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Pepperdine University
Graduate School of Education and Psychology

CONDUCT DISORDER: A CRITICAL ANALYSIS OF THE LITERATURE AND
IMPLICATIONS FOR ADULT MANIFESTATION

A clinical dissertation submitted in partial satisfaction
of the requirements for the degree of
Doctor of Psychology

by

Alyssa Saiz, M.A.

July, 2015

Judy Ho, Ph.D., ABPP – Dissertation Chairperson

This clinical dissertation, written by

Alyssa Saiz

under the guidance of a Faculty Committee and approved by its members, has been submitted to and accepted by the Graduate Faculty in partial fulfillment of the requirements for the degree of

DOCTOR OF PSYCHOLOGY

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VITA

EDUCATION

Pepperdine University, Graduate School of Education and Psychology, Los Angeles, CA Doctor of Psychology, PsyD (APA Accreditation)	May 2015
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San Diego State University, San Diego, CA Bachelor of Science in Psychology with Minor in Political Science	May 2008
Oxford University, New College, England International Politics Study Abroad	Summer 2007

PRE-DOCTORAL INTERNSHIP

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<ul style="list-style-type: none"> • Conduct individual and group psychotherapy with children and adults • Provide consultation and liaison services through the adult and pediatric hospital • <i>Clarity Child Guidance Center, Rotation 1</i> Six-month major rotation in outpatient and inpatient child and family psychological services • <i>Laurel Ridge Treatment Center, Rotation 2</i> Six-month major rotation in an inpatient residential treatment facility for children and adolescents 	Jul 2014-Dec 2014 Jan 2015-Jun 2015

FORMAL PRACTICA TRAINING

CHOC Children's Hospital Department of Pediatric Psychology Orange, CA <i>Neuropsychology Practicum Extern</i>	Aug 2013-Jun 2014
<ul style="list-style-type: none"> • Conducted neuropsychological evaluations referred from neurology, oncology, hematology, rheumatology, metabolics, and general pediatrics. • Participated in concussion clinic, including administration of neurocognitive assessments and consultation with a neurologist to determine readiness to resume premorbid functioning 	
Wiseburn School District Hawthorne, CA <i>Practicum Extern</i>	Aug 2013-Jun 2014
<ul style="list-style-type: none"> • Provided individual cognitive-behavioral therapy to children and adolescents in a elementary school setting 	
University of California, Irvine Medical Center Orange, CA <i>Practicum Extern</i>	Jun 2012-Aug 2013
<ul style="list-style-type: none"> • <i>Department of Psychiatry & Human Behavior; Rotation 1</i> Implemented a diagnostic protocol for projects examining genetic, structural, and biochemical brain abnormalities in mood disorders, substance abuse disorders, and psychotic disorders • Performed diagnostic and screening evaluations via structured clinical interviews and review of forensic medical reports, toxicology, medical records, and psychiatric treatment histories 	Jun 2012-Dec 2012

Division of Pediatric Neurology; Rotation 2

Jan 2013-Jul 2013

- Examined children, adolescents, and adults diagnosed with a range of neurodevelopmental disorders who are referred for evaluations due to high-risk behaviors, including violent and self-injurious activity; as well as evaluation of the effects of polypharmacy
- Conducted cognitive and neuropsychological evaluations with children and adolescents

Pepperdine University Community Counseling Clinic
Irvine, CA

Sept 2011-Jun 2014

Practicum Extern

- Conducted individual and couples psychotherapy with adult clients
- Worked in partnership with Boys Hope Girls Hope of California to assess an applicant's readiness for the program through a psychoeducational assessment battery

SUPERVISION EXPERIENCE

Pepperdine University, Graduate School of Education and Psychology
Irvine, CA

Aug 2013-Jun 2014

Peer Supervisor

Supervisor: Joan Rosenberg, Ph.D.

- Peer supervised first-year trainees with therapeutic techniques, counter-transference, legal and ethical issues through review of video-taped sessions and consultation

RESEARCH EXPERIENCE

Harbor-UCLA Medical Center
Los Angeles BioMedical Research Institute, CARES Study
Torrance, CA

Aug 2013-Jun 2014

Research Clinical Assessor

- Research assessor on a multi-site National Institute of Mental Health grant testing the effectiveness of Dialectical Behavior Therapy with adolescents with a history of suicide attempts and self-harming behaviors
- Administered a battery of clinical assessments with adolescents in order to determine appropriateness for inclusion in the research project as well as at each follow-up period

Pepperdine University Applied Research Center
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Apr 2010-Dec 2010

Research Assistant

- Prepared confidential clinic files for entry into the university research database
- Conducted data entry via SPSS and Excel in order to further research by doctoral students

POSTER PRESENTATIONS

Saiz, A. & Mucci, G. (2014, October). Neuropsychological profile of pediatric autoimmune neuropsychiatric disorder associated with streptococcus (PANDAS): A case study of an 8-year-old male. Poster presented at the National Conference in Clinical Child and Adolescent Psychology (NCCCAP), Lawrence, Kansas.

Rudd-Barnard, A., Steenari, M., Murray, J., Le, M., Becker, T., Mucci, G., Lee, J., Roubin, A., Smith, A., Saiz, A., Chou, A., Veenstra, A., Zupanc, M. (2013, October). Executive Dysfunction in Pediatric Frontal Lobe Versus Pediatric Temporal Lobe Epilepsy. Poster presented at National Academy of Neuropsychology (NAN) Conference, San Diego, California.

ABSTRACT

The purpose of the current study was to identify the most central risk factors associated with conduct disorder (CD), to delineate three possible developmental pathways of CD that may have predictive validity for adult manifestation of conduct problems, to identify prevention and intervention strategies, to make recommendations for future research directions, and discuss clinical implications of the developmental trajectories of CD. Extant literature was collected and thoroughly analyzed in order to identify risk factors and developmental trajectories of CD, as well as treatment recommendations. The three developmental pathways of CD include: adolescent-onset, childhood-onset with emotional and behavioral regulation problems, and childhood-onset with callous-unemotional traits. Risk factors, outcomes, and interventions of each of the three developmental pathways to CD are discussed. Limitations of the developmental pathways to CD are the inability to generalize these results to females with CD as most of the research analyzed contained samples that were entirely or largely male. Future directions of research include examining CD within the developmental pathway orientation, continuing to identify which risk factors are specific to pathways, and developing interventions that are tailored to pathway-specific symptoms.

Chapter I: Introduction

Conduct disorder is defined as a repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated (5th ed.; *DSM-5*; American Psychiatric Association [APA], 2013). Reported prevalence rates of the disorder vary from 2% to higher than 10% in the general population, with the overwhelming majority being male (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003; Maughan, Rowe, Messer, Goodman, & Meltzer, 2004). Findings from numerous studies also suggest that CD is among one of the most commonly treated childhood psychiatric conditions, especially among incarcerated minors (Robins, 1991; Shivram et al., 2009).

The prevalence of CD, and associated features, has been shown to be consistent across studies in incarcerated youths. One such study of 149 male juvenile offenders found that 81% met the criteria for Conduct Disorder (CD), 62% met the criteria for cluster B personality disorders, and 21% had psychopathic features (Kohler, Heinzen, Hinrichs, & Hunzemeier, 2009). The high prevalence of CD was also documented in a study of 261 incarcerated juvenile offenders that found very high prevalence rates for boys (92.6%) and for girls (86.4%; Pechorro et al., 2013). Finally, a study of 50 incarcerated youths found that 60% met the criteria for CD (Pliszka, Sherman, Barrow, & Irick, 2000). These numbers demonstrate the alarming representation of CD among youths within the juvenile justice system.

Furthermore, CD is also among the most serious in its implications throughout the life course compared to other childhood psychiatric conditions. Children with CD have been demonstrated to be at a high risk for early initiation of substance use (Zeitlin, 1999) and increased high school dropout rates (Breslau, Saito, Tancredi, Nock, & Gilman, 2012) compared to their non-CD peers. Moreover, consequences of CD are not isolated to childhood and

adolescence; the disorder can continue to significantly impact individuals into adulthood. For example, adults with a history of CD are more likely than their peers with no such history to be jailed, unemployed, divorced, and at a high risk for psychiatric disorders, a broad range of physical disorders, and premature mortality (Breslau et al., 2012). Other negative implications for adults with a history of CD include fewer years of education, lower income, lower levels of life satisfaction, and increased probability of incarceration (Olino, Seeley, & Lewinsohn, 2010).

In addition to the above negative outcomes, CD has been demonstrated to be a precursor to possible psychopathy in adulthood. According to Loeber, Burke, Lahey, Winters, & Zera (2000), “psychopathy includes one dimension of the personality traits egocentricity, callousness, and manipulateness. The second dimension is more similar to [antisocial personality disorder], encompassing impulsivity, irresponsibility, and antisocial behavior” (Hare, Hart, & Harpur, 1991). Burke, Loeber, and Lahey (2007) found that a history of CD and teacher-rated interpersonal callousness predicted stable and persistent interpersonal and affective traits of psychopathy (e.g., callousness, selfishness, and remorseless use of others), as well as impulsivity and antisocial behavior, for a significant number of youths. These results further indicated that the presence of CD as well as interpersonal callousness in childhood and teenage years was predictive of later antisocial behavior and psychopathic traits into young adulthood in the longitudinal component of the study.

Persons with CD, as well as those with psychopathy, have been documented to cause a significant economic burden on society. Economic implications related to CD have been estimated to cost the public over \$70,000 in a 7-year period for one child (Foster & Jones, 2005). Furthermore, the Pittsburg Youth Study Cohort demonstrated that a typical cohort of 500 boys with conduct problems in an urban area, beginning in childhood through late adolescence, was

estimated to cost from \$89 million to \$110 million with the majority resulting from victims' pain, suffering, and lost quality of life (Welsh et al., 2008). According to the study, violent juvenile crime accounted for the largest share of the aggregate cost, with the bulk of these costs associated with assault (Welsh et al., 2008). In addition to CD-related crime, costs associated with psychopathy-related crime are high. In 2009, it was noted that out of the \$2.3 trillion spent on crime, \$460 billion was attributed to psychopathy (Kiehl & Hoffman, 2011). This economic burden to the U.S. did not include the costs of psychopath's representation in psychiatric hospitals or indirect costs for victims.

The literature illustrates a close link between CD and psychopathy, namely that CD in childhood and adolescence may lead to psychopathic traits along with a myriad of negative outcomes in adulthood as mentioned. Therefore, the purpose of this critical analysis is to investigate the correlates of CD, paying special attention to developmental trajectories to CD, and identifying which specific factors are most likely to lead to the development of psychopathy and other adult problems. Psychologists will also need to focus research and treatment efforts on addressing these risk factors early in minors to prevent serious outcomes in adulthood. Although medications can be used to treat symptoms of conduct problems (such as aggression and impulsivity), the focus of review is on psychosocial interventions (Sarteschi, 2014).

Overview of Conduct Disorder

Conduct disorder (CD) is located within the category of disruptive, impulse-control, and conduct disorders of the *DSM-5* (5th ed.; *DSM-5*; American Psychiatric Association [APA], 2013). The criteria of CD include (a) aggression to people or animals, (b) destruction of property, (c) deceitfulness or theft, and (d) serious violations of the rules. The onset of the symptoms occurs between childhood and adolescence. Furthermore, the *DSM-5* has included a "limited

prosocial emotions” (p. 470) specifier to determine if the individual experiences the following: a lack of remorse or guilt, lack of empathy, lack of concern about performance, or exhibits shallow or deficient affect (APA, 2013), characteristics that are closely associated with psychopathy (Frick, 2012).

However, the broad range of factors correlated with CD and the relationships among these factors have resulted in challenges in expanding these findings into comprehensive models. Such models would be useful for understanding the etiology of serious conduct disordered behavior in children and adolescents (Frick, 2004a). The probability of youths developing CD increases as the number of risk factors increases (Murray & Farrington, 2010). The problem has been identifying those risk factors are correlated with CD and those that are merely markers for developing the risk factors for CD (Murray & Farrington, 2010).

