theories of Antisocial and Aggressive Behaviour

Importantly, there are numerous theoretical implications of this research on CU traits. For example, this research clearly suggests that there are several distinct developmental pathways through which children and adolescents may develop severe antisocial and aggressive behaviour. Specifically, in addition to the distinction that is often made between adolescent- and childhood-onset antisocial behaviour, it appears...
that the presence or absence of CU traits is also important for causal theories. Youth with CU traits appear to show a distinct temperamental style that is characterized by a lack of responsivity to negative stimuli (especially distress in others), abnormalities in responsivity to rewards and punishment, and a preference for novel and dangerous activities. Such a temperamental style can influence the child’s development of appropriate levels of guilt and empathy by making the child less sensitive to the effects of their behaviour on others or by leading the child to be less responsive to typical (although not all) parental socialization practices. In outlining such a developmental pathway, it is important to recognize that such a trajectory is not immutable, and some children with this temperamental style may develop appropriate levels of guilt and empathy, if they experience certain corrective environments. For example, in a study of 87 preschool children selected according to their temperaments, those with a temperamental style that placed them at risk for problems in the development of empathy and guilt showed normal levels of conscience, if they experienced consistent and strong, rule-oriented parenting.

In contrast, youth with a childhood-onset of antisocial behaviour but without CU traits appear to be distressed by the effects of their behaviour on others and they seem to show poorly regulated emotions that lead to high levels of anger and irritability. Also, such children are more likely to show deficits in verbal intelligence and other problems in executive functioning that can lead to problems anticipating the consequences of their behaviour. These dispositional vulnerabilities likely interact with problematic rearing environments that lead to failures in the child’s ability to develop appropriate emotional and behavioural regulation strategies.

Thus the presence or absence of CU traits seems to be critical for designating important pathways in the development of severe antisocial behaviour. In addition to these important theoretical implications, this body of research points the way to several potentially important directions for future research. For example, a key aspect to the developmental models outlined in this manuscript is the different temperaments that may place a child at risk for showing severe antisocial and aggressive behaviour. However, the vast majority of research has focused on children and adolescents who already show problem behaviour. As a result, it will be critical for future research to study children with the hypothesized temperamental risk factors (for example, low levels of fearful inhibitions) early in life to determine how well they predict later CU traits and severe antisocial behaviour. Such prospective research is not only important for providing strong tests of the predictive clinical utility of the developmental model but also could help to uncover protective factors that may reduce the likelihood that a child with a temperamental risk factor will show severe behaviour problems.

**Implications for Assessment and Diagnosis**

Because of these different developmental pathways to antisocial and aggressive behaviour, it is important that clinical evaluations use assessment procedures that can help to determine which of these pathways best describes a child who is displaying antisocial and aggressive behaviour. For example, if a child’s serious conduct problems began prior to adolescence but he or she does not show significant levels of CU traits, a typical profile would include the presence of verbal deficits and temperamental vulnerabilities involving problems regulating emotions, leading to higher levels of anxiety, depression, and anger. In contrast, for a child with childhood-onset antisocial behaviour who shows high levels of CU traits, the child is more likely to show a lack of sensitivity to punishment, a preference for dangerous and novel activities, and a failure to experience many types of prosocial emotions (for example, guilt and empathy). Further, assessing the level and severity of aggressive behaviour, especially the presence of instrumental aggression, would be critical for this child.

As most clinicians recognize, people often do not fall neatly into the prototypes that are suggested by research. Therefore, these descriptions are meant to serve as hypotheses around which to organize an evidence-based assessment. They also can be used to highlight several important pieces of information that are needed when assessing children and adolescents with serious antisocial and aggressive behaviour, such as the age at which the serious conduct problems began and the presence of CU traits (see McMahon and Frick for a description of specific assessment methods).

To promote such assessment practices, it is critical that the importance of CU traits for designating a distinct group of antisocial youth be recognized in diagnostic criteria. Unfortunately, much of the research to date on CU traits has used dimensional scales that make it hard to translate the findings into specific diagnostic criteria. However, the research to date does suggest that the diagnostic criteria, such as those for CD, would be enhanced by including some method for designating youth with this disorder who display significant levels of CU traits.

**Implications for Treatment**

Perhaps the most important implications from this research on antisocial youth with CU traits are those related to intervention. First, given that 1) children with CU traits start to show conduct problems early in their development and 2) there are numerous interventions that have proven effective in treating early emerging conduct problems, intervening early in the developmental trajectory of childhood-onset...
conduct problems is an important goal for preventing later serious aggression and antisocial behaviour. Second, in older children with severe antisocial behaviours, the most successful interventions are comprehensive interventions that are tailored to the unique needs of the individual child. Thus research on the different developmental pathways to conduct problems could help to guide these individualized interventions. For example, interventions that focus on anger control may be more effective for children within the childhood-onset pathway who do not exhibit CU traits but who often show problems with emotional regulation. In contrast, treatments that intervene early in the parent-child relationship to teach parents ways to foster empathic concern in their young child or that help the child develop cognitive perspective-taking skills may be more effective for children with CU traits. Later in development, intervening in ways that emphasize the reward-oriented response style of this group and attempt to motivate children through appealing to their self-interest, rather than through interventions that solely focus on punishment-oriented strategies, may be more effective for this group.

Unfortunately, much of the existing research has largely focused on demonstrating that youth with CU traits often do less well in existing treatment programs than other antisocial children and adolescents. However, 2 studies have provided some important information on strategies that might be effective for children with CU traits. First, Hawes and Dadds reported that clinic-referred boys (aged 4 to 9 years) with conduct problems and CU traits were less responsive to a parenting intervention than boys with conduct problems but who were low on CU traits. However, this differential effectiveness was not consistently found across all phases of the treatment. That is, children with and without CU traits seemed to respond equally well to the first part of the intervention that focused on teaching parents methods of using positive reinforcement to encourage prosocial behaviour. In contrast, only the group without CU traits showed added improvement with the second part of the intervention that focused on teaching parents more effective discipline strategies. This outcome would be consistent with the reduced sensitivity to punishment that is often characteristic of children with CU traits. In a second study, Waschbusch et al. reported that children (aged 7 to 12 years) with conduct problems and CU traits responded less well to behaviour therapy alone than children with conduct problems without CU traits. However, these differences largely disappeared when stimulant medication was added to the behaviour therapy, although the children with CU traits were still less likely to score in the normative range than those without these traits.

Thus direct tests of differential treatment effects for children with CU traits are few, but those that have been conducted suggest that typical interventions may be less effective for this group of antisocial youth. However, the available research also provides at least suggestive evidence to refute the contention that these youth are untreatable. Instead, they provide very intriguing data to suggest that interventions based on our knowledge of the distinct characteristics of this group could enhance the effectiveness of treatments for children and adolescents with CU traits who show very severe behaviour problems. Further, they provide very compelling reasons for advancing this line of work to better refine our knowledge of this clinically important subgroup of antisocial youth to guide future advances in prevention and treatment.

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