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Conduct Disorders and Empathy Development

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Abstract

Childhood conduct disorders, a serious mental health concern, put children at risk for significant mental health problems throughout development. Elevations on callous-unemotional (CU) traits designate a subgroup of youth with conduct disorders who have unique causal processes underlying their problem behavior and are at a particularly high risk for serious impairment relative to others with these disorders. As a result, these traits have recently been integrated into major diagnostic classification systems for conduct disorders. Given that CU traits are partly defined by deficits in empathy, we review research on empathy development in typically developing children and use this research to (a) advance theories on the specific emotional deficits that may be associated with CU traits, (b) explain the severe pattern of aggressive behavior displayed by children with elevated CU traits, and (c) suggest possible ways to enhance prevention and treatment for children with conduct disorders and elevated CU traits.

Contents

A BRIEF INTRODUCTION TO CONDUCT DISORDERS

Childhood disruptive behaviors or conduct problems have been distinguished from "internalizing problems" (i.e., anxiety and depression) in the classification of childhood psychopathology for several decades (Achenbach & Edelbrock 1978). While this broad distinction between internalizing and externalizing problems has been widely supported, there has been less consensus over whether meaningful distinctions can be made within disruptive behaviors. Distinctions have been made between (*a*) aggressive and nonaggressive and/or rule-breaking behaviors (Burt wet al. 2015), (*b*) overt and covert behavior problems (Frick et al. 1993), and (*c*) oppositional-defiant behaviors and conduct disorder symptoms, the latter of which are defined by violations of others' rights and/or major societal norms and rules (Frick & Nigg 2012). Each of these distinctions has some proven validity for distinguishing groups of children and adolescents with conduct problems that may differ in etiology, severity, and course (for a review, see Frick & Matlasz 2018).

However, research has also shown that the different types of disruptive behaviors tend to be substantially intercorrelated and often form a single externalizing factor in multivariate studies (Lahey et al. 2008). Further, children and adolescents who show the most impairing patterns of disruptive behavior often show behaviors across the various subdimensions (e.g., both aggressive and nonaggressive behaviors or both oppositional-defiant and conduct disorder symptoms) (Frick & Nigg 2012). In addition, behavioral genetic research has consistently shown strong shared genetic influences across the disruptive behaviors (Lahey et al. 2011, 2017). Consequently, the fifth and most recent edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5) groups Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD) into a category of disorders called the Disruptive, Impulse Control, and Conduct Disorders (Am. Psychiatr. Assoc. 2013).

For the purposes of this review, we refer to severe and impairing levels of these disruptive behaviors as conduct disorders, which include the DSM-5 categories of ODD and CD. These conduct disorders constitute a significant mental health concern. They affect 5.7% of children worldwide (Canino et al. 2010) and lead to over half (57%) of all referrals of children to mental health services in the United States, with the next most common referral being for

Conduct disorder:
a pattern of severe, nonnormative, and impairing conduct problems that can fall within the DSM-5 categories of Oppositional Defiant Disorder or Conduct Disorder

attention-deficit/hyperactivity disorder at 38.5% (SAMHSA 2010). In strictly financial terms, it has been estimated that each child with a conduct disorder costs $70,000 more than a typically developing child from ages 7 to 13 in costs from mental health and medical services, special education services at school, and contact with the juvenile justice system (Foster et al. 2005). Conduct disorders can also lead to many other mental health problems across development, including anxiety, depression, suicidality, and substance abuse (Odgers et al. 2008). As a result, conduct disorders are often considered one of the most robust childhood predictors of risk for mental health problems later in life (Burt et al. 2018). Conduct problems in early childhood also substantially increase risk for a number of other problems in adulthood, including medical illnesses, poorer marital adjustment, lower educational attainment, school dropout, and criminality (Odgers et al. 2007).

As with most forms of psychopathology, the symptoms of conduct disorders are present to some degree in typically developing individuals. For example, frequent oppositional behavior is quite prevalent in preschool children (Keenan 2012, Wakschlag et al. 2007). Similarly, multiple studies have shown that physical aggression is quite common in preschool children and that overall levels of aggressive behavior decrease throughout childhood and adolescence (Tremblay 2010). Further, studies have shown that some level of norm- and rule-breaking is common in adolescents (Brezina & Piquero 2007). Thus, definitions of conduct disorders must consider methods for distinguishing disordered behaviors from normative or nondisordered ones, such as when behaviors are more severe than would be expected for a child's age, when they occur in multiple situations and settings, and/or when they cause impairment for the child (Frick & Nigg 2012).

This discussion makes it clear that the distinction between normal and disordered behavior is often based on heuristic cutoffs that help to determine when a child may need treatment but that may not reflect true differences in the underlying causes of behavior. That is, the presence of a disorder may not reflect the presence of a pathological process unique to disordered individuals that is not present in nondisordered individuals. We have argued that, as a result, it is important to consider normal developmental processes that may go awry in leading a child to display a conduct disorder (Frick & Viding 2009). Specifically, conduct disorders reflect a child's inability to regulate their emotions and behaviors, which is likely why they are predictive of so many problems in adjustment throughout the life span. In our view, the presence of a conduct disorder indicates that some developmental process through which a child learns to regulate their emotions and behaviors is impaired. Thus, it is important to consider the key developmental processes through which children normally develop self-regulation, to understand how they may go awry in children with conduct disorders.

MULTIPLE DEVELOPMENTAL PATHWAYS TO CONDUCT DISORDER

The primary focus of this review is on one specific process that research suggests is important for the development of self-regulation: the healthy development of empathic concern toward others. However, before discussing empathy and its relevance to conduct disorders, it is important to recognize that the causes of conduct disorders likely involve multiple processes that differ across individuals with the same disorder. While the DSM-5 explicitly defines all disorders in the category of Disruptive, Impulse Control, and Conduct Disorders as involving problems with self-regulation (i.e., emotional and behavioral control), it recognizes that the causes of self-control problems can vary (*a*) across disorders included in the category and (*b*) among individuals with the same diagnosis (Am. Psychiatr. Assoc. 2013). Further, research has provided very clear and convincing evidence for the presence of several common causal pathways that can lead to these problems in self-control, with only one pathway clearly involving deficits in empathic concern for others.