It is noteworthy that there are significant amounts of evidence to support the association with CD and other psychiatric disorders during childhood and adolescence (Loeber et al., 2000). There is a strong correlation between CD and the following disorders: attention-deficit/hyperactivity disorder (ADHD; especially in males), depression, and substance use or abuse (Capaldi, 1992; Satterfield & Schell, 1997; Zoccolillo, 1996). Some research suggests that the presence of comorbid disorders with CD may result in higher degrees of impairment than in CD alone, however, assessment of the youths at high-risk for developing comorbid disorders is still in its infancy. When assessing or treating youth with CD, it is important to also assess for the presence of other disorders that require treatment. Common comorbidities are not included in the scope of this critical analysis as the focus is primarily on CD.

Risk factors for the development of conduct disorder. The three most commonly cited risk factors for developing CD include aggression, impulsivity, and callous-unemotional traits

(Frick, 2012; Lacourse et al., 2010; Moffitt, 2003). Research suggests that early physical aggression and impulsiveness are specifically related to later violent behaviors, which can forecast a pattern of persistent antisocial and violent behavior into adolescence and adulthood (Dodge & Pettit, 2003; Nagin & Tremblay, 1999; Porter & Woodworth, 2006; Tremblay, 2000). In addition to aggression, impulsiveness—the ability to regulate emotion and behavior (Frick & Viding, 2009)—is one of the most fundamental predictors of antisocial behavior (Murray & Farrington, 2010).

Callous-unemotional traits, or the inability to feel empathy and guilt, are also correlated with the development of CD (Frick, 2012). There is substantial evidence that the presence of these traits identifies a subset of individuals with serious conduct problems that are more likely to continue into adulthood (Frick & White, 2008). Youths with elevated CU traits exhibit more severe conduct problems that tend to be less responsive to treatment than their CD counterparts with low CU traits. For example, Rowe et al. (2010) found that children with CD and high levels of CU traits had higher levels of conduct problems than those children with CD and low levels of CU traits.

In addition to these three risk factors for CD, there are a multitude of other associated risk factors that are less central to the disorder and may relate more to specific pathways of the disorder. Examples of other risk factors include dispositional characteristics (e.g., temperamental or neurocognitive deficits) and contextual factors (e.g., prenatal factors, early environmental variables, or neighborhood variables; Burke, Loeber, & Birmaher, 2002). Some research has shown that oppositional defiant disorder (ODD), a childhood disruptive disorder, is a predictor for developing CD (Loeber et al., 2000). For example, one study demonstrated that the risk of onset of CD was four times higher for children with ODD than children without ODD (Cohen &

Flory, 1998). The relationship between ODD and CD is acknowledged and in parsimonious fashion was explored at length. However, for the purposes of this critical analysis the exploration of CD and individual risk factors, such as aggression, impulsivity, and CU traits, was primary. Some additional risk factors will be discussed as they relate to specific pathways of CD, such as with adolescent-onset pathway of CD.

The following sections examine the three identified risk factors (aggression, impulsivity, and CU traits) and potential developmental trajectories of CD in greater detail. Research indicates that these risk factors are associated with the development, maintenance, and increased severity of CD. Although these factors are not an exhaustive list of CD-related variables, they are the most-commonly identified in the literature as central to the development and maintenance of CD. In addition, the review will examine the implications of these factors for the continuation of maladaptive behaviors from youth to adulthood.

Aggression. Aggression, a key risk factor of CD, is broadly defined as a behavior intended to hurt others (Lee, Salekin, & Iselin, 2010). Historically, the terms *aggression* and *physical violence* have often been considered synonymous in that aggression is linked to the physical harm of another (Ohan & Johnston, 2005). Even under the *DSM-5* criteria for “aggression to people or animals” (p. 470), all but one criterion describes physical violence (5th ed.; *DSM-5*; American Psychiatric Association [APA], 2013). However, there is an inherent heterogeneity in aggressive behavior as well as perspectives of the construct from different theories beyond the scope of the diagnostics of CD. Thus, a discussion of the traits, cognitions, and motivations of aggression is warranted to understand the complex construct of aggression and its relationship to CD.

Research has suggested that aggression is best understood on a continuum of behaviors resulting in normative and maladaptive outcomes (Bobadilla, Wampler, & Taylor, 2012).

Persons with CD tend to exhibit aggression on the pathological and maladaptive end of this continuum. Aggressive behaviors can be exhibited in a variety of ways in CD, which is often a reflection of differing motivations for the behavior. Thus, there has been general movement away from focusing on aggression as a global construct and, instead, focusing more on the idiopathic nuances of aggression.

Specifically, there are unique factors that lead to the expression of physical aggression in CD. These factors include cognitions related to aggression, such as ruminations, grudges, and thoughts of revenge. Research has shown that rumination, i.e., one's fixated attention on the object of provocation, reduces self-control and increases aggression when an individual with CD is provoked (Denson, Pedersen, Friese, Hahm, & Roberts, 2011). Similarly, Waschbusch et al. (2002) demonstrated that children who exhibited higher levels of aggression in response to provocation also held grudges against peers longer. Conversely, the effect of rumination was mediated by self-control capacities, which decreased the likelihood of aggressive behaviors (Denson et al., 2011). Thus, an important component of examining an individual's aggressive behaviors can be to increase understanding of the thought processes after a *trigger* event and to teach self-control techniques in order to ameliorate aggression.

Another cognitive factor related to aggression is the hostile attribution bias (Nasby, Hayden, & DePaulo, 1980), a tendency to attribute hostile intent to others' actions and to blame others for one's negative outcome rather than blaming the self. Social information processing theory further built upon the term by proposing that the tendency to make these hostile attributions will also lead to a predisposition toward aggressive behavior (Dodge, 1986).

Dodge (2006) proposed that aggressive behavior can occur as a function of making a hostile attribution that the self has been threatened regardless of the intent of the other person. In fact, Dodge, Price, Bachorowski, and Newman (1990) studied 128 male juvenile offenders with CD in a maximum-security prison and found that these juveniles were likely to perceive stimuli as hostile while watching video recordings of a variety of scripted peer interactions. Thus, it was projected that youths with CD display hostile attribution bias more frequently than youths without conduct problems due to the high prevalence of aggressive behaviors seen in CD. Dodge (2006) developed a model that described the relationship between hostile attribution biases and conduct problems. The model suggested that hostile attribution biases are universal in early life (Dodge, 2006). A benign attribution style, e.g., that some provocations are not hostile, is later learned through life experiences, such as socialization. Therefore, Dodge (2006) proposed that interventions aimed at changing an individual's attribution biases (e.g., through cognitive reframing) could alter further antisocial development.

Hostile attribution bias is also linked to another important component of aggression in CD: the motivation behind aggressive acts. Aggression can be reactive or proactive in terms of motivation to engage in aggressive behaviors, both emanating from different cognitive and emotional processes as well as severity. Reactive aggression, dubbed *hot* aggression, is associated with an impulsive response to a perceived or actual threat while proactive aggression is calculated aggression with anticipation of self-serving outcomes (Bobadilla et al., 2012; Dodge & Coie, 1987; Waschbusch et al., 2002). Reactive aggression's genesis has been strongly linked to increased hostile attribution biases, negative psychosocial outcomes, and lower levels of verbal ability (Arsenio, Adams, & Gold, 2009).

Proactive aggression has been linked to an individual's ability to consciously delay aggressive behaviors because of specific circumstances, such as for personal gain in youth with CD (Porter & Woodworth, 2006). Hence, this relates to the *cool and calculated* demeanor that dominates this form of aggression demonstrated in more severe cases of CD (Moffitt, 2003). In proactive aggression, an individual's motivation is not based on perceived threats but perceived gains from an aggressive act (Bobadilla et al., 2012; Porter & Woodworth, 2006). Arsenio et al.'s (2009) findings further suggest that proactive aggression may be characterized by disruptions in certain morally relevant values, e.g., willingness to use aggression to get what they want despite victims' cost, rather than by any *social cognitive deficits*, which is more linked to reactive aggression. The distinction between proactive and reactive aggression helps to delineate the more severe cases of CD, such as youth who engage in aggressive acts for reward or gain.

Comparisons between proactive and reactive aggression have shown that proactive aggression increases the risk for later maladjustment and foreshadows a pattern of long-term antisocial behavior as seen in CD (Porter & Woodworth, 2006; Woo & Keatinge, 2008). Additionally, proactive aggression has been associated with decreased sensitivity to punishment, low anxiety, and negative social adjustment, which are related to a severe expression of CD (Bobadilla et al., 2012; Dodge & Coie, 1987; Poulin & Boivin, 2000).

Examining the construct of aggression as it relates to CD has provided a detailed picture of the differences within the presentation of aggressive behaviors. This examination is important, as physical aggression is a main criterion in CD. However, aggression is more than simply a behavior. It is a combination of cognitive and emotional factors that lead to the expression of physical aggression. Within the context of CD, understanding the specific cognitive and

emotional processes can help to predict the risk for and severity of physical aggression for youth with CD.

Impulsivity. Another core risk factor for developing CD is impulsivity, which is defined as the lack of premeditation – the tendency to think and plan prior to action (Frick & Viding, 2009; Murray & Farrington, 2010; Whiteside & Lynam, 2001). Developing proper impulse control is a normative developmental milestone for children and adolescents. However, the lack of adequate impulse control or tendencies towards impulsive behaviors may lead to social deficits, behavioral concerns, and involvement in crime (Mathias, Marsh-Richard, & Dougherty, 2008). A meta-analysis found that impulsivity is a key factor that differentiates children who are likely to have lifelong versus short-term conduct problems (Waschbusch, 2002).

The presence of high rates of impulsivity has also been shown to relate to the prevalence of aggression and criminality in CD. DeWall, Deckman, Gailliot, and Bushman (2011) suggested that individuals who have low capacities for self-control, otherwise labeled impulsivity, have a significant likelihood for demonstrating an aggressive response to provocation. Meta-analyses have further demonstrated that high levels of impulsivity can lead to antisocial behavioral problems (Morgan & Lilienfeld, 2000). In fact, poor impulse control has been cited as one of the most reliable predictors for criminal behavior (Gottfredson & Hirschi, 1990). High scores of impulsivity have also been found in adults with psychopathic traits and criminal histories (Daderman, 1999). Thus, these results taken together further indicate the importance of impulsivity in the development and maintenance of behaviors of aggression and criminality that are associated with CD.

In children with CD, there is consistent evidence to suggest that youths with CD have a similar cognitive profile as youths who exhibit impulsivity without conduct problems. This

suggests that there is a high correlation for youths with CD to have significantly elevated levels of impulsivity. Behavioral and neuropsychological evidence has shown that children with CD show problems with impulsivity and are impaired in motor tasks of inhibitory control (Herba, Tranah, Rubia, & Yule, 2006). Specifically, children with conduct problems, compared to controls, showed reduced likelihood of inhibiting a response and made more premature responses, both indicative of an impulsive response style. Furthermore, adolescents with conduct problems demonstrated deficits in both inhibitory and executive processes on the motor response task, which were not due to comorbidity with attentional problems.

Studies focusing on CD further highlight the strong association of impulsivity seen in these youths. Youths with CD have consistently scored higher than youths without CD on self-report measures of impulsivity, supporting the correlation with impulsivity and CD (Castellanos-Ryan & Conrad, 2011; Pihet, Suter, Halfon, & Stephan, 2012). Impulsivity has also been found to contribute to the risk of criminal involvement over and above the risk associated with early conduct problems alone (Babinski, Hartsough, & Lambert, 1999).

Callous-unemotional traits. Callous-unemotional (CU) traits are another significant risk factor implicated in the development of CD (Frick & Viding, 2009). CU traits are defined as a lack of guilt or remorse, a lack of concern about the feelings of others (i.e., empathy), a lack of concern about performance in important activities, shallow or deficient affect, and less sensitivity to punishment than other youths without CU traits (Frick, 2012; Moran et al., 2009). Lack of guilt and concern for the feelings of others has been linked to deficits in understanding or recognizing fear and distress in others as well as general deficits in empathy and emotionality (Moran et al., 2009). However, there is evidence to support that individuals with CU traits are able to elicit emotions in circumstances that require superficial show, such as personal gain

(Frick, 2012). Personal gain also plays a role in decreased sensitivity to punishment in individuals with CU traits due to an increased focus on the positive aspects of aggression, such as gains, versus the repercussions (Moran et al., 2009).

CU traits are not exhibited in all youths with CD; however, their presence delineates a group of youths with more severe conduct problems. Research suggests that CU traits reflect at least one component of child psychopathy and identify a group of children who are at risk for more severe and persistent antisocial behaviors (Burke et al., 2007). Similarly, a meta-analysis on CU traits suggests that the presence of these traits predicts a more severe course of CD and high rates of delinquent behaviors and aggression as seen in CD (Frick, Kimonis, Dandreaux, & Farrell, 2003). Kolko and Pardini (2010) found that children who met the *DSM-5* criteria threshold for CU traits (i.e., prosocial specifier) were more likely to be diagnosed with CD than oppositional defiant disorder, specifically with the CU subtype of CD representing 59.5% of all childhood-onset cases.

CU traits have also been linked to adult psychopathy and adult manifestations of conduct problems as well as precipitating CD. Furthermore, psychopathic personality features are thought to be an antecedent to conduct problems and antisocial behavior (Cooke, Michie, Hart, & Clark, 2004). These findings have prompted interest in whether conduct problems in youth might be explained by a similar psychopathic correlate as with adults. In their longitudinal study of 754 children, McMahon, Witkiewitz, and Kotler (2010) found that higher levels of CU traits were predictive of higher levels of self-reported juvenile delinquency, more arrests, and a high likelihood of a diagnosis of antisocial personality disorder. In the same study, a childhood diagnosis of CD with CU traits had the highest positive predictive value of later antisocial outcomes or antisocial personality disorder with a very low false positive rate of 0.01.

Developmental Pathways

Profiles of children and adolescents with CD are diverse in terms of the potential risk factors, age of onset, and life course outcomes. Because of the array of possible characteristics, there is neither a simple formula for the development of CD nor one overarching factor that can be emphasized in its development (Frick & Viding, 2009; Moffitt, 2003). This dilemma has led to the theoretical view that CD is a heterogeneous outcome with unique sets of interacting risk factors leading down different pathways to the disorder (Frick, 2012). Thus, three significant developmental pathways have been formulated in order to recognize the presence of multiple pathways through which youths can develop CD (Frick, 2012). These pathways are useful for examining CD due to their consistency with the theoretical view of heterogeneity in CD, which allows for comparisons of pathways within the diagnosis on variables of interest, such as, affective empathy, practical importance, or risk for violence (Frick, 2012).

The proposed developmental pathways have also been useful in predicting different outcomes associated with CD. According to Frick (2012), individuals with adolescent-onset of CD are less likely to show antisocial behavior into adulthood when compared with youths with childhood-onset CD. Frick (2012) further delineates the childhood-onset into two categories, childhood-onset with emotional and behavior regulation problems and childhood-onset with CU traits. While the proportion of youths in each pathway is not specifically noted, it is known that the childhood-onset with CU traits pathway of CD is less common than the other two pathways of CD. The following sections examine the risk factors and outcomes involved with each pathway.

Adolescent-onset. Adolescent-onset CD is demonstrated by those youths whose onset of CD symptoms overlaps with the onset of adolescence, since these youths do not demonstrate

significant behavioral problems in childhood (Frick, 2012; Frick & Viding, 2009; Moffitt, 2003; Moffitt, 2006). Due to the nature of this developmental trajectory with its appearance in adolescence, it has been hypothesized that this pathway is an amplification of nonpathological adolescent rebellion against authority. Research has demonstrated that, when compared to other youths with CD, these adolescents display elevated levels of rebelliousness, as demonstrated by being more rejecting of conventional values and status hierarchies (Dandreaux & Frick, 2009). Specifically, boys with adolescent-onset CD showed significantly lower scores than those with childhood-onset CD on a measure of traditionalism, such as an individual's tendency to endorse conventional attitudes towards authority and traditional institutions. Furthermore, the adolescent-onset pathway to CD is proposed to be more likely a result of an increased environmental, rather than genetic risk, such as deviant peer groups, since CD becomes apparent later in development (Moffitt, 2003).

Youths in the adolescent-onset CD group tend to demonstrate behavior problems that are limited to adolescence and display fewer risk factors than their childhood-onset peers (Frick & Viding, 2009). In general, adolescents in this subgroup tend to be less aggressive and violent than those in the other two developmental pathways to CD (Dandreaux & Frick, 2009; Frick, 2012; Moffitt, 2003). They are also less likely to show criminal behavior beyond adolescence when compared to their peers with CD. A literature review by Frick and Viding (2009) of this subtype of youths determined that, overall, the adolescent-onset CD type is less likely than the childhood-onset CD types to show neuropsychological deficits, show cognitive deficits, have temperamental or dispositional factors, and is less likely to have family instability or conflict.

Since the adolescent-onset pathway of CD appears to be due to the amplification of processes specific to adolescence with fewer risk factors, the adolescent-onset pathway has a low

predictive value of continuing into adulthood as discussed in the research. However, this group may show impairments in adulthood related to consequences of behavior in adolescence (e.g., dropping out of school or criminal record; Frick & Viding, 2009; Moffitt, 2003).

Childhood-onset with emotional and behavioral regulation problems. There are two subgroups within the childhood-onset type of CD. The first is CD with significant problems in emotional and behavioral regulation (Frick, 2012; Frick & Ellis, 1999). As the name of this pathway implies, the etiology of this trajectory appears to lie in deficits in cognitive or emotional regulation of behavior, which relate to possible deficits in executive function control (Frick & Viding, 2009), including an inability to anticipate negative consequences of behavior, inability to delay gratification, and high levels of impulsivity (Moffitt, 2003).

These children tend to be less aggressive than those in the other pathways of CD (Frick & Viding, 2009). However, when aggressive behavior is present, it is more likely to be reactive, versus proactive, in nature. Thus, children in this pathway are highly reactive to emotional stimuli, provocation by peers, and demonstrate heightened autonomic reactivity (Frick, 2012).

Youths in this subgroup of CD are also likely to present with deficits in verbal intelligence and demonstrate the hostile attribution bias (Frick, 2012). Both the cognitive deficits (e.g., hostile attribution bias) and emotional deficits (e.g., high reactivity) in conjunction with possible executive control problems appear to make these children more apt to develop problems in regulating behavior due to their inability to regulate their emotional and cognitive responses. These apparent deficits in emotional regulation may lead to increased impulsive and reactive antisocial acts that are not easily controlled by the child.

Youths with CD in this subgroup have been found to come from families with elevated rates of inconsistent parenting more than the other childhood onset pathway, as well as have

inadequate socializing experiences (Frick, 2012; Wootton, Frick, Shelton, & Silverthorn, 1997).

It has been conjectured that these early experiences or lack thereof may relate to the development of problems in executive control.

When compared with the other childhood-onset pathway of CD, antisocial behavior associated with this developmental trajectory of CD does not appear to be explained by insufficiencies in conscience development since these youths do not appear to display deficits in empathy and guilt (Frick, 2012). In addition, one of the most significant differences between the two childhood-onset pathways of CD, per the literature, is that these youths have been shown to exhibit anxiety and appear to be distressed by the effects of their behavior on others. Therefore, it is conjectured that a sense of morality is present but counteracted by the high levels of impulsivity and lack of emotional regulation within this pathway of CD.

The research points to the low predictive validity of this pathway for significant conduct problems into adulthood due to the presence of morality, guilt, and potential anxiety in the child. However, the problems with emotional regulation could result in difficulty controlling behaviors into adulthood.

Childhood-onset with callous-unemotional traits. The final proposed subgroup is considered the most severe of those with CD as well as the smallest group of youths with CD (Frick, 2012; Frick, Cornell, Barry, Bodin, & Dane, 2003a; Frick & Viding, 2009; Moffitt, 2003). As in the earlier discussion of CU traits, the childhood-onset CD with callous-unemotional traits (CU) suggests a more severe, chronic, and aggressive pattern of behavior, especially when compared to both the adolescent-onset and childhood-onset without CU traits pathways. Additionally, this behavioral pattern is more likely to persevere into adolescence and adulthood than it is in youths from other subgroups of CD (Frick & Viding, 2009).

Comparisons between the pathways further elucidate the severity of behaviors and course of CD within this pathway. Compared to the childhood-onset CD with emotional and behavioral dysregulation, childhood-onset CD with CU traits is characterized by aggression that is both proactive and reactive in nature and does not exhibit a significant presence of the hostile attribution bias (Frick et al., 2003a; Frick & Viding, 2009). Research comparing this trajectory with the adolescent-onset subgroup of CD has found that boys with CU traits show significantly more self-reported delinquency than their peers with adolescent-onset CD, especially in higher self-reported, violent delinquency (Dandreaux & Frick, 2009). Therefore, early identification of children with CU traits is extremely important as research demonstrates that they are at an increased risk for engaging in violent, more serious aggressive acts.

Overall, deficits in youths with childhood-onset CD with CU traits have been the extensive focus of research and a large focus of attention on youths with severe conduct problems. More specifically, deficits have been found in these children's autonomic activity, reactivity to signs of fear and distress in others, and understanding of negative emotional stimuli (Frick & White, 2008). A study on children with CU traits found that they displayed difficulties in emotional reactivity, i.e., response to emotional stimuli, and emotional understanding, while older children and adolescents with CU traits only displayed deficits in emotional reactivity (Dadds et al., 2009). This finding demonstrates that these youths may learn to recognize and understand emotions in others over development, which suggests possible malleability in CU traits.

It has been suggested that there may be a genetic link due to the age of CD onset and pervasiveness of the CU traits in children within this developmental pathway to CD (Frick & White, 2008). The temperament differences in this subgroup of CD, such as fearlessness and

insensitivity to punishment, may interfere with the adaptive development of the conscience, which further perpetuates the heightened risk for developing a severe pattern of CD (Frick & Viding, 2009).

One of the most important distinguishing components of youths with CU traits is the relationship between these traits, adult psychopathy, and antisocial personality disorder (APD). Researchers are beginning to examine the presence of psychopathy in the formative years to increase understanding of adult antisocial behavior. Some of this research has shown that CU traits predict APD outcomes in adolescents (Loeber, Burke, & Lahey, 2002). Additionally, it has been demonstrated that the specifier for CU traits in the CD diagnostic criteria increases the positive prediction of serious antisocial outcomes with a very low false-positive rate of .01, which increases the reliability of the diagnostic criteria for CD (McMahon et al., 2010). In addition, higher levels of CU traits have been shown to predict higher levels of self-reported delinquency, more juvenile and adult arrests, a greater number of *DSM-5* APD diagnostic criteria endorsed, and a high likelihood of receiving an APD diagnosis (McMahon et al., 2010).

In summary, this pathway has been demonstrated to have a high predictive validity of continued antisocial behaviors and conduct problems into adulthood. Furthermore, the behaviors exhibited by youth in this pathway are also the most consistently severe across time.

Limitations to the developmental pathways. It is important to note that there are limitations to age of onset specifiers in spite of the comprehensiveness of the three developmental trajectories. The age of onset has been broadly studied within male populations; however, there is a lack of prognostic support for this specifier in female youths (Loeber et al., 2000). This may be due to the overwhelming majority of CD cases being male versus female, which limits the availability of data on females with CD compared to males. In addition to

gender concerns, the age of onset can prove problematic when CD is diagnosed retrospectively. Unreliable recall of age creates discrepancies and variations that cannot be accounted for by the developmental trajectories (Frick, Ray, Thornton, & Kahn, 2014).

Purpose of Critical Analysis

The overall aim of this critical analysis was to focus on CD by identifying the most salient risk factors of CD and outlining the developmental pathways that may have predictive validity for continued conduct problems into adulthood. Additionally, the goals are to identify future directions of research as well as explore clinical implications of the developmental pathways in order minimize the potential of CD continuing into adulthood. Effective intervention strategies that will help to reduce the potential of CD symptoms continuing into adulthood are needed; however, a challenge to this process is that researchers lack consensus on the construct of and interventions for CD, possibly because the majority of literature is focused on conduct problems in adults rather than in children (Frick, 2012).