Callous-unemotional (CU) traits: specifier for a unique subgroup of youth with conduct disorders defined by callous lack of empathy, deficient guilt/remorse, lack of concern over performance in important activities, and constricted display of emotion

One causal pathway that has long been recognized in research on both conduct disorders and juvenile delinquency helps to explain why a number of youth start showing behavior problems as they approach adolescence (Fairchild et al. 2013, Moffitt 2018). This group accounts for almost half of all adolescents who display conduct disorders, and, compared with children who start showing conduct problems earlier in childhood, members of this group are less likely to be aggressive and less likely to continue to show antisocial and criminal behavior into adulthood (Moffitt 2018, Odgers et al. 2008). Youth with adolescent-onset conduct disorders are also less likely to show a number of dispositional [e.g., impulsivity, poor emotional regulation, callous-unemotional (CU) traits] and environmental (e.g., hostile parenting) risk factors compared with children who start showing behavior problems in childhood (Fairchild et al. 2013, Frick & Viding 2009). Further, when youth within the adolescent-onset group differ from control children without conduct disorders, it is often in their displays of higher rebelliousness and rejection of conventional values and status hierarchies (Dandreaux & Frick 2009, Moffitt et al. 1996). On the basis of these findings, youth who follow the adolescent-onset pathway are often conceptualized as showing an exaggeration of the normative process of adolescent rebellion (Moffitt 2018). That is, rebelliousness is part of a process by which the adolescent begins to develop their autonomous sense of self and unique identity by rebelling against traditional authority figures, such as parents. According to Moffitt (2018), the child in the adolescent-onset group engages in antisocial and delinquent behaviors as a misguided attempt to obtain a subjective sense of maturity and adult status in a way that is maladaptive (e.g., breaking societal norms) because of (*a*) encouragement by an antisocial peer group, (*b*) lack of bonding to prosocial institutions, (*c*) poor supervision by parents, and/or (*d*) a rebellious personality (see also Frick & Viding 2009). Given that their behavior is viewed as an exaggeration of a process specific to adolescence, and not due to an enduring vulnerability, their antisocial behavior is less likely to persist beyond adolescence. However, for some of these youth in the adolescent-onset group, the consequences of their adolescent antisocial behavior may persist into adulthood (e.g., a criminal record, dropping out of school, substance abuse) (Moffitt 2018).

In short, the developmental process that seems important for understanding the adolescent-onset pathway involves difficulties with identity formation. In contrast, it appears that persons who follow the childhood-onset pathway show more characterological disturbances that begin earlier and lead to problems across multiple developmental stages. Specifically, children in the childhood-onset group often begin showing mild conduct problems (e.g., oppositional behavior, temper tantrums) early in childhood, and their behavioral problems tend to increase in rate and severity throughout childhood and into adolescence (Frick & Viding 2009). As noted above, the childhood-onset group is more likely to show aggressive behaviors in childhood and adolescence, to show antisocial and criminal behavior that continues into adulthood, and to show more dispositional and contextual risk factors than the adolescent-onset group (Fairchild et al. 2013, Frick & Viding 2009). Thus, this group is often viewed as developing problem behaviors through a transactional process involving a difficult and vulnerable child (e.g., fearless, impulsive, with verbal deficits) who experiences an inadequate rearing environment (e.g., poor parental supervision, low parental warmth, poor-quality schools) (Moffitt 2018). This dysfunctional transactional process disrupts the child's socialization, leading to poor social relations with persons both inside (e.g., parents, siblings) and outside (e.g., peers, teachers) the family. Furthermore, these disruptions can lead to enduring vulnerabilities that may negatively affect the child's psychosocial adjustment across the life span.

Recent research suggests that an important distinction can be made within this childhood-onset group. One group within the childhood-onset pathway is more likely to show high levels of emotional reactivity, poor impulse control, lower verbal intelligence, and a hostile attribution bias

through which they tend to perceive peers' behavior as provocative (Frick & Viding 2009). As a result, these children tend to show high levels of impulsive anger and aggression in response to perceived provocations from others (Frick et al. 2003b, Lawing et al. 2010). Further, this group of children and adolescents with conduct disorders shows behavior problems that are highly related to hostile and coercive parenting (Pasalich et al. 2011, Wootton et al. 1997). Thus, it appears that these children with childhood-onset conduct disorders show problems regulating their emotions and behaviors due to a temperament characterized by strong emotional reactivity and other dispositional tendencies (e.g., limited verbal abilities) that, when combined with inadequate socializing experiences, lead to problems regulating their emotions and behavior (Frick & Morris 2004).

Importantly, children in this dysregulated pattern of conduct disorders are often highly distressed by the effects of their behavior on others and, in fact, frequently show high rates of anxiety in addition to their conduct problems (Frick & Viding 2009). Thus, a deficit in empathic concern for others does not appear to be a primary causal factor for their conduct disorders. However, other persons with childhood-onset conduct disorders display a lack of distress in response to the effects of their behavior on others, and this pathway is defined by the presence of elevated CU traits (Frick et al. 2014b). One key indicator of CU traits is a callous lack of empathy toward others. Other indicators of this construct include lack of guilt, absence of effort to do well in important activities, and constricted or superficial displays of emotion (Frick & Ray 2015). Further, CU traits were a core component (i.e., the affective facet) of early clinical descriptions of psychopathy (Cleckley 1976, Hare 1993) and were part of the definition of the "undersocialized" subtype of conduct disorders in earlier versions of the DSM [e.g., DSM-III (Am. Psychiatr. Assoc. 1980)].[1]

Because of significant debate over the core features of CU traits and whether they could be assessed reliably, these traits were dropped from editions of the DSM starting in 1987 (DSM-III-R) (Am. Psychiatr. Assoc. 1987). However, over the last three decades, substantial research has refined the core features of CU traits (Frick & Ray 2015) and shown that they can be reliably assessed in children as young as 2 years of age (Kimonis et al. 2016). More importantly, CU traits have proven critical for designating a subgroup (approximately 25–30%) of children with childhood-onset conduct disorders who differ in clinically and theoretically important ways from other youth with conduct disorders (Kahn et al. 2013). Comprehensive reviews of this research can be found elsewhere (Blair et al. 2014, Frick et al. 2014b). Below, we summarize some of the key characteristics of children with conduct disorders and elevated CU traits that differentiate them from other children with these disorders:

- The conduct problems of children with elevated CU traits tend to be more severe, aggressive, and stable (see, e.g., Frick et al. 2003a, Lawing et al. 2010, McMahon et al. 2010).
- Children with elevated CU traits tend to respond less well to traditional mental health treatments for conduct disorders, often starting treatment with more severe behavior problems and, while improving with treatment, still showing more severe behavior problems after treatment (see, e.g., Hawes & Dadds 2005, White et al. 2013).
- Conduct problems accompanied by elevated CU traits show larger heritable influences (see, e.g., Viding et al. 2005, 2007), which may be due to significant loci involving the serotonin and oxytocin systems (for a review, see Moore et al. 2019).

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[1]Psychopathy is generally defined as a constellation of chronic and impairing interpersonal (e.g., glib or superficial interpersonal style), affective (e.g., low empathy, lack of remorse or guilt), and/or lifestyle (e.g., high impulsivity, high social deviance, antisociality) traits. CU traits correspond most closely to the affective facet of psychopathy.

- Children with conduct problems show very different emotional correlates depending on whether their conduct problems are accompanied by elevated CU traits (i.e., associations with emotional hyporeactivity at high levels of these traits but emotional hyperreactivity at normative levels) (see, e.g., Kimonis et al. 2006b, 2017; Viding et al. 2012).
- Children with elevated CU traits show abnormalities in how they process punishment cues (see, e.g., Gluckman et al. 2016, O'Brien & Frick 1996).
- Conduct problems in those with elevated CU traits are less consistently associated with hostile and inconsistent parenting but more strongly associated (inversely) with warm and responsive parenting (see Clark & Frick 2018, Pasalich et al. 2011, Waller et al. 2015).