Past research has also mainly focused on individual risk factors rather than a global or incorporated view of multifactors for developing CD. However, implications of more recent research have shown that it is very unlikely that the focus on any single risk factor will adequately account for the development of CD (Frick, 2004a). Research should not only focus on identifying which risk factors are associated with CD, but also those factors are correlated with different pathways. This will allow for a focus on the more specific information about developmental pathways for CD instead of compartmentalizing the different factors associated with CD.

Thus, this critical analysis aims to examine risk factors documented in the literature for the development and maintenance of CD, and then examine three developmental pathways that

will attempt to bridge the area between research gaps and theoretical models to better conceptualize CD (Frick & Viding, 2009). Within the three distinct pathways for developing CD, one in particular has been shown to be more closely associated with adult manifestation of CD than the other two. The other two pathways of CD are more likely to demonstrate a decrease in severity before adulthood, however, consequences of the disorder may continue into adulthood (e.g., criminal record). It will be helpful to target interventions tailored to prevent the outcomes associated with each pathway in order to facilitate symptom reduction and to decrease recidivism. Identifying specific risk factors associated with each pathway and then targeting treatment to address these risk factors will hopefully help to bolster effective treatment strategies to prevent CD in the future (Frick, 2012).

Chapter II: Review and Analysis Procedures

Methodology

The purpose of the current study was to identify the most relevant risk factors associated with CD, to delineate three possible developmental pathways that may have predictive validity for continued adult manifestations of conduct problems, and to make recommendations for future research directions and discuss the clinical implications of identifying these developmental trajectories. To do so, a critical review of the existing literature on risk factors for CD was conducted. This type of inquiry allowed for a comprehensive review of all relevant empirical and theoretical research studies that discuss variables contributing to the development of CD.

Databases and dates of publication. Conduct Disorder first appeared in the publication of the *DSM-III*, thus, literature was reviewed from 1980 – 2015 (3rd ed.; *DSM-III*; American Psychiatric Association [APA], 1980). Actual articles utilized for this review spanned from EBSCOhost Databases (1980 – 2015), Legal Information Institute (2000 – 2014), PsycARTICLES (1995 – 2015), PsychiatryOnline (1995 – 2015), PsycINFO (1995 – 2015), PubMed (1995 – 2015), and ScienceDirect (1990 – 2015). Searches were also conducted using Pepperdine University’s library catalog. Multiple scholarly textbooks regarding child development, conduct disorder, and forensic psychology were utilized.

Key search words. Multiple variables and combinations of the following key search words were used in database searches including the following terms: conduct disorder, conduct problem, risk factor, developmental trajectory, pathway, aggression, anger, hostile attribution, reactive, proactive, impulsivity, impulsive, callous-unemotional trait, callousness, psychopathy, children, adolescent, youth, adult, implication, life course, prevalence, age of onset, severity, crime, motivation, emotional regulation, behavioral regulation, cognition, emotion, behavior,

predictive, correlation, adulthood, intervention, therapy, treatment, assessment, family, parenting, peer, deviant, outcome, effectiveness, empirical, and etiology. All of the search terms and combinations of these words were entered into each of the aforementioned databases.

Inclusion/exclusion criteria. Quantitative studies, qualitative studies, existing data analyses studies, theoretical studies, meta-analyses, literature reviews, and brief bulletins from scholarly journals and publications were included in the current literature review. Studies were limited to those focusing on children, adolescents, and adults with CD, disruptive behavior disorders, conduct problems, antisocial behavior, and psychopathy. Additionally, studies regarding impulsivity, aggression, and callous-unemotional traits in the context of CD, disruptive behavior disorders, antisocial behavior, or psychopathy were included in the review. Theoretical scholarly articles examining risk factors of CD and theories of development of CD were included in the review in order to integrate findings across modes of research.

Exclusion criteria included studies and theoretical articles that did not include a specific focus on CD, disruptive behavior disorders, conduct problems, antisocial behavior, or psychopathy with children, adolescents, and adults.

Primary methods of reviewed research. A review of the literature revealed five primary methods by which researchers have examined conduct disorder that were used for this critical analysis. These methods include: longitudinal studies, cross-sectional studies, parental reports, teacher-reports, self-reports, meta-analyses, and theoretical scholarly articles.

Both longitudinal and cross-sectional studies were frequently reviewed for this analysis. Longitudinal studies of children and youth with CD were utilized in this review of the literature as the studies involved repeated observations of the same variable, e.g., CU traits, over long periods of time to study developmental trends. The longitudinal studies within this review

included cohort studies, which examined the same group at different intervals (e.g., incarcerated youth), as well as retrospective studies that look back at previously collected data, such as studies that utilized the Pittsburgh Youth Study's previously collected data. Cross-sectional studies describe risks, prevalence rates, trends, ratios, and patterns within the target population of the study.

Parental, teacher, and self-report studies were also utilized in this review. These studies used retrospective and current reports through questionnaires, semi-structured and structured interviews, and standardized instruments, such as the Behavioral Assessment for Children – Second Edition (BASC-2; Reynolds & Kamphaus, 2004).

Meta-analyses in this review focused on contrasting and combining results from different studies of conduct disorder and related factors in order to identify patterns, discrepancies, or other relationships that may be highlighted within different literature.

A fifth method, theoretical scholarly articles, were also used in which authors examine existing ideas or theories about CD in order to develop new theories, determine directions for future research, or for application to novel areas. One example of such work is Frick's (2012) discussion of the state of research with CD with particular attention to future directions of research determined by his examination.

Analysis of data and integration of findings. The initial focus of the review was to investigate the impact of CD on youth and the specific implications in regards to the disorder's trajectory into adulthood, which included a review of psychological and legal literature. This review determined that there were serious implications for youth with CD as well as adults with a history of CD in terms of quality and length of life. Thus, risk factors of CD were explored to investigate the mechanisms for development and maintenance of the disorder, which also

included comprehensive reviews of psychological literature, such as developmental psychology, abnormal psychology, child psychology, and forensic psychology.

This review resulted in considerable findings in terms of the large number of factors implicated in the development of CD; therefore, the review was narrowed in order to identify the risk factors most central to CD, as demonstrated by research findings and frequency. Three risk factors were identified with these criteria including aggression, impulsivity, and callous-unemotional traits. A more defined review of the literature for each of the three factors was conducted in order to further examine the different components of the variables within the context of CD.

After collecting and thoroughly analyzing the extant literature, the most prominent risk factors associated with childhood and adolescent CD development have been reviewed, and the three developmental trajectories associated with adult conduct problems have been presented. These discussions provide the foundation to further explore the unique patterns in age of onset, specific constellations of identified risk factors, and variability of the prognosis, and course of CD into adulthood associated with each trajectory will be presented. Next, the trajectory or trajectories that are most likely to be predictive of severe and persistent conduct problems in adulthood will be highlighted. Interventions and treatments that have demonstrated effectiveness or promise to treat youths in each trajectory will be discussed. Recommendations for early identification of youths who present with the risk factors associated with more severe and persistent courses of CD will be made. Finally, ideas for future research efforts aimed at ameliorating the long-standing impact of CD will be presented.

Chapter III: Adolescent-Onset Pathway of Conduct Disorder

Risk Factors

Of the three pathways implicated in the development of CD, the adolescent-onset pathway has been demonstrated to be the least likely to continue into adulthood (Frick, 2012). Youths in the adolescent-onset pathway of CD have conduct disorder behaviors that are more likely to be contained to adolescence and display fewer risk factors when compared to youths with one of the two childhood-onset CD pathways (Frick, 2012; Frick & Viding, 2009). Additionally, the adolescent-onset group does not generally show significant behavioral problems in childhood, but usually begins to exhibit significant antisocial and delinquent behaviors coinciding with the onset of adolescence (Moffitt, 2003).

Moreover, youths with adolescent-onset CD tend to exhibit or endorse less severe and less frequent occurrence of the risk factors linked to severe and chronic CD, such as aggression, impulsivity, and callous-unemotional traits (Frick, 2012; Frick & Viding, 2009). In general, conduct problems in youths in this pathway are much less likely to be associated with these temperamental and personality factors associated with severe childhood-onset CD, such as those aforementioned risk factors. Additionally, youths with adolescent-onset CD are more likely to demonstrate a lack of consistency across time and situation with their antisocial behaviors and conduct problems than youths with childhood-onset CD (Moffitt, 1993, 2003). For example, youths with adolescent-onset CD are more likely to engage in conduct disordered behaviors when the behavior seems profitable to them, but are also more likely to abandon conduct disordered behaviors when prosocial styles are more rewarding (Moffitt, 1993).

It is not that the risk factors for adolescent-onset CD are entirely different in type from those associated with the two child-onset pathways; rather, they are less associated with the

severity and continued presence of CD into adulthood (DiLalla & Gottesman, 1989; Silberg, Rutter, Tracy, Maes, & Eaves, 2007). For example, youths in the adolescent-onset pathway of CD tend to demonstrate less aggression, violence, impulsivity, CU traits, and difficulties with emotional regulation when compared to other youths in the two childhood-onset CD groups (Frick, 2012; Frick & Viding, 2009). They are also not as likely to continue to demonstrate conduct disordered behaviors into adulthood when compared to youths within the childhood-onset CD with CU traits group.

Since youths in the adolescent-onset pathway have conduct problems that appear to be limited to adolescence and show fewer dispositional risk factors than other youth with CD, the developmental mechanisms associated with this pathway of CD have been suggested to be an amplification of the normative process of adolescent rebellion (Frick, 2012; Moffitt, 2006). The presentation of these youths is better conceptualized as showing elevated levels of rebelliousness than characterological (i.e., CU traits), temperamental (i.e., impulsivity), or emotional pathology (i.e., emotional dysregulation) that tend to resolve as they grow older (Moffitt, 2003). For example, youths with adolescent-onset CD demonstrate higher levels of rebelliousness and higher rejection of social values when compared to youths without CD (Dandreaux & Frick, 2009; Moffitt, Caspi, Dickson, Silva, & Stanton, 1996).

It has also been theorized that those youths with adolescent-onset CD engage in antisocial behaviors to achieve autonomy and gain adult privileges in addition to being rebellious (McCabe, Hough, Wood, & Yeh, 2001). Thus, their behaviors can be predicted and understood by social, environmental factors, and individual factors that differ from the other two childhood-onset CD pathways. The significant factors associated with the adolescent-onset pathway include association with a deviant peer group, problematic parenting, limited supervision by authority

figures, rebelliousness, and low levels of traditionalism (such as, a rejection of traditional status hierarchies; Dandreaux & Frick, 2009; Moffitt, 2003).

Outcomes

Given that the behavior of youths with adolescent-onset CD is viewed as an exaggeration of a process specific to adolescence, and not due to an enduring vulnerability, their antisocial behavior is not likely to continue beyond adolescence. However, they may show impairments that persist into adulthood because of the consequences of their adolescent behavior, such as criminal behavior or dropping out of school (Frick & Viding, 2009; Moffitt & Caspi, 2001). Furthermore, adults with a history of adolescent-onset CD are more vulnerable to difficulties in adulthood than adults with subclinical levels of conduct problems in childhood, such as substance use disorders, greater utilization of mental health services (including treatment, medication, and hospitalization), and victimization of others (Odgers et al., 2007). More specifically, a study by Odgers et al. (2007) of mental health problems at 32 years of age found that 19.4% of those with adolescent-onset CD had alcohol dependence, 19.4% had received mental health services, 23.3% had engaged in partner abuse, and 23.2% had self-reported violence toward others.

Although a juvenile criminal record creates complications in adulthood for adults with a history of adolescent-onset CD, this group tends to fare better than adults with childhood-onset CD in terms of the frequency and gravity of criminal activity and convictions. For example, adults with a history of adolescent-onset CD are less likely than adults with a history of childhood-onset CD to have a history of court convictions for violent behavior (Odgers et al., 2007). Moffitt, Caspi, Harrington, and Milne (2002) also reported that, within a birth cohort of 539 males followed through age 26, only 14% of the men who had displayed significant conduct

problems limited to adolescence were likely to be convicted of a violent offense versus 38% of the men with childhood-onset CD (Frick & Viding, 2009).

Interventions

Understanding the risk factors and characteristics of the adolescent-onset CD pathway is useful in order to examine the effectiveness of interventions in addressing specific risk factors. As mentioned earlier, youths with adolescent-onset CD may still have impairments in adulthood arising from their problematic behavior even if they no longer present with CD. Thus, interventions focusing on the main risk factors of adolescent-onset CD—such as deviant peer groups, parenting problems, and rebelliousness—can reduce or potentially prevent these negative outcomes altogether. Interventions aimed at the underlying components of adolescent-onset CD will likely subsequently reduce overt behaviors associated with CD, such as aggression and criminal behavior.

An empirical review of treatments for CD noted that interventions that are multifaceted in their approach (such as involving parents, peers, and the adolescents who are the target of treatment) are most likely to decrease the incidence of aggressive and delinquent conduct problems over time and across settings (Barnow, Lucht, & Freyberger, 2005). Particularly, family-focused interventions have demonstrated long-term effects in reducing serious symptoms of CD and rates of recidivism, particularly those that intervene at several system levels, including individual, family, school, and community levels (Hinton, Sheperis, & Sims, 2003).

More specifically, evidence-based treatments have been formulated and studied for their effectiveness with adolescents. Of greatest significance are multisystemic therapy (MST) and multidimensional treatment foster care (MTFC; Eyberg, Nelson, & Boggs, 2008): treatment programs designed primarily for adolescents with severe conduct problems. Both of these

programs include both parent and adolescent training components, involve multiple agents of change, and incorporate a greater number of adjunctive treatments beyond psychosocial interventions. Both MST and MTFC have received considerable empirical support in terms of intervening with most or all of the risk factors for adolescent-onset CD. However, other interventions have also received support for reducing recidivism among adolescents with CD (i.e., Functional Family Therapy) or have limited but promising support to address some of the risk factors of adolescent-onset CD (i.e., Brief Strategic Family Therapy, Group Assertiveness Training, and Rational Emotive Mental Health Program; Eyberg et al., 2008; Henggeler & Sheidow, 2012).

Multisystemic therapy. MST, developed primarily by Scott Henggeler at the Medical University of Southern Carolina, has received substantial empirical support for consistently reducing recidivism rates for adolescents as well as decreasing the frequency and severity of symptoms of CD through identifying contributing factors within the client's family, peer groups, and school networks (Henggeler, Melton, & Smith, 1992; Henggeler & Sheidow, 2003; Hinton et al., 2003). The treatment strictly follows a home- and community-based service delivery at times that are convenient to the family to reduce any treatment barriers and aims to provide roughly 60 hours of treatment over 3-6 months. A particular strength of MST is that it identifies strengths and weaknesses of the adolescent, the family, and their interactions with peer and school systems, using each as a target or facilitator of change. MST treatment goals are targeted at the family, peer, and school levels, such as enhancing parent or caregivers' capacity to monitor the adolescent's behavior effectively, decreasing involvement with delinquent peers, and promoting school or vocational functioning. Treatment is individualized to each adolescent and

family as well as the particular problem being addressed through behavioral or cognitive therapy interventions.

As a result, MST targets the main risk factors associated with adolescent-onset CD. For example, one identified risk factor of adolescent-onset CD is high levels of teenage rebelliousness. MST addresses rebelliousness through helping parents and caregivers learn to provide positive reinforcement for responsible behavior and consequences for irresponsible behavior through increased family structure, operationalized desired behavior, and identifying any barriers to change; these interventions address not only address teen rebelliousness but also parenting problems associated with adolescent-onset CD (Henggeler & Sheidow, 2003). These factors are in turn utilized to further address rebelliousness in addition to association with deviant peer groups, both of which are identified risk factors of adolescent-onset CD. Decreasing rebelliousness and association with deviant peers can be achieved through providing parental support, positive reinforcement for involvement with non-deviant peers, and consequences for involvement with deviant peer groups.

The strengths of MST within this developmental pathway model are that youths with CD are viewed within multiple systems that influence behavior (such as family and friends) and interventions are made at all of these levels. Moreover, targets of MST are individualized per case but almost always include focusing on ineffective parenting practices, association with deviant peers, and antisocial behavior (Henggeler & Sheidow, 2012). In fact, it has been demonstrated that MST improves family relations and functioning, decreases caregiver and adolescent psychiatric symptoms, decreases recidivism, and decreases association with deviant peers (Borduin et al., 1995; Schaeffer & Borduin, 2005). A particular weakness of MST within the context of the developmental pathway for adolescent-onset CD is that no research has been

conducted to determine whether and how MST reduces rebelliousness as a construct. However, it has been shown effective in reducing rates of antisocial behavior, such as through decreased incarcerations and criminal charges (Henggeler & Sheidow, 2012). MST can also be highly intensive, in terms of staffing, time, management requirements, etc., yet the costs appear to be offset by significant benefits in treating conduct problems.

Multidimensional treatment foster care. In contrast to MST, multidimensional treatment foster care (MTFC) is a community-based program that was originally developed as an alternative to residential and group placements for adolescents with severe and chronic delinquent behaviors (Eyberg et al., 2008; Henggeler & Sheidow, 2012). In this treatment, adolescents are placed in a foster home for 6-9 months where they receive intensive support and treatment. Based on social learning theory, many of the specific intervention techniques used in MTFC are behavioral (e.g., behavioral management plans; token system implemented by foster parents) and cognitive behavioral (e.g., problem-solving skills training) in nature, similar to MST. Additionally, adolescents in MTFC receive weekly individual therapy sessions for skills training, anger management, and educational or vocational training. They also meet weekly or biweekly with behavior support specialists in order to address prosocial behaviors. During this time, the adolescent's primary caregivers are also receiving intensive parent management training to assist in reintegrating the adolescent into the home and community after completion of the program (Henggeler & Sheidow, 2003).

Overall, MTFC is a comprehensive and intensive program that has consistently demonstrated favorable outcome with serious juvenile offenders (Henggeler & Sheidow, 2012). The four key elements that are targeted in MTFC include providing the adolescent with a consistent reinforcing environment, providing structure and limits with consequences,

supervision of the adolescent's whereabouts, avoiding association with deviant peers, and fostering positive peer relationships (Chamberlain, 2003). In relation to the developmental pathway of adolescent-onset CD, a strength of MTFC is that it addresses rebelliousness through strategically devised behavioral management plans with clear reinforcement and consequence schedules implemented by foster parents. MTFC can also address the adolescent's association with peer groups through increased supervision and social skills training. Finally, MTFC addresses parenting problems through a parent management training model, which is a key component of the adolescent's ability to generalize treatment gains once reintegrated into the family home (Henggeler & Sheidow, 2003).

Although MTFC has received consistent empirical support for reducing recidivism, decreasing incarcerations, and decreasing out of home placements in juvenile delinquents, the therapy program is typically reserved for youths who cannot be maintained in their home and have not been receptive to intensive in-home and community services. Specific to risk factors for adolescent-onset CD, one study has shown that MTFC's effects on adolescent conduct problems was mediated by decreased association with deviant peers (Eddy & Chamberlain, 2000). However, research still needs to be conducted to determine whether MTFC improves family and peer relations and decreases risk of developing adolescent-onset CD specifically. There is minimal research to support MTFC's effects on parenting and participation in deviant peer groups, whereas MST has received consistent support for its ability to improve both family and peer relations in youth with CD (Henggeler & Sheidow, 2012).

Functional family therapy. Functional family therapy (FFT) has a strong relational focus and works to develop family members' inner strengths and self-efficacy to improve their problematic family environments and the youth's conduct problems (Alexander, Pugh, Parsons,

& Sexton, 2000; Henggeler & Sheidow, 2012). FFT maintains a relational focus while integrating behavioral and cognitive-behavioral interventions that address the dysfunctional family's relationships that are maintaining the adolescent's conduct problems. FFT addresses problematic parenting, a salient risk factor of adolescent-onset CD, by establishing new patterns of family interaction through evidence-based behavioral and cognitive approaches that work to reduce the adolescent's antisocial behavior (Sexton & Turner, 2011).

FFT has received a great deal of empirical support, demonstrated through adolescent participants' reduced violence and incarcerations (Henggeler & Sheidow, 2012; Sexton & Turner, 2011). One study that compared FFT and MST determined that there were few significant differences in the effectiveness of the two modalities (Baglivio, Jackowski, Greenwald, & Wolff, 2014). However, when compared to MST, there are limited interventions in FFT that deal directly with rebelliousness or deviant peer groups, both of which are central risk factors of adolescent-onset CD. Additional research could be conducted to identify any impact of FFT on rebelliousness and association with deviant peers to determine its efficacy in reducing these two risk factors within the developmental pathway of adolescent-onset CD.

Brief strategic family therapy. With considerably less support than FFT, brief strategic family therapy (BSFT) has received some support in the literature for reducing conduct symptoms in adolescents (Henggeler & Sheidow, 2012). BSFT was developed in the 1970s to address family dysfunction within Hispanic families through family therapy techniques to modify interactions within the family system that maintain the adolescent's conduct problems; it has since been utilized with African American families as well (Santisteban et al., 2003). A strength of this therapy is that it focuses on parenting practices, which has the potential to alleviate the impact of problematic parenting practices associated with adolescent-onset CD.

However, the therapy has limited support for addressing the adolescent's levels of rebelliousness or association with deviant peers as it is only focused on family interactions. It will be important for future studies to examine the effectiveness of BSFT on these two critical factors in adolescent-onset CD.

Group assertiveness training. Group assertiveness training was developed to address adolescents' aggressive behavior in the classroom, specifically among African American eighth and ninth graders (Eyberg et al., 2008). The group treatment is based on the verbal response model of assertiveness with adaptations for cultural differences with two different treatments that are either counselor- or peer-led (Huey & Rank, 1984). Both the counselor- and peer-led treatments have received empirical support for reducing aggressive behaviors of African American adolescents in the classroom, although only by one supportive study by Huey and Rank (1984). Research still needs to be done to determine the effectiveness of group assertiveness training across cultural groups and in different school settings. Further research should also be conducted to determine its effects, if any, on rebelliousness, parenting practices, and association with deviant peers in the context of the developmental pathway of adolescent-onset CD.

Rational-emotive mental health program. Based on Ellis's (1962) rational-emotive therapy model and adapted from rational-emotive education methods (Knaus, 1974), the rational-emotive mental health program (REMH) aims to decrease disruptive behavior in the classroom and cutting classes (Block, 1978; Eyberg et al., 2008). Specifically, REMH is a cognitive-behavioral school-based program for at-risk and disruptive 11th and 12th graders. The program emphasizes teaching cognitive restructuring, activity exercises, self-examination through self-questioning techniques, and homework in a group format. REMH has been found to be

efficacious in reducing disruptive behavior and class cutting in one study conducted by Block (1978). Similar to group assertiveness training, future research needs to be conducted to determine the effectiveness of REMH across settings, as well as on parenting practices and association with deviant peers in relation to adolescent-onset CD.

Summary

The interventions discussed in this chapter address all or a subset of risk factors for the adolescent-onset pathway of CD: rebelliousness, parenting problems, and association with deviant peer groups. Although no intervention is oriented to treat the risk factors from a developmental pathway perspective, each intervention discussed addresses adolescent-onset CD's central risk factors via unique targeted interventions. While there are treatments available for this developmental pathway of CD, there are not yet preventative treatments for this pathway of CD. Summaries of risk factors addressed by each intervention, as well as areas of future research, are provided subsequently.

MST addresses each of the central risk factors for this pathway: teenage rebelliousness, parenting problems, and association with deviant peer groups. In addition, MST has been found to improve family and peer relationships and decrease psychiatric symptoms (Henggeler & Sheidow, 2003, 2012). Within the context of the risk factors associated with adolescent-onset CD, no conclusive research has been conducted on how MST affects rebelliousness per se. However, it has been shown to be effective in reducing rates of antisocial behavior and recidivism.

MTFC also addresses the three central risk factors for adolescent-onset CD. Although research demonstrates that youths have decreased association with deviant peers after treatment, research still needs to assess whether MTFC improves family and peer relations (Chamberlain,

2003; Eddy & Chamberlain, 2000). MTFC has received less support for effects on parenting and deviant peer groups than MST, which has received consistent support for reducing both risk factors in youths with CD (Henggeler & Sheidow, 2012).