Limited Prosocial Emotions (LPE): a specifier for the diagnosis of Conduct Disorder in the DSM-5 and Oppositional Defiant Disorder and Conduct-Dissocial Disorder in ICD-11 that is based on the presence of elevated CU traits

On the basis of these findings, the most recent editions of both the DSM [i.e., DSM-5 (Am. Psychiatr. Assoc. 2013)] and the *International Classification of Diseases* [ICD-11 (WHO 2018)] have included CU traits in their diagnostic classification of conduct disorders with a specifier labeled "with Limited Prosocial Emotions" (LPE).[2]

Thus, there is strong evidence that CU traits are important for designating a clinically and etiologically important subtype of conduct disorders in children and adolescents. These characteristics also suggest that the developmental processes that have gone awry for this group are very different from the processes that underlie the behavior of the adolescent-onset group and the behavior of those with childhood-onset conduct disorders but without elevated CU traits. Further, we have argued that these processes involve early deviations in the child's affiliative motivations that influence many types of emotional expression—most notably, empathic concern for others (Dadds & Frick 2019). That is, emotional deficits experienced by children in this subgroup make it difficult for them to learn to take the perspective of others because a child may not be motivated to do so and may not experience the same level of aversive arousal to others' distress (Frick et al. 2014a). Additionally, the child may not show emotional responses to parental sanctions that help children learn to internalize societal standards for conduct. However, if parents are able to provide a warm and responsive environment, the child may be able to overcome these temperamental risks and learn to regulate their behavior and develop perspective-taking skills. This potential interaction of temperamental risk and parenting is illustrated by findings from a large sample ($N = 561$) of children who were adopted within a few days of birth (Hyde et al. 2016). Despite having no contact with biological parents, biological mothers' self-reported fearlessness was related to children's CU behaviors at 27 months of age. However, this link was modified by adoptive parents' behavior, such that their use of positive reinforcement reduced the association between early fearlessness and later CU traits.

From both the definition of CU traits and the theoretical formulations for how they develop, it is clear that a callous lack of empathy is critical to this construct. However, most theoretical formulations have not integrated the rather extensive research on the various types of empathy or research on how empathy typically develops with causal theories of CU traits and conduct disorders. We feel not only that this integration could have important implications for enhancing our causal theories for CU traits and conduct disorders but also that it could be critical for advancing knowledge on some of the most serious consequences of CU traits (e.g., aggression) and for improving interventions designed to prevent or reduce these consequences.

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[2]In the DSM-5, criteria for the LPE specifier consist of the four indicators identified in research as being most indicative of CU traits, two of which must have been met for the previous 12 months and must be displayed across multiple relationships and settings. In ICD-11, the criteria also include an insensitivity to punishment as a fifth indicator.

OVERVIEW OF EMPATHY DEVELOPMENT

Empathy is defined broadly as the process by which individuals are able to recognize, understand, and share in or react to the emotional states of others (de Waal & Preston 2017, Eisenberg et al. 2014). Appropriate empathy development has long been considered vital to the acquisition of self-regulation skills and, as a result, to healthy socioemotional development (Decety et al. 2016, Eisenberg et al. 2014). Further, empathy has been shown to play a positive role in social learning and communication, prosocial behavior, and successful engagement in social-affiliative processes across the life span (de Waal 2008, Spinrad & Eisenberg 2017). As a result, empathy is largely considered a fundamental human trait necessary for both survival and social success (de Waal 2008, de Waal & Preston 2017, Decety et al. 2016).

Affective Versus Cognitive Empathy

There is general consensus that empathy comprises two primary components: affective empathy and cognitive empathy. Affective empathy refers to the emotional reaction in a person that is elicited by the emotions of others. This emotional responsiveness includes both emotional reactivity (i.e., negative arousal or distress experienced in response to another's emotions) and emotional contagion (i.e., sharing in the subjective experience of the emotion displayed by another) (de Wied et al. 2010). Affective empathy is thought to represent a more evolutionarily rudimentary and automatic and/or reflexive process (Blair 2005). It is measured by a number of methods, including self-reported arousal and emotional contagion (see, e.g., de Wied et al. 2010), behavioral measures of attentional orienting and allocation (see, e.g., Ciucci et al. 2018), psychophysiological measures of autonomic reactivity (see, e.g., de Wied et al. 2010, Hawes et al. 2009), and neural measures of brain activity (see, e.g., Blair 2007, de Wied et al. 2010, Marsh & Blair 2008).

Alternatively, cognitive empathy refers to the ability to accurately recognize and identify another's emotions (i.e., emotion recognition) and to understand another's perspective (i.e., perspective-taking) (Decety & Jackson 2004). As such, cognitive empathy is said to represent a more sophisticated, intentional, and cognitively complex phenomenon (de Waal & Preston 2017). Further, it requires a number of complex cognitive functions, such as neurocognitive skills for accurately labeling emotional expressions, distinguishing between one's own and others' mental states [e.g., Theory of Mind (ToM)], and mentalizing or perspective-taking (Decety & Jackson 2004).

Neuroimaging studies have found a distinction between affective and cognitive empathy, such that distinct brain regions appear to be responsible for the two components. These studies show that affective empathy is related to activity in phylogenetically (i.e., evolutionarily) older, deeper brain structures thought to be responsible for processing emotional stimuli, including the insula and limbic structures (e.g., amygdala, cingulate cortex) (see de Wied et al. 2010, Decety et al. 2016, Moul et al. 2018). Conversely, cognitive empathy skills are related to activity in phylogenetically younger, prefrontal brain areas thought to be related to higher-order processes associated with executive function (e.g., dorsolateral and medial prefrontal cortex) as well as regions related to sensory processing (e.g., superior temporal sulcus, temporal pole) (de Wied et al. 2010, Moul et al. 2018). While affective and cognitive empathy appear to be differentially related to particular brain areas, there is also evidence for their interdependence based on their recruitment of shared neural networks (see Decety & Jackson 2004, Fan et al. 2011). For instance, Fan et al. (2011) conducted a meta-analysis across 40 studies and reported that the left anterior insula was consistently activated during both affective and cognitive empathy tasks. In addition, behavioral and neuroimaging data support this interdependence as cognitive empathy paradigms (i.e., perspective-taking and mentalizing tasks) are associated with faster response time and

Affective empathy: a reflexive or automatic ability to react to (e.g., via mechanisms involved in physiological arousal) and/or experience (e.g., emotional contagion) the emotions of another

Cognitive empathy: a higher-order, more cognitively complex phenomenon including abilities to accurately recognize, identify, and share in the perspective of another

increased activation of the amygdala and temporal poles in addition to the prefrontal cortex (Decety & Jackson 2004). Thus, this faster response time suggests that cognitive empathy processes may be improved or facilitated by the activation of affective empathy and associated affective brain areas.

This evidence for the interdependence between affective and cognitive empathy on a neurocognitive level is supported by a developmental relationship as well. That is, the automatic processes that define affective empathy seem to be instrumental in motivating the acquisition of cognitive empathy skills early in typical development (Dadds et al. 2009, Frick et al. 2014a). For example, it is theorized that when a typically developing young child experiences empathic distress (i.e., negative arousal, negative emotional contagion) in response to seeing a friend cry, this aversive experience motivates the child to learn to recognize others' emotions and adopt their perspective so that the child may avoid similar experiences in the future. Further, with the development of cognitive empathy skills, a typically developing child becomes more adept at identifying others' emotional states and, as such, learns to respond with more appropriate and effective prosocial behaviors, thus engaging in successful social-affiliative interactions with others (see Boele et al. 2019).

Timing of Empathy Development

This interdependence between affective and cognitive empathy also seems to be reflected in the timing of their onset in typically developing children. That is, the onset of affective empathy appears developmentally before cognitive empathy. For example, infants display signs of affective empathy in the form of reflexive crying (also called contagious crying) mere hours (18–36) after birth (Martin & Clark 1982, Sagi & Hoffman 1976), and this marker of empathic reactivity has been shown to continue throughout the first 9 months of life (Geangu et al. 2010). As infants age into toddlers (i.e., 12–36 months), they begin to display increasingly complex forms (e.g., facial, gestural-postural, vocal) of emotional reactivity and empathic concern in response to others' emotions (Eisenberg et al. 2014). During toddlerhood, this empathic concern toward others appears to promote prosocial helping behaviors to comfort others in distress. For example, Roth-Hanania et al. (2011) reported positive associations between affective empathy at 10 months of age and levels of prosocial behavior toward peers in distress during the second year of life. Additionally, Knafo et al. (2008) reported positive longitudinal associations across ages 14–36 months between displays of empathic concern and prosocial behaviors toward both mothers and strangers in distress. Further, the sophistication of these helping behaviors increases throughout the second and third years of life as children are shown to progress from primarily physical methods of comforting (e.g., hugging) to more sophisticated, verbal methods (e.g., purposeful distraction) (Eisenberg et al. 2014).

In addition to these reflexive affective empathy processes motivating more sophisticated empathic concern and prosocial responsiveness, it has been proposed that affective empathy motivates the development of cognitive empathy (Hawes & Dadds 2012, Singer 2006). Specifically, the ability to understand and verbally describe others' perspectives appears to develop around 4 years of age and seems to become more advanced with age (Hawes & Dadds 2012). For example, in a study by Schwenck et al. (2014) that included a sample of children aged 7–17 years, about one-third of the variance in cognitive empathy (i.e., mentalizing and perspective-taking) was accounted for by child age. Additionally, accurate recognition of both simple and complex emotions, based on full facial expressions, has been shown to develop throughout childhood and adolescence; recognition of simple emotions, such as sadness, is typically achieved by

midchildhood, and an increasing ability to recognize complex emotions, like disgust, develops from late childhood to early adolescence (Lawrence et al. 2015).

Temperament and Parenting in the Development of Empathy

Childhood temperament is often defined by individual differences in emotionality, both reactivity and regulation, that are apparent early in life and are assumed to have a constitutional basis (Frick & Morris 2004). Given that reflexive crying is present at birth, an individual's early empathic responsiveness could itself be considered a dimension of temperament. However, individual differences in this specific type of emotional reactivity are often embedded in more general patterns of reactivity to various types of social (e.g., responses to the eyes and voices of caregivers) and nonsocial (e.g., reactivity to shapes and objects) stimuli in infants (Dadds & Frick 2019).

One temperamental dimension that has long been included in many typologies has been labeled as behaviorally uninhibited (Kagan et al. 1988) or fearless (Rothbart 1981) and is defined by a tendency to seek out novel and dangerous activities and to show less physiological arousal to (*a*) unfamiliar people and circumstances, (*b*) punishment cues, and (*c*) other negative emotional stimuli. Further, studies have shown that infants (Rothbart et al. 1994) and toddlers (Cornell & Frick 2007) higher on fearfulness tend to be rated as more empathic by parents. Conversely, other studies have reported that, in preschool children, lower behavioral inhibition and fearfulness predict lower levels of teacher- and parent-rated empathy later in childhood (Kimonis et al. 2006a, Waller et al. 2019). Additionally, there is some evidence that reduced affective and motor arousal and responsiveness to novel, sensory stimuli in infancy predict reduced empathic responsiveness and affective empathy in toddlerhood (Young et al. 1999).

Thus, early variations in empathic arousal seem to be embedded within broader temperamental propensities that then increase or decrease a child's risk for problems in socioemotional development, including problems in later, more complex forms of empathy (Dadds & Frick 2019). However, developmental research also demonstrates the importance of how these temperamental traits in the child interact with the child's experiences. Most notably, research shows that how a child's early temperament relates to their later expression of empathy can be modified by the type of parenting they experience (Frick & Morris 2004). For example, Feldman (2007) noted the importance of parent–child synchrony (i.e., temporal matching of behavior) in empathy development, finding that higher levels of mother–child face-to-face synchrony during the first year of life predicted higher rates of affective empathy in middle childhood and adolescence. In addition, studies have consistently shown that parenting characterized by warmth, sensitivity, and reciprocity between parent and child is important for promoting empathy development (for reviews, see Frick & Morris 2004, Waller et al. 2013).

There is also evidence that certain types of parenting may be particularly important for the development of empathy in children with distinct temperamental profiles. For example, Kochanska (1997) (see also Kochanska & Murray 2000) proposed that the parent–child relationship, especially the degree of warmth and responsiveness between parent and child (i.e., mutually responsive orientation), may be important for empathy development in fearless children. That is, children who do not become strongly emotionally aroused by distress in others may still learn to take others' perspectives in the context of a relationship that models empathic concern toward others (see Kochanska 1995, 1997). Specifically, one longitudinal study by Kochanska et al. (2005) found that, in children as young as 9 months of age, warm and responsive parenting predicted greater levels of empathy and other moral emotions (i.e., guilt) at 45 months. In contrast, harsh parenting has been found to exacerbate the effects of fearless temperament on empathy development (Waller et al. 2019).

Empathy in Broader Developmental and Psychopathological Constructs

One of the reasons that empathy has been a construct that has been the focus of a great deal of research is that empathy development, whether typical or atypical, has been found to play an important role in a number of developmental theories and causal models for important clinical constructs. In particular, research supports a role for empathy in the normal development of conscience in children (Aksan & Kochanska 2005, Kochanska & Thompson 1997, Thompson 2012). In addition, two specific forms of psychopathology—autism spectrum disorder (ASD) and psychopathy—show distinct types of empathy deficits, which are critical for causal theories of these clinical constructs. In this section, we provide a brief summary of the research linking empathy to these theories and constructs.

Conscience: internal system by which persons set standards and regulatory strategies for their behavior (i.e., "learn right from wrong"), which is motivated by moral emotions, such as empathy and guilt

Conscience. In the section above, we have made the case that empathy is an important construct for children's healthy socioemotional development. This contention is also supported by research showing that empathy is a critical component to other developmental processes that are linked to socioemotional competence and by the fact that deficient empathy has been linked to a number of psychopathological constructs. First, empathic concern has been considered one component of the broader construct of conscience (Frick et al. 2014a). Conscience is a construct defined by emotional, cognitive, and relational processes by which children acquire internal standards for conduct and the ability to regulate their own behavior (Kochanska & Thompson 1997). More specifically, the affective components of conscience refer to the moral, prosocial, or self-conscious emotions (e.g., guilt, anxiety, pride) experienced in response to real or imagined consequences of one's behavior. Additionally, cognitive components of conscience refer to higher-order cognitive skills for behavioral self-control and self-regulation, and relational components refer to a child's commitment to their caregivers' values and standards and to their openness to socialization by caregivers (Kochanska & Thompson 1997). Finally, healthy conscience development is considered the ultimate goal of socialization of the developing child, whereby the child can effectively function in a social world by developing healthy relationships and learning to follow social norms and cultural codes of conduct (Kochanska & Thompson 1997).