FFT has also received consistent empirical support for reducing violence and incarcerations in adolescents with CD (Henggeler & Sheidow, 2012; Sexton & Turner, 2011). However, when compared to MST and MTFC, FFT has limited interventions in FFT that directly address rebelliousness or deviant peer groups (Baglivio et al., 2014). Future research could examine the effects of FFT on these two risk factors of adolescent-onset CD.

Of the other interventions discussed thus far, BSFT has been empirically supported in its efforts to address parenting problems in adolescents with CD (Henggeler & Sheidow, 2012; Santisteban et al., 2003). However, BSFT has received limited support and has few interventions aimed at addressing rebelliousness or association with deviant peers, a central risk factor for adolescent-onset CD.

Group assertiveness training has empirical support for address aggressive behaviors in adolescents (Eyberg et al., 2008; Huey & Rank, 1984). Research needs to be conducted to determine the effectiveness of this intervention on reducing rebelliousness, improving parenting practices, and curbing association with deviant peers. Similarly, REMH has support for decreasing disruptive behaviors in the classroom, which can be linked with rebelliousness (Block, 1978). However, it lacks support for addressing parenting practices as well as association with deviant peers.

Of the interventions presented, MST is most closely tailored to address the risk factors of adolescent-onset CD. In addition, MST has received consistent support in its ability to address each of these areas effectively (Henggeler & Sheidow, 2003, 2012). MTFC comes in second, as

it has received less support for its effects on two of the main risk factors for adolescent-onset CD: rebelliousness and deviant peer groups (Chamberlain, 2003; Eddy & Chamberlain, 2000).

Overall, the review of the literature demonstrates that a wide variety of interventions have received empirical support for their ability to reduce some or all risk factors most associated with adolescent-onset CD.

Chapter IV: Childhood-Onset with Emotional and Behavioral Regulation Problems Pathway of Conduct Disorder

Risk Factors

Less than 50% of children who demonstrate high levels of conduct problems will continue to exhibit these behaviors into adolescence (Barker & Maughan, 2009). Of the two childhood-onset subtypes of CD, the childhood-onset with emotional and behavioral regulation problems pathway represents those children that are likely to desist from conduct disordered behaviors. In the literature, this group has also been called childhood-limited conduct disorder (Frick, 2012).

The children in this pathway of CD generally show high levels of conduct problems early in childhood, specifically before age 10. These children have been reported to demonstrate early risk factors, such as deficits in verbal intelligence, a hostile attribution bias, and coming from families with inconsistent parenting practices (Frick, 2012; Frick et al., 2003a; Frick et al., 2003b; Wootton et al., 1997). Additionally, children in this pathway of CD tend to have two of the three central risk factors of CD: high levels of impulsivity and aggression (Burke, Loeber, & Birmaher, 2002). The major defining difference between this childhood-onset pathway and the childhood-onset pathway with CU traits is the lack of CU traits, which actually contributes to these children's conduct problems declining due to feelings of anxiety, guilt, and development of a conscience. Thus, CU traits are not a significant risk factor for this pathway of CD.

In terms of impulsivity, youths in this pathway of CD demonstrate early signs of impulsive behavior that have been linked with antisocial behavior in childhood (White et al., 1994). White and colleagues (1994) further identified subtypes of impulsivity, finding that behavioral impulsivity was more strongly linked to conduct problems than cognitive impulsivity,

yet both were significantly and positively correlated with conduct problems. The authors defined behavioral impulsivity as associated with undercontrolled and disinhibited behavior; while cognitive impulsivity was associated with difficulty with mental control and the ability to shift mental sets. The relationship between impulsivity and conduct problems suggests that children in this pathway of CD with poor self-control may be more likely to become delinquent because they are unable to control or monitor their behavior. As a result, they are more likely to act on perceptions or emotional stimuli, such as acting on aggressive impulses when angry (Frick, 2012).

In terms of aggression, children in this pathway demonstrate significant aggressive behaviors that usually are the reason for referral when presenting to treatment. However, children with childhood-limited CD demonstrate less aggression overall when compared to other children with CD. When these children demonstrate aggression, it is likely limited to reactive forms of aggression, such as when a real or perceived threat or provocation is experienced (Frick, 2012; Frick et al., 2003a; Frick et al., 2003b). Additionally, children with childhood-limited CD have been shown to be highly reactive to emotional stimulation and provocation by peers. The presence of these characteristics suggests that the conduct disordered behavior of those children with childhood-onset CD without elevated CU traits are linked to deficits in the cognitive or emotional regulation of behavior (Frick, 2012; Frick & Viding, 2009).

Each of the risk factors within this developmental pathway creates an interrelated constellation of symptoms that results in not only the development of CD, but also its tendency to decline over the course of childhood development. Specifically, problems with executive control of behavior appear to relate to the inability to delay gratification or predict negative consequences of a behavior (Frick, 2012). Additionally, the cognitive and emotional deficits of

children in this pathway can result in problems with emotional control that can be interrelated with the tendency to act in impulsive and aggressive ways (Frick & Viding, 2009). Due to the lack of CU traits, the child may experience remorse afterward but still have deficits in controlling his/her behavior in the future. As children in this pathway of CD develop, their high levels of emotional distress and developed feelings of empathy or remorse are believed to become protective factors contributing to the decline in the presence of CD symptoms (Frick & Morris, 2004; Pardini, Lochman, & Frick, 2003).

Outcomes

Children with childhood-onset CD who exhibit emotional and behavioral regulation problems have been demonstrated to show an overall decline in their conduct problems over the course of their development. However, these children's difficulties with emotional and behavioral regulation problems can cause difficulties in childhood that may carry over into adolescence and beyond. Specifically, problems with emotional and behavioral regulation can lead to a number of problems in the school and home settings with peers, caregivers, and teachers (Frick, 2004). For example, children who demonstrate impulsive and unregulated displays of emotion are more likely to be rejected by peers, thereby increasing the children's risk for school truancy and association with deviant peers (Pardini et al., 2003).

Although children in this pathway may have significant difficulties during development, outcome studies of children with childhood-limited CD without CU traits have demonstrated that they perform fairly well as adults when compared to those with childhood-onset CD with CU traits (Odgers et al., 2007). Additionally, at age 32, those in this pathway were found to have higher prevalence on only two outcomes than those with subclinical CD: anxiety disorders (24.8%) and alcohol dependence (12%). More specifically, the study demonstrated that 17.9% of

adults who had childhood-limited CD had received mental health services, 12.7% had engaged in partner abuse, and 5.8% had self-reported violence toward others at 32 years of age (Odgers et al., 2007).

There are limitations in fully understanding the outcomes of youths with childhood-limited CD due to the nature of CD outcome studies. As found in this analysis of literature, the literature does not always differentiate childhood-onset CD between those with and without CU traits, which is a defining feature between the two childhood-onset pathways. In the future, research should continue to examine the different outcomes of children who do not continue to demonstrate CD beyond childhood.

Interventions

Similar to the adolescent-onset pathway to CD, it is important to match interventions to the risk factors and characteristics of the childhood-onset with emotional and behavioral regulation problems pathway of CD (Eyberg et al., 2008). As mentioned earlier, children with childhood-limited CD can have significant difficulties with peers, parents, and other adults due to their difficulties with emotional and behavioral control (Frick, 2012). Interventions focusing on the core risk factors of childhood-limited CD, such as impulsivity, aggression, and problematic parenting can help to reduce conduct-disordered behaviors as well as the disorder's negative impact on the child.

Also similar to the adolescent-onset pathway of CD, interventions that target multiple areas of the child's life are most likely to decrease the incidence of aggressive and conduct problems over time and across settings (Barnow et al., 2005). Due to the age of onset, parenting and family interventions are particularly important ways to address childhood conduct problems (Eyberg et al., 2008). Family-focused interventions, especially those that intervene at several

system levels, have been found to have long-term success in reducing serious symptoms of CD. A multitude of evidence-based treatments have been shown to be effective by integrating the parents as well as treating the central risk factors of childhood-limited CD.

Parent-child interaction therapy. Parent-child interaction therapy (PCIT), developed by Dr. Sheila Eyberg, is a parenting skills training program for children ages 2-7 years old with severe and persistent disruptive behavior disorders (Brinkmeyer & Eyberg, 2003; Eyberg et al., 2008). PCIT is based on a two-stage treatment model that integrates relationship enhancement with a behavioral approach (Bell & Eyberg, 2002). In PCIT, families meet for 12-16 1-hour sessions to learn basic interaction patterns. There are two distinct phases: child-directed interaction (CDI) and parent-directed interaction (PDI). In the CDI phase, families learn positive attention skills (i.e., emphasizing behavioral descriptions, labeling praise) and active ignoring skills that are applied during play situations in order to strengthen the parent-child relationship, increase positive parenting, and improve the child's social skills. In the PDI phase, the focus is on improving the parents' ability to set limits and provide consistent discipline, in addition to reducing the child's negative behaviors.

PCIT has been found to be effective in treating children with not only conduct problems, but also a wide variety of individual and family problems (Bell & Eyberg, 2002). Before beginning treatment, the clinician conducts a thorough assessment of the parent, family, and child in order to tailor treatment to address each family's unique problem areas. As a result, PCIT targets some of the main risk factors associated with childhood-limited CD. For example, two identified risk factors for this pathway of CD are a high level of aggression and problematic parenting. PCIT addresses aggression through the caregiver learning to selectively reinforce prosocial behavior and stopping the interaction for aggressive behavior (Pearl, 2009). Parents

also learn how to use effective disciplinary actions and respond to the child in appropriate ways in order to develop a more adaptive parent-child interaction. There is favorable research to support PCIT's effectiveness in treating aggression as well as problematic parenting techniques (Thomas & Zimmer-Gembeck, 2007). Although PCIT does not explicitly treat impulsivity (one central risk factor for childhood-limited CD), the improvement in parenting techniques reinforces positive behaviors and attempts to limit engagement in negative behaviors, which may inadvertently improve behavioral impulsivity (Brinkmeyer & Eyberg, 2003; Eyberg et al., 2008).

When compared to other treatments for conduct-disordered children, one strength of PCIT in treating childhood-limited CD is that it treats the parent's interaction with the child in vivo versus treating the parent alone or in manufactured settings (Pearl, 2009). Additionally, targets of PCIT are individualized but always include reducing conduct-disordered behaviors (i.e., aggression) and problematic parenting techniques. Long-term follow-up of families who have gone through PCIT demonstrate treatment gains in both the child's behavior and parenting techniques (Nixon, Sweeney, Erickso, & Touyz, 2004). A particular weakness of PCIT, as related to this developmental pathway of CD, is that it is contraindicated for severe impulsivity without a medication consultation. This may inadvertently not treat children with high risk for conduct disorder if youths with high levels of impulsivity are excluded. Additionally, PCIT requires the use of specialized therapy room set-ups, with one-way mirrors and ear microphones to enable therapist coaching, which is central to delivering this treatment modality (Brinkmeyer & Eyberg, 2003; Eyberg et al., 2008). This set up may limit its use in routine or community-based clinical practice.

Incredible years. Incredible Years (IY), developed by Dr. Carolyn Webster-Stratton, is a combination of three different treatment programs formulated to reduce children's aggression

and behavior problems, in addition to increasing social competence (Eyberg et al., 2008; Webster-Stratton & Reid, 2003). The three different programs within IY include one for parents, one for children, and one for teachers. The parent training is the original program in the series, consisting of 13 2-hour group parent sessions of parents with children aged 2-10 years old. The group format focuses on positive parent-child interactions, discipline techniques, and teaching problem solving skills to parents. The child training in IY consists of 22 group sessions for children ages 3-8 years old. The children learn to discuss feelings, generate effective responses to their feelings, and role-play adaptive scenarios by utilizing these skills. The parent and child formats are usually administered together; however, both have been found to be efficacious alone as well as together in reducing disruptive behaviors in children (Webster-Stratton, Reid, & Hammond, 2004).

In relation to the central risk factors of childhood-onset CD with emotional and behavior regulation problems, a strength of IY is that it addresses problematic parenting (Webster-Stratton & Reid, 2003). For example, parents learn increased discipline competence, nurturing and supportive parenting, and how to communicate effectively with their children through viewing vignettes and didactic trainings (Pearl, 2009). Children are taught prosocial behaviors through viewing vignettes, didactic lessons, role-plays, and learning alternative ways of responding to others and the environment. Although IY does not specifically address aggression or impulsivity, it does help children develop more adaptive problem solving skills, learn effective self-calming techniques, and foster an understanding of punishment and discipline for unsafe or behaviors (Eyberg et al., 2008)

IY has significant strengths in terms of reducing conduct problems across a variety of situations and relationships, such as with parents, teachers, and peers, compared to children who

receive no treatment (Pearl, 2009). IY has also received consistent support at long-term follow up for maintaining treatment effects, specifically improved behavioral outcomes and positive parental changes. Furthermore, IY has been shown to enhance the peer relationships of children with childhood-onset CD by combining parent training with child training or teacher training (Webster-Stratton & Reid, 2004). The positive effect on teacher and peer relationships can reduce the risk of negative outcomes associated with childhood-onset CD with emotional and behavioral regulation problems. A weakness of IY is that parents, children, and teachers are treated separately. Furthermore, minimal research has been conducted on IY's effectiveness specific to reducing aggression and impulsivity alone. Rather, most research on IY has examines its the effectiveness in reducing global conduct problems (Eyberg et al., 2008). Future research could help to determine the specific impact of IY on these two central risk factors of childhood-onset CD with emotional and behavioral regulation problems.

Parent management training-Oregon model: Developed at the University of Oregon in the 1960s, parent management training-Oregon model (PMTO) is a behavioral parent-training program in which parents are trained to alter their 3-12 year old children's behavior at home (Eyberg et al., 2008; Pearl, 2009). PMTO is based on social learning principles in order to foster an increase in positive, prosocial behaviors, as well as a decrease in deviant behaviors. A goal of PMTO is to break coercive and overlearned family interactions that may actually reinforce conduct-disordered behaviors (Hagen, Ogden, & Bjornebekk, 2011). Parents meet with a therapist for 10-17 1-hour sessions in order to learn basic behavior principles of family management and parenting, including setting limits, positive discipline, monitoring, problem solving, and positive involvement (Patterson, Reid, Jones, & Conger, 1975). Techniques, such as *planned ignoring*, are used to decrease undesirable behaviors, such as acting out and impulsivity

(depending on the child), by ignoring these behaviors when they are not dangerous. Effective punishment strategies, or limit setting, are also crucial in order to obtain clinically significant improvements in the areas of oppositional and aggressive behaviors. Although it is important to teach positive parenting techniques, research has demonstrated that inept disciplinary practices must be addressed so that they do not reinforce the child's aggression.

Overall, PMTO is one of the more well-investigated treatments for oppositional, aggressive, and antisocial behavior in children (Kazdin, 2011). There have been many variations of PMTO since its creation, which has resulted in a variety of research results on treatment efficacy of disruptive disorders (Eyberg et al., 2008). In terms of the main risk factors associated with childhood-limited CD, PMTO addresses aggression through teaching effective parenting skills to reduce the child's engagement in these behaviors, such as planned ignoring and punishment (Patterson et al., 1975). At its core, PMTO addresses problematic parenting practices by focusing the treatment on parenting, another core risk factor for childhood-limited CD. PMTO does not address impulsivity directly; however, PMTO's behavioral interventions, such as positive praise of desired behaviors and ignoring or punishing undesired behaviors, may have the affect of decreasing impulsivity. Additional research is required to assess PMTO's direct efficacy with reducing impulsivity.

PMTO has significant strengths in terms of its efficacy in reducing conduct problems in one-third to two-thirds of children (Pearl, 2009). Similarly to PCIT and IY, PMTO is targeted at the children's and family's specific problems and interactional style. It also directly addresses two of the three main risk factors of childhood-limited CD, aggression and problematic parenting, with the opportunity to address impulsivity as well. In terms of weakness, PMTO is solely parent focused and does not involve direct interventions with children. This is considered

a weakness in light of research supporting interventions that target multiple areas of the child's life; such intervention strategies are most likely to decrease the incidence of aggressive and conduct problems over time and across settings (Barnow et al., 2005).

Positive parenting program. Positive parenting program (Triple P) is a multilevel treatment with five levels of intensity in order to meet the child and family's needs based on the severity of their problems (Eyberg et al., 2008). Developed by Dr. Matthew Sanders and colleagues at the University of Queensland, Triple P is a variation of parent management training that is derived from social learning and developmental theories (Pearl, 2009). Triple P aims to enhance parenting skills and increases parents' self-efficacy to prevent severe behavioral and emotional problems in children from infancy up to 12 years old (Sanders, 1999). Level 1, or the Universal Level, consists of a prevention program that distributes parenting information to the public via the media. Level 2, or the Selected Triple P, includes one- or two-session consultations delivered through primary care settings for parents with specific concerns about their child's behavior in order to prevent the onset of significant behavioral problems. Level 3, or Primary Care Triple P, is a four-session intervention also delivered in a primary care setting to teach parenting skills to manage moderately difficult child behavioral problems. Level 4, or the Standard Triple P, is a targeted parenting intervention for at-risk children delivered in up to 12 sessions. This level consists of information on causes of behavioral problems, strategies for encouraging positive behavior, and strategies for managing misbehavior. These services can be provided at home, in a clinical setting, or a group format. There is also a self-directed format for parents, which involves a 10-session workbook. Level 5, or Enhanced Triple P, is a behavioral family intervention to target family stressors (such as parent depression) and child behavioral problems that have not changed following a lower level of intervention. At this level, families

can receive individualized therapy that can include home visits, teaching coping skills, and partner support with the parents (Sanders, 2012).

In total, Triple P is a family-based intervention that works directly with parents and families (Sanders, 1999). It is also aimed at providing the minimally sufficient level of support that parents require and can be tailored to individual risk factors (Pearl, 2009). As such, Triple P can be used to address aggression and impulsivity, two of the main risk factors of childhood-limited CD, through teaching parents assertive discipline strategies that are alternatives to coercive and ineffective discipline practices (Sanders, 2012). The discipline strategies include setting ground rules, giving appropriate instructions, presenting logical consequences, using quiet time or time out, and using planned ignoring. Furthermore, Triple P addresses problematic parenting, another main risk factor for childhood-limited CD, through its parent management training component.

As a treatment for childhood-limited CD, Triple P has a number of strengths and weaknesses. A major strength of Triple P is that it can be individualized to treat families whose children exhibit behavioral problems with comorbid family dysfunction as well as a variety of other issues affecting children and their families (such as obesity or divorce; Sanders, 2012). Research has demonstrated that Triple P has the potential to yield the following positive outcomes: lower levels of child conduct problems, lower levels of coercive parenting, and greater parenting competence (Pearl, 2009). The program also features less invasive levels of treatment aimed at preventing serious conduct problems, which may reduce the negative impact associated with CD throughout development. Finally, Triple P has the capacity to treat the three main risk factors of CD due to the program's flexibility with treating both the parents and family unit, including the children (Sanders, 1999). As such, the program can involve the child, which is

not the case in all parent management training. A weakness of Triple P is that research has not investigated its direct effects on decreasing childhood impulsivity. Research should continue to examine the effects of Triple P on the main risk factors of childhood-limited CD in order to determine if it can help ameliorate these specifically rather than simply childhood disruptive behaviors as a whole.

Helping the noncompliant child. Helping the noncompliant child (HNC) is treatment program for children ages 3-8 years old exhibiting noncompliant behavior developed as a variation of parent management training (Forehand & McMahon, 1981; Pearl, 2009). The parent and child are usually treated together for 10 weekly sessions that range from 60-90 minutes each (Eyberg et al., 2008). HNC aims to disrupt the coercive parent-child interaction pattern and establish positive, prosocial interactions through improved parenting skills that are taught via modeling, role-plays, and in vivo trainings. There are two phases of treatment in HNC. The first phase, or the differential attention phase, involves helping parents to use positive verbal and nonverbal attention to increase positive behaviors and use *active ignoring* to decrease inappropriate behaviors. The second phase instructs parents on the use of clear instructions and appropriate consequences, such as time-out or loss of privileges.

Overall, HNC addresses the three main risk factors of childhood-limited CD to varying degrees. HNC addresses aggression and impulsivity through the use of positive attention when the child is not engaging in either of these behaviors as well as negative attention when the child is engaging in these behaviors. HNC also specifically addresses problematic parenting styles, as it is a parent management training program. The developers of HNC have demonstrated that children who have gone through HNC demonstrate improvements in compliance and decreases in aggression, tantrums, destructiveness, and inappropriate verbal behavior (Eyberg et al., 2008;

McMahon & Forehand, 2003). Additionally, research has shown that the parenting skills learned in HNC can be generalized to parent-child interactions with children besides the identified patient, which can further decrease the risk of other children developing conduct problems (Pearl, 2009).

Similar to the other parent management training programs, HNC has significant strengths and weaknesses as an intervention for childhood-limited CD. HNC can be individualized to treat each child and his/her family's unique presenting concerns, which is a strength of the program. Another strength of HNC is that it has been shown to reduce behavioral problems in both the clinic and home (McMahon & Forehand, 2003; Pearl, 2009). However, HNC has received limited empirical support in terms of its ability to decrease these behaviors in the school setting: an environment where children with childhood-limited CD have significant difficulties with teachers and peers (Frick, 2012). Research should continue to examine the program's efficacy across settings, as well as its direct effect on the risk factors of childhood-limited CD in order to continue to improve its effect on this population.

Problem-solving skills training. Problem-solving skills training (PSST) is a cognitive and behavioral treatment for children with disruptive behavior ages 7-13 years old (Eyberg et al., 2008). PSST focuses on cognitive processes to address distortions and deficiencies in these processes. Over 20-25 sessions, children are taught problem-solving skills strategies to address these cognitive processes, such as identifying the problem, generating alternative solutions, identifying means to solutions, identifying consequences, perceiving how others feel, and identifying the expectations of the effects of one's behavior on others (Kazdin, 2011). In session, children practice these skills through modeling, role-playing, corrective feedback, social reinforcement, and token systems. PSST can be combined with in vivo practice in which the

children practice skills during planned activities outside of the session as homework assignments. PSST can also be combined with PMTO in order to include the parents and children in treatment concurrently. PSST alone, with practice, and with PMTO has been empirically supported and found to be superior to relationship therapy in each case for reducing conduct-disordered behavior (Kazdin, 2003).

PSST addresses two of the three risk factors for childhood-limited CD—aggression and impulsivity—through teaching children problem-solving skills to address situations that result in them acting out without thinking about the consequences (Kazdin, 2003, 2011). The PSST with practice treatment modality further addresses these two risk factors as it allows children to practice these new skills in situations where they might act without thinking with the guidance of a therapist or caregiver. PSST with PMTO addresses each of the three risk factors of childhood-limited CD as it addresses aggression and impulsivity in PSST and problematic parenting practices in PMTO (Eyberg et al., 2008).

PSST has a number of strengths and weaknesses that vary across treatment conditions when treating children with childhood-limited CD. For example, PSST alone and with practice addresses aggression and impulsivity but does not address problematic parenting (Kazdin, 2003). PSST with PMTO addresses each of the risk factors of childhood-limited CD and treats children at different levels, which is a significant strength of this treatment protocol. PSST can also include teacher and peer ratings in order to include school functioning ratings into the treatment plan (Kazdin, 2011).

Anger control training. Anger control training, or *Anger Coping*, is a cognitive-behavioral therapy program for children in the elementary school age range with conduct disordered behaviors (Eyberg et al., 2008; Lochman, Barry, & Pardini, 2003). Anger control

training is conducted in weekly group sessions for children to practice exercises based on the social information-processing model of anger control (Crick & Dodge, 1994). Children discuss social encounters, social cues, and possible motivations with vignettes about and actual social interactions in order to learn problem-solving skills and appropriate responses in anger-provoking situations. In anger control training, children also learn strategies to increase their awareness of their feelings. Two studies have demonstrated the effectiveness of anger control training in reducing conduct-disordered behaviors; in one study, the treatment lasted between 26-30 sessions (Lochman, Coie, Underwood, & Terry, 1993), and in the other the treatment lasted 15 sessions (Robinson, Smith, & Miller, 2002). The *Anger Coping* program also has an extension program, titled *Coping Power*, that can be added to increase treatment length for children and a 16 week parent group component (Lochman, Palardy, McElroy, Phillips, & Holmes, 2004). Outcome studies of the *Coping Power* treatment demonstrated effectiveness in decreasing rates of theft and property damage significantly more than the child-only condition. Comparison of child-only versus parent and child variation did not vary significantly on the rates of reduction in conduct disordered behaviors, however, effects were enhanced for children who received both programs (Lochman et al., 2004).