Kochanska and colleagues (e.g., Aksan & Kochanska 2005, Kochanska & Thompson 1997) have conceptualized conscience as relying, at least in part, on healthy or intact empathy. That is, the desire to change one's behavior because of its effects on others, rather than simply because of its effects on oneself, is dependent on empathic concern toward others. Similarly, the desire to change behavior to avoid displeasing or disappointing socializing agents (e.g., parents, teachers, peers) is dependent on the child's recognition and concern about others' emotions. This link between empathy and conscience is not just theoretical. Aksan & Kochanska (2005) reported that levels of affective empathy (i.e., reactivity to strangers' distress) and moral emotions (i.e., guilt elicited by a personally caused mishap) experienced during the second and third years of life predicted greater engagement in rule-compatible conduct, even in the absence of adult supervision, later in childhood. Further, there is evidence that cognitive empathy skills (e.g., ToM) in preschoolers are associated with greater appreciation for social standards (Kochanska & Thompson 1997) and verbalization of prosocial moral reasoning regarding fairness to others (Thompson 2012).

Autism spectrum disorder. Deficits in cognitive empathy—specifically, perspective-taking and ToM—have been found to be related to ASD (Blair 2005, Blair & Blair 2009, Jones et al. 2010, Lockwood et al. 2013, Schwenck et al. 2012). A number of studies have shown that children and adults with ASD display developmentally persistent deficits in their abilities to accurately infer and label others' emotions and perspectives (for a review, see Smith 2009). However, persons with

ASD still show emotional reactions to others' distress (Jones et al. 2010). Thus, though youth with ASD may not accurately understand others' emotions (i.e., cognitive empathy) and may not respond in socially appropriate ways to others' distress, they appear to show appropriate emotional responses to the distress of others (i.e., affective empathy).

Psychopathy. Psychopathy is a personality disorder that comprises a number of interpersonal, affective, and lifestyle (e.g., impulsive and irresponsible behavior) traits associated with chronic, severe patterns of aggression and offending in adults (Cleckley 1976, Hare 1993). While there is great debate over what specific dimensions are needed to define psychopathy (see Skeem et al. 2011), most definitions include an affective facet defined by CU traits (Hare & Neumann 2008). Thus, deficient empathy seems to be an important part of the definition of psychopathy.

Further, there is empirical evidence of deficits in empathy—particularly in affective empathy— in those with elevated psychopathic traits. Specifically, individuals with elevated psychopathic traits have consistently shown hyporeactivity in response to fear in others, and this pattern has been replicated using behavioral measures of reduced attentional orienting, physiological measures of reduced autonomic reactivity, and neural measures of reduced amygdala activation (for reviews, see Blair 2005, 2007, 2010). Importantly, research has indicated that individuals with elevated psychopathic traits do not seem to show deficits on measures of cognitive empathy, including ToM (Blair 2005, 2007) and emotion recognition (Igoumenou et al. 2017, Richell et al. 2003, Wilson et al. 2011). Thus, while psychopathic individuals and individuals with ASD both tend to show deficits in empathy, the former seem to show deficits specific to affective empathy, whereas the latter seem to show deficits more specific to cognitive empathy.

INTEGRATING RESEARCH ON CONDUCT DISORDERS AND EMPATHY DEVELOPMENT

As noted above, the construct of CU traits was developed to integrate research on conscience development and psychopathy to designate a subgroup of children with conduct disorders. As a result, like conscience and psychopathy, empathy is considered an important component in the construct of CU traits. Recently, Waller et al. (2020) conducted a large-scale meta-analysis of 59 studies to test this theoretical view of CU traits and reported that measures of CU traits showed moderate-to-large negative associations with measures of empathy ($\rho = -0.57$) as well as with measures of guilt ($\rho = -0.40$) and prosociality (i.e., engaging in helpful or supportive behavior toward others, $\rho = -0.66$). Thus, there is both theoretical and empirical support that empathy is a critical, but not exclusive, component to the construct of CU traits.

Clarifying the Emotional Deficits Associated with Callous-Unemotional Traits

As noted above, one of the most consistent differences between children with conduct disorders with and without elevated CU traits is that those without elevated CU traits show enhanced emotional reactivity, whereas those with elevated CU traits show blunted emotional reactivity. This finding has been critical for exemplifying why CU traits are important for specifying etiologically distinct subgroups of children with conduct disorders and thus for advancing causal theory. That is, studying emotional processing in children with conduct disorders without separating them by CU traits could result in conflicting findings depending on the sample composition (i.e., the relative ratio of those high and low in CU traits), with the two opposing patterns of emotional responsiveness potentially canceling each other out (Frick 2012). This could lead to very

misleading interpretations regarding the influence of emotional deficits on the development of conduct disorders.

While emotional hyporeactivity is critical for theories of CU traits, it is also clear that, despite its name, children with elevated CU traits are not unresponsive or even underresponsive to all types of emotional stimuli. Specifically, Marsh & Blair (2008) conducted a meta-analysis examining associations for reduced facial affect processing and recognition in persons elevated on CU traits or psychopathy more broadly. Across 20 studies (9 adolescent samples, 1 older adolescent/young adult sample, and 10 adult samples), they reported a robust association between CU traits/psychopathy and impairments in fear processing that could not be explained by task difficulty. Across 17 studies, significant group differences were found between those high in CU traits/psychopathy and control groups in the processing of fearful, sad, and surprised faces but no differences in the processing of angry, disgusted, or happy faces (Marsh & Blair 2008).

Given that CU traits have been consistently related to deficient emotional reactivity to distress cues, such as fear, it is not surprising that they have been consistently associated with deficits in affective empathy (Waller et al. 2020). This would also be consistent with findings in adults with elevated psychopathic traits, as discussed above. Further, given the findings for adults with elevated psychopathic traits, one would predict that CU traits may not be as strongly associated with cognitive empathy and related constructs, such as perspective-taking, emotion recognition, and ToM. However, the meta-analysis by Waller et al. (2020) reported similar associations between measures of CU traits and measures of affective ($\rho = -0.33$) and cognitive ($\rho = -0.43$) empathy.

One possible explanation for these findings could involve variations in how cognitive empathy is measured. Waller et al. (2020) reported that associations with cognitive empathy were stronger when rated by a parent or teacher than by self-report. Thus, children with elevated CU traits may be perceived by others as poorer at taking others' perspective and recognizing emotions, even if they do not view themselves as deficient. Since cognitive empathy is typically measured by self-report in research with adults, this method confound may explain the lack of association with psychopathic traits in this age group.

Although laboratory measures of cognitive empathy could potentially clarify which perceptions (i.e., informants versus self) are more accurate, such findings are not consistent and depend on the type of task used. For example, a number of studies have reported intact perspective-taking and ToM in youth with elevated CU traits (Jones et al. 2010, Lockwood et al. 2013, Schwenck et al. 2012), but findings from tasks assessing emotion recognition abilities are considerably less clear. For example, facial morphing paradigms have demonstrated impairments in emotional processing, particularly for fearful faces, in children with elevated CU traits (Blair et al. 2001, Fairchild et al. 2009). However, these morphing tasks are difficult to interpret because they assess both reactivity (i.e., speed of recognition) and recognition (i.e., accuracy of labeling emotion). As such, these tasks may conflate a person's reactivity to emotion, which increases attentional orienting and shortens response times, with the ability to accurately identify emotions (see Moul et al. 2018, Schupp et al. 2007). Studies that solely examined emotion recognition accuracy have reported mixed results. Some studies have reported an association between CU traits and worse recognition of sadness (Aspan et al. 2014, Woodworth & Waschbusch 2008) and fear (Aspan et al. 2014, Leist & Dadds 2009), while others have found a positive association between CU traits and fear recognition (Jones et al. 2009, Schwenck et al. 2014, Sharp et al. 2015, Woodworth & Waschbusch 2008). Additionally, tasks examining recognition of simple (e.g., sad, angry) versus complex (e.g., shame, guilt) emotions have reported CU-related deficits in recognizing complex emotions only (Sharp et al. 2015). In summary, while affective empathy seems to be consistently associated with CU traits, associations with cognitive empathy may vary according to the method of measurement.

It is also possible that associations between CU traits and empathy change across development. In Waller and colleagues' (2020) meta-analysis, the associations between CU traits and affective empathy were not moderated by child's age, whereas associations with cognitive empathy were stronger in younger children. These age differences were also found in a study by Dadds et al. (2009) that examined associations among CU traits and different types of parent-reported empathy in four age groups: 3–4, 5–6, 7–9, and 9–13 years. The results indicated that CU traits in boys were negatively associated with parent ratings of affective empathy across all age groups, whereas CU traits were negatively related to cognitive empathy only in the two younger age groups (Dadds et al. 2009). Further, studies that have found negative associations between CU traits and emotion recognition have largely been in young children (for a review, see Blair 2005; see also Sharp et al. 2015), while studies that have failed to find such associations have been conducted in older children and adolescents (Jones et al. 2009, Schwenck et al. 2014, Sharp et al. 2015, Woodworth & Waschbusch 2008).

Thus, it is possible that deficient emotional reactivity to others' distress (i.e., affective empathy) leads to reduced intrinsic motivation to develop perspective-taking and accurate emotion recognition skills, as suggested by developmental models. However, this does not necessarily mean that children with elevated CU traits, who lack this emotional arousal, are unable to acquire these cognitive empathy skills over time. Rather, it is possible that, as youth with elevated CU traits grow older, they experience extrinsic motivation to acquire emotion recognition skills, which enable them to use social cues to their advantage (Dadds et al. 2009). For example, the ability to understand others' emotions may allow youth with elevated CU traits to be more effective at interpersonal manipulation and social dominance, which have been shown to be important social goals for youth with elevated CU traits (Frick et al. 2014b). Thus, the association between CU traits and cognitive empathy may change across development.

Another potential explanation for these inconsistent associations between cognitive empathy and CU traits relates to the possible presence of two variants of CU traits that differ in their etiology. That is, similar to adults with psychopathy, youth with elevated CU traits can be separated into those who show low or normative levels of anxiety (i.e., the primary variant) and those who show high levels of anxiety (i.e., secondary variant) (Kimonis et al. 2012). Further, these variants differ on emotional reactivity: The primary variant is uniquely associated with lower levels of reactivity to others' distress, and the secondary variant is uniquely associated with higher rates of abuse and exposure to violence (Dadds et al. 2018; Kahn et al. 2013, 2017; Kimonis et al. 2012). Thus, the primary variant has been hypothesized to develop from a temperament characterized by low levels of emotional reactivity, which interferes with the development of empathy and guilt, whereas the secondary variant may be the result of an acquired deficit due to the experience of trauma (Kahn et al. 2013). That is, in this latter group, elevated CU traits are proposed to result from an acquired cognitive bias for perceived threats to self, as a function of past trauma, which can lead to problems recognizing others' emotions due to a tendency to overinterpret all emotions as threatening (Kahn et al. 2013).

As a result, it is possible that the different types of empathy are differentially related to the two variants of CU traits, and this could contribute to the conflicting findings from studies that have not considered differences between variants. In one of the few tests of this possibility, Kahn et al. (2017) reported that, in a sample of detained adolescents, CU traits were negatively associated with self-reported affective empathy regardless of anxiety level, whereas negative associations with self-reported cognitive empathy were found only at high levels of anxiety. In addition, CU traits were associated with better performance on a ToM task and with better recognition of fearful faces at low levels of anxiety (Kahn et al. 2017). While these findings are promising, two more recent studies did not provide strong support for these hypothesized differences between variants. Dadds

et al. (2018) used both presence of anxiety and maltreatment history to form variants of CU traits in youth between the ages of 3 and 16 and reported that youth with the primary variant performed worse on a behavioral task assessing emotion recognition. Kyranides et al. (2020) reported that, in a sample of older adolescents and young adults (mean age = 19.95, SD = 1.01), both primary and secondary CU variants performed poorly on an emotion recognition task, but the low-anxiety primary variant engaged in fewer fixations to facial stimuli expressing pain and fear. Thus, whereas both CU variants showed emotion recognition deficits, they differed in how they engaged with or attended to (i.e., visual gaze and fixation) faces depicting pain and fear (Kyranides et al. 2020).

In conclusion, empathy deficits are considered a core part of the construct of CU traits, and therefore they need to be considered in causal theories of children and adolescents with conduct disorders. Specifically, theories should consider that deficits in affective empathy seem to be consistently found in children with conduct disorders and elevated CU traits, whereas deficits in cognitive empathy are less consistently reported in this group. Future research needs to clarify the reasons for this inconsistent association with cognitive empathy, including whether it is due to differences in how it is measured (e.g., self- versus other-report, ToM versus more complex perspective-taking) and whether the association changes across development. Research should also test differences across variants of CU traits defined by elevated anxiety, although studies to date comparing the two CU variants on measures of empathy have reported inconsistent results.

Explaining the Association Between Callous-Unemotional Traits and Aggression

As noted above, developmental research on empathy has largely focused on the importance of empathy for motivating prosocial behavior. However, empathy has also been considered an important developmental process for inhibiting aggressive behavior. Specifically, being able to recognize pain and distress in others and being disturbed by such emotional reactions is thought to be critical for a child learning to inhibit behaviors that would cause those emotions in others (Blair & Blair 2009). Thus, empathy deficits could be critical for explaining why children and adolescents with conduct disorders and elevated CU traits are more likely to show a severe pattern of aggressive and violent behavior (Frick et al. 2014b).

While this theoretical link between empathy and aggression is widely cited, the empirical support for it has been relatively weak. For example, an early meta-analysis by Miller & Eisenberg (1988) reviewed 30 studies and reported an average correlation of only $r = -0.18$ between empathy and aggression across the life span. In a more recent meta-analysis of only studies using adult samples, Vachon et al. (2014) analyzed 106 effect sizes and reported an average correlation of $r = -0.11$. There are several possible explanations for this relatively modest association. For example, though empathy alone accounts for only modest variance in measures of aggression, it could be an important part of broader constructs related to prosociality, such as the personality dimension of agreeableness or within definitions of CU traits and psychopathy (Vachon et al. 2014). Alternatively, it could be that empathy is more highly related to developing aggression in younger samples (i.e., by motivating children to avoid behaviors that harm others) but that, later in development, the functional benefits that may result from aggression (e.g., obtaining something tangible by force, gaining dominance in social settings) become more important (Jolliffe & Farrington 2004).

However, we propose another interpretation of these findings that could be critical for understanding the developmental pathways to conduct disorders: that these modest correlations between empathy and aggression may have been due to a failure to consider different forms of aggression. Vachon et al. (2014) did consider possible differences in associations between empathy and several types of aggression in their meta-analysis and found consistent, modest correlations with empathy for measures of verbal aggression ($r = -0.20$), physical aggression ($r = -0.12$), and

sexual aggression ($r = -0.09$). However, they did not consider the distinction between reactive aggression, which is an impulsive response to perceived provocation, and proactive or instrumental aggression, which is a planned response to obtain some instrumental gain (Little et al. 2003, Poulin & Boivin 2000).

This distinction could be important for a number of reasons. First, reactive aggression and proactive aggression appear to have different emotional correlates, with reactive aggression more strongly associated with poorly regulated emotional responses to provocation (Muñoz et al. 2008). Second, reactive and proactive aggression are highly correlated; estimates across samples average $r = 0.70$ (Little et al. 2003, Poulin & Boivin 2000). However, this overlap appears to be asymmetrical: Many children show purely reactive aggression, a smaller number show both reactive and proactive aggression, and very few children show only proactive aggression (Marsee et al. 2014). Third, the emotional correlates to reactive aggression, particularly the dysregulated emotional reactivity to provocation, appear limited to those who show only reactive aggression (Muñoz et al. 2008, Hubbard et al. 2002). Thus, the emotional correlates to reactive aggression may differ depending on the co-occurrence of proactive aggression. Fourth, reactive aggressive behaviors tend to be displayed more commonly (i.e., by more people) and more frequently (Marsee et al. 2014). As a result, the variance in most aggression measures is likely to be largely due to variation in reactive aggressive behaviors and not proactive aggression.

These findings could explain why correlations between empathy and aggression have not been strong in past research while empathy deficits could still be important for explaining some of the significant impairments in children with conduct disorders and elevated CU traits. That is, in school-based samples (Crapanzano et al. 2010), high-risk samples (Frick et al. 2003a, Marsee et al. 2014), and juvenile justice samples (Kruh et al. 2005, Lawing et al. 2010, Marsee et al. 2014), CU traits are elevated, relative to nonaggressive children and adolescents, only in those high in both reactive and proactive aggression. Importantly, these children with elevated CU traits not only show both forms of aggression but also tend to show the highest rates of aggression overall (Frick et al. 2003a) as well as aggression that results in more serious harm to others (Kruh et al. 2005, Lawing et al. 2010). Conversely, children with conduct disorders without elevated CU traits, who do not show empathy deficits, tend to show elevated rates of reactive aggression only (Frick et al. 2003a, Kruh et al. 2005). Although not explicitly tested, it is thus possible that deficits in empathy are related only to proactive forms of aggression that are often displayed with reactive aggression, not to reactive aggression alone. Thus, overall measures of aggression, which are highly weighted toward reactive aggression, are likely to show only modest associations with empathy.

In conclusion, despite past research showing modest associations between empathy and broad measures of aggression, deficits in empathy could still be important for explaining why children with conduct disorders and elevated CU traits show a severe pattern of aggression and violence that results in significant harm to others. Future research needs to determine whether it is empathy deficits or other components to CU traits that play an important role in the aggressive behavior displayed by these children with conduct disorders. However, it is important that this research take into account associations between reactive and proactive aggression, such as by controlling for the other form of aggression when testing its association with empathy or by using person-centered approaches that take into account how the two forms of aggression are expressed in children and adolescents (i.e., a large number of children showing reactive aggression, a smaller number showing both forms of aggression, and very few children showing only proactive aggression). Finally, given that empathy deficits may play a role in the aggressive behavior of children with conduct disorders and elevated CU traits, it is possible that interventions targeting deficits in empathy could be important for reducing the aggressive behavior in these children (Frick 2012).

IMPLICATIONS FOR TREATMENT

Research on the treatment of conduct disorders suggests three overarching principles:

1. Early intervention is more effective than treatment later in development;
2. intervention needs to be comprehensive, targeting multiple risk factors that lead a child to act in a way that violates the rights of others and/or major age-appropriate norms; and
3. intervention needs to be tailored to the unique needs of children in the various developmental pathways to conduct disorders (Frick 2012).

We feel that integrating research on empathy development could be beneficial for advancing each of these components to treatment.

In terms of early intervention, most current research has focused on identifying conduct problems when they first emerge and intervening in their trajectory as early as possible (Frick 2012). However, this approach still necessitates that the conduct problems have already become impairing or at least evident to others. By viewing CU traits as partly determined by deficient empathy development, interventions may begin even earlier, when signs of problematic empathy development are emerging, with the goal of preventing conduct problems from developing at all. To make this feasible, research has identified a number of signs of atypical or deficient empathy development that have been empirically linked to later CU traits, including lower preference for faces (i.e., as evidenced by less facial tracking with direct gaze) at 5 weeks of age (Bedford et al. 2014), less observed eye contact during mother–child interactions at 6 months (Bedford et al. 2017), less physical and verbal affection displayed toward parents at 18 months (Waller et al. 2016), less social imitation at 2 years (Wagner et al. 2020), and fewer displays of social engagement at 3 years (Waller et al. 2019).

Research on empathy development could help to guide intervention for young children showing these early risk indicators. That is, intervention to prevent the development of conduct disorders can draw on research on the parenting practices that have been shown to predict higher levels of empathy in young children, including the following:

- increased parental warmth and sensitivity/responsivity to the child's emotional cues and needs (i.e., providing a model for emotional responsiveness through enhanced parent–child synchrony);
- having emotion socialization encouraged by parents (e.g., by encouraging open communication about emotions to improve emotion knowledge); and
- encouragement and reinforcement of child engagement in empathic responding and prosocial behavior (e.g., parents' positive reinforcement of child's prosocial behavior) (Spinrad & Gal 2018).

Though relatively few studies have empirically tested changes in children's empathy as an outcome of such parenting interventions, Havighurst and colleagues have integrated these parenting practices as part of their "Tuning into Kids" program with positive results. Specifically, Havighurst et al. (2010) provided a six-session intervention in a community sample of 216 parents of children aged 4–5 years and showed increases in parents' emotion socialization skills (e.g., parental warmth and responsiveness) that were associated with increases in children's emotion knowledge (i.e., emotion recognition and perspective-taking; Cohen $d = 1.00$) and reductions in informant-reported conduct problems (Cohen $d = 0.23$ and 0.57 for teacher report and parent report, respectively) at 6-month follow-up. While these results are promising, more data are needed on whether initiating such interventions prior to the onset of serious conduct problems can prevent the onset of later conduct disorders.

Once conduct disorders develop, research on empathy development, particularly on optimal parenting to promote empathy development, can be applied to enhance existing interventions. For example, a meta-analysis of 78 studies conducted by Piquero et al. (2016) reported that behavioral parenting interventions (BPIs) were highly effective ($d = 0.37$) in reducing behavior problems in children both at home and at school. Unfortunately, these interventions have proven less effective for children with elevated CU traits (Frick et al. 2014b, Wilkinson et al. 2016). Like treatment research in general, this research does not indicate that these interventions are ineffective for children with elevated CU traits. Instead, treatment outcome research consistently indicates that children with elevated CU traits often start BPI treatment with more severe behavior problems and, while showing reductions in conduct problems after treatment, still typically show behavior problems in the clinically significant range (for a review, see Wilkinson et al. 2016). Thus, a potential way to treat conduct disorders early in development is to make these interventions more effective by enhancing them on the basis of research on empathy development and on the characteristics of CU traits themselves.

One example of this approach was taken by Kimonis et al. (2019), who worked to enhance Parent–Child Interaction Therapy (PCIT) (Hembree-Kigin & McNeil 1995), a BPI that has proven to be highly efficacious for treating conduct disorders in young children (Thomas & Zimmer-Gembeck 2007, Thomas et al. 2017, Ward et al. 2016). Like other interventions, the traditional version of PCIT has been less effective for treating children with elevated CU traits (Kimonis et al. 2014). However, PCIT includes a number of characteristics that make it a compelling platform for adding enhancements to more effectively intervene with children high in CU traits. First, its emphasis on strengthening the parent–child relationship via positive parenting strategies is consistent with the importance of the parent–child relationship for empathy development and the inverse association between parental warmth and conduct problems in children with elevated CU traits. Second, research supports the feasibility and preliminary efficacy of PCIT adaptations that integrate targeted emotion skills training delivered by parents to improve emotional outcomes for other childhood disorders (e.g., pediatric depression) (Luby et al. 2012). Third, meta-analytic findings suggest that treatment effects were larger and attrition rates were lower for PCIT relative to other BPIs for treating conduct disorders (Thomas & Zimmer-Gembeck 2007).

To make PCIT more effective for children with elevated CU traits, Kimonis et al. (2019) developed PCIT-CU, a variant of PCIT with three primary modifications:

- coaching parents to engage in warm and emotionally responsive parenting;
- shifting emphasis from punishment to reward to achieve effective discipline by supplementing punishment (e.g., time-out) with intensive and individualized reward-based techniques (e.g., token economy); and
- delivering an adjunctive module called Coaching and Rewarding Emotional Skills (CARES) to target empathy and other emotional deficits (for the specific skills taught, see the sidebar titled Treatment for Young Children with Conduct Disorders).

Kimonis et al. (2019) reported on an open trial of their PCIT-CU intervention in 23 children (aged 3–6 years) with conduct disorders and elevated CU traits who were referred to a university-based mental health clinic. The authors reported a high retention rate (74%) and high levels of parent-reported satisfaction with the program. Further, the intervention produced decreases in child conduct problems and CU traits and increases in empathy, with substantial effect sizes ($d = 0.7$–2.0) that were maintained at 3-month follow-up (Kimonis et al. 2019).

In conclusion, research on empathy development could aid in the prevention of conduct problems and in the treatment of young children with conduct disorders and elevated CU traits, a group that has heretofore been less responsive than other children with conduct disorders to

TREATMENT FOR YOUNG CHILDREN WITH CONDUCT DISORDERS

Kimonis et al. (2019) modified Parent–Child Interaction Therapy (PCIT; Hembree-Kigin & McNeil 1995) in several ways to be more effective for children with elevated CU traits. One of the key modifications included in this intervention labeled PCIT-CU was a 6-session adjunctive module called Coaching and Rewarding Emotional Skills (CARES) to enhance empathy (Fleming & Kimonis 2018). It specifically targeted the following skills:

- enhancing attention to critical facial cues (i.e., microexpressions) that signal distress in others to improve emotion recognition in the child;
- improving emotional understanding by linking emotional expressions in others to the situation in which they occur and identifying situations that trigger anger and frustration in the child;
- teaching and positively reinforcing prosocial and empathic behavior in the child, with parental modeling, role-play, and social stories; and
- increasing frustration tolerance in the child through modeling, role-play, and reinforcing use of learned cognitive-behavioral strategies to decrease the incidence of aggressive behavior.

traditional mental health interventions. Specifically, such research can provide markers for early problems in empathy development that can be targeted for intervention before serious conduct problems emerge. Further, research on the specific aspects of parenting that are related to empathy development can be used to guide these early preventive interventions. In addition, this research on factors that promote empathy development, combined with other research on the unique characteristics of children with elevated CU traits, can aid in modifying existing treatments for conduct disorders to make them more effective for this clinically important subgroup of children.

SUMMARY POINTS

1. There are multiple developmental pathways to conduct disorders, which differ not only in underlying etiological mechanisms but also in severity, chronicity, and response to treatment.

2. One marker for a distinct pathway with both etiological and clinical importance is the presence of elevated callous-unemotional (CU) traits, which has now been integrated into major diagnostic systems for conduct disorders.

3. A key component to CU traits is deficient empathy; thus, research on the typical development of empathy could help to advance research on how it may go awry in children with elevated CU traits, explain some of the major areas of impairment in children with elevated CU traits, and advance early interventions for this group of children who heretofore have not responded as well to traditional mental health treatments.

4. Empathy involves an affective component (e.g., emotional reactivity) that is present from birth and that motivates later acquisition of more complex cognitive empathy (e.g., emotion recognition, perspective-taking).

5. CU traits have been consistently related to deficits in affective empathy across ages and methods of assessment, but findings on cognitive empathy have been considerably less clear; these inconsistencies may be due to differing ways in which cognitive empathy is assessed and/or to changes in these deficits across development.

6. Empathy deficits may help to explain why persons with elevated CU traits show elevated levels of proactive and instrumental aggression that result in significant harm to others.

7. Research on empathy development and, in particular, research on parenting practices that can enhance empathy development (e.g., warm and responsive parenting) can be used to develop interventions that promote empathy development prior to the onset of conduct disorders and also can be used to enhance treatments for young children with conduct disorders and elevated CU traits.

FUTURE ISSUES

1. Clarify how pervasive the emotional deficits associated with CU traits are, which includes studying deficits in affective and cognitive empathy across development.

2. Clarify how temperament and parenting interact in the development of empathy to help guide interventions for children showing early signs of empathy deficits.

3. Clarify the role that empathy deficits play in the development of severe patterns of aggression, while controlling for the correlation between reactive and proactive forms of aggression.

4. Test whether interventions that focus on enhancing empathy development in young children prevent later conduct disorders.

5. Rigorously test, with randomized controlled trials, interventions for children with conduct disorders and elevated CU traits that are based on research on parenting practices that promote empathy development and other characteristics associated with CU traits to enhance the effectiveness of traditional treatments for conduct disorders.

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