Anger control training has strengths as an intervention for childhood-limited CD, as it can address aggression and impulsivity, both central risk factors, through its cognitive-behavioral approach to problem solving with children (Eyberg et al., 2008; Lochman et al., 2003). However, limited studies have investigated the effect of anger control training on impulsivity in children with childhood-limited CD. Anger control training, or Anger Coping, alone also has limitations due to the fact that it does not involve treating problematic parenting practices, which is a central risk factor of childhood-limited CD. However, the *Coping Power* program addresses the

weaknesses of the Anger Coping program by extending the length of treatment and adding a parenting group, which has empirical support for improving parenting skills (Lochman et al., 2004).

Summary

The interventions discussed in this chapter each address some or all of the risk factors associated with childhood-onset with emotional and behavioral regulation problems pathway of CD (childhood-limited CD): aggression, impulsivity, and problematic parenting. Although no intervention addresses the risk factors from a developmental pathway to CD orientation, each intervention discussed addresses the central risk factors in the pathway in unique targeted interventions. Comprehensive and systematic interventions that are oriented to each pathway specifically will be a necessary next step in research and clinical practice in order to best address youths with childhood-onset CD with behavioral and emotional regulation problems (Frick, 2012). Summaries of the risk factors addressed by each intervention, as well as areas for future research, are provided below.

PCIT addresses two of the central risk factors for this pathway of CD: aggression and problematic parenting (Bell & Eyberg, 2002; Brinkmeyer & Eyberg, 2003; Eyberg et al., 2008). In addition, there is favorable research supporting PCIT's efficacy with both of these risk factors. Although PCIT does not address the third risk factor directly (impulsivity), parenting techniques that attempt to change behavior in the children may decrease impulsivity. Future research should examine the effects of PCIT on reducing impulsivity with children with childhood-limited CD.

IY addresses each of the central risk factors for childhood-limited CD. IY specifically targets problematic parenting in order to improve parent-child interactions and, consequently, improve the child's behavior (Eyberg et al., 2008; Pearl, 2009; Webster-Stratton & Reid, 2003).

As a result, aggression and impulsivity can be targeted through behavioral interventions with children. Furthermore, IY has received support for reducing conduct-disordered behaviors across situations and interpersonal relationships, such as at home and at school.

PMTO specifically addresses problematic parenting through the specific interventions at the parent level, which is one of the central risk factors for this pathway to CD (Eyberg et al., 2008; Kazdin, 2011; Patterson et al., 1975; Pearl, 2009). Additionally, PMTO specifically addresses aggression through teaching specific parenting skills (Hagen et al., 2011). PMTO does not address impulsivity directly; however, it can likely be addressed through behavioral interventions, such as positive praise of desired behaviors and ignoring or punishing undesired behaviors. Additional research is required to assess PMTO's direct efficacy with reducing impulsivity.

Triple P addresses each of the three risk factors associated with the childhood-limited pathway of CD (Eyberg et al., 2008; Pearl, 2009; Sanders, 1999, 2012). Problematic parenting is addressed through the parent management training portion of treatment. Aggression and impulsivity are addressed through the specific parenting techniques that are taught to parents with children with CD, such as effective discipline strategies. Despite the fact that Triple P addresses each of the risk factors of childhood-limited CD, research remains to be conducted on the intervention's direct effects in terms of decreasing childhood impulsivity.

HNC also addresses the three main risk factors of childhood-limited CD through its parent management training focus (Eyberg et al., 2008). Similar to the other parenting interventions, specific parenting techniques are taught in order to decrease problematic parenting, which in turn decrease impulsivity and aggression in the child (Forehand & McMahon, 1981; Pearl, 2009). Research should continue to examine the efficacy of HNC across

settings (such as school), as well as its direct effect on the risk factors of childhood-limited CD in order to continue to improve the program's effect on this population.

PSST addresses two of the three risk factors associated with childhood-limited CD. Aggression and impulsivity are addressed through teaching children with CD problem-solving skills to address situations in which these behaviors become problematic (Kazdin, 2003, 2011). PSST alone does not address the third central risk factor of childhood-limited CD; however, it can be combined with PMTO in order to address problematic parenting. There is strong empirical support for PSST alone and PSST with PMTO in reducing childhood conduct-disordered behaviors.

Finally, anger control training addresses two of the three risk factors associated with childhood-limited CD, aggression and impulsivity, through cognitive-behavioral interventions with children (Eyberg et al., 2008; Lochman et al., 2003). However, limited studies have been conducted regarding the effect of anger control training on impulsivity. Anger control training alone is the only intervention in this review that does not address problematic parenting with children experiencing childhood-limited CD. However, the Coping Power program addresses this limitation by lengthening the child treatment portion and adding a 16-week parenting program (Lochman et al., 2004). Thus, Coping Power demonstrates promise to treat these children with childhood-limited CD.

In summary, there are multiple interventions that have empirical support for addressing the risk factors of childhood-limited CD. However, Triple P appears to be the sole program that can be utilized for prevention of childhood-limited CD due to its different stages.

Chapter V: Childhood-Onset with Callous-Unemotional Traits Pathway of Conduct Disorder

Risk Factors

The final of the three pathways implicated in the development of CD is the childhood-onset pathway with CU traits. The onset of this pathway, as implied by the name, occurs prior to adolescence and is delineated specifically by the presence of significantly elevated levels of CU traits, as well as behavioral and emotional dyscontrol (Frick, 2012). The youths in this pathway of CD have conduct problems that are more likely to persist throughout their development and show more severe risk factors when compared to youths in the other two pathways of CD. Additionally, conduct problems in youths in this pathway are more likely to be associated with temperamental and personality factors than the other two pathways of CD (Frick & Ellis, 1999; Frick & Viding, 2009; Kimonis et al., 2006).

Researchers have suggested that youths with childhood-onset CD with CU traits have a specific temperament that can impede the adaptive development of a conscience, which results in risk for severe patterns of antisocial behavior (Frick, 2012; Frick & Ellis, 1999; Frick & Viding, 2009). This temperament includes fearlessness and thrill-seeking tendencies, in addition to insensitivity to punishment, greater sensitivity to rewards, and low responsiveness to emotional distress in others. Despite the severe antisocial behavior and impairments in youths with CD and CU traits, they tend to be less distressed by their difficulties and show less anxiety than other youths with CD (Kimonis et al., 2006).

Additionally, youths with childhood-onset CD with CU traits tend to exhibit and endorse a more severe and stable occurrence of the risk factors linked to CD than youths in the other two pathways of CD (Fanti, 2013; Frick, 2012; Frick & Viding, 2009; Frick & White,

2008; Munoz, Frick, Kimonis, & Aucoin, 2008). While youths in this pathway demonstrate high levels of impulsivity, research has found that the levels of impulsivity are not significantly more or less severe than youths with CD without CU traits (Frick et al., 2003b). The presence of the central risk factors of CD with specific temperamental and personality factors has been found to have serious implications for adulthood for children in this pathway of CD (Frick & White, 2008).

The presence of CU traits, one of the most central risk factors of this pathway, tend to be persistent and stable across time, which can manifest in adulthood as psychopathy (Frick & Ellis, 1999). As discussed earlier, CU traits include a lack of guilt or remorse, lack of concern about others' feelings, lack of concern about performance, and shallow or deficient affect (Frick, 2012). CU traits in youths ranging from 6-18 years old and maybe as early as 3 years old have been linked to particularly severe and chronic antisocial behavior (Frick & White, 2008; Hyde et al., 2013; Kimonis et al., 2006). An important factor in interpreting this research is that CU traits appear to predict continued conduct problems even after controlling for other risk factors (e.g., past criminal offenses, drug use, delinquent peers; Frick & Viding, 2009; Salekin, 2008). These findings suggest that the presence of CU traits alone can identify youths who are highly vulnerable to developing significant conduct problems that may persist into adulthood.

Furthermore, numerous studies have been conducted on the implications of CD with CU traits. CU traits have been shown to influence the association between CD and the following variables: neuropsychological characteristics, response to contingencies, parenting style they experienced, anxiety, temperament, emotional processing, heritability of antisocial behavior, and type and severity of antisocial behavior (Waschbusch, Walsh, Andrade, King, & Carrey, 2007).

Importantly, children with CD with CU traits demonstrate significantly high levels of aggression, which is a central risk factor for the development of CD.

In fact, youths in this pathway of CD usually demonstrate more severe and stable aggression than their peers with CD (Kahn, Frick, Youngstrom, Findling, & Youngstrom, 2012; Rowe et al., 2010). Youths with childhood-onset CD with CU traits tend to show aggression that is both proactive and reactive in nature when compared to youths with CD without CU traits, who usually demonstrate aggression that is more reactive in nature (Frick, et al. 2003a; Frick & Viding, 2009). For example, Pardini et al. (2003) studied adolescents aged 11-18 years old with CD, asking them to respond to vignettes portraying peers involved in aggressive acts. The participants' responses indicated a tendency to highlight the rewarding aspects of aggression, value the importance of being dominant in aggressive interactions, and minimize the potential for being punished for aggressive behavior.

Youths with childhood-onset CD with CU traits also demonstrate elevated levels of impulsivity, another central risk factor of severe and chronic CD. Although youths in this pathway have been demonstrated to have the most severe and stable form of CD, these youths do not tend to differ significantly from other youths with CD on levels of impulsivity, as mentioned previously. A study by Fanti (2013) demonstrated that youths scoring high on conduct problems, irrespective of CU traits, were at a higher risk for impulsivity and hyperactivity when compared to youths with lower levels of conduct problems. As such, there is inconsistent support in the literature to suggest that youths with CD and CU traits exhibit higher levels of impulsivity than youths with CD and no CU traits (Frick, et al., 2003b).

However, some have hypothesized that youths with the most severe CD exhibit both CU traits and impulsivity (Lynam, 1996). Youths in both childhood-onset pathways of CD are

viewed as having dispositional vulnerabilities that interact with their parenting context and lead to difficulties in the ability to modulate their behavior in response to authority figures and social norms, or to respect the rights of other people (Frick & Ellis, 1999; Moffitt, 1993). With respect to the etiology of impulsivity in youths with CD with CU traits, it has been suggested that their behavior is related to temperaments characterized by low behavior inhibition. This low-behavioral inhibition is defined by an under-reactivity in the sympathetic nervous system, low fearfulness to new or threatening situations, and low responsiveness to punishment (Kagan & Snidman, 1991)

When compared to the other two pathways to CD, the childhood-onset pathway with CU traits has been demonstrated to be less related to inconsistent or ineffective parenting styles (Frick & Viding, 2009; Kimonis et al., 2006; Wootton et al., 1997). In a study of children ages 6-13, global ineffective parenting was associated with CD only in children with low levels of CU traits, whereas children with high levels of CU traits demonstrated high levels of CD regardless of parenting style. Another study found that CU traits and parenting practices independently predicted coexisting teacher ratings of aggressiveness in the children; however, no interaction was found between CU traits and parenting. Some studies have found a relationship between CU and dysfunctional parenting practices, although these findings are inconsistent and the bidirectional influence is unclear (Frick et al., 2014). Taken together, these findings further suggest that youths with childhood-onset CD with CU traits may be more likely to develop their conduct problems as a result of temperamental, physiological, or personality characteristics rather than by parenting practices. In contrast, the other two pathways of CD are highly influenced by ineffective parenting practices (Dandreaux & Frick, 2009; Moffitt, 2003).

Outcomes

Of the three pathways to CD, the childhood-onset pathway with CU traits has been found to exhibit significantly worse outcomes than the other two pathways of CD. The mere presence of CU traits with CD is the most predictive factor of later antisocial behavior, even after controlling for other risk factors (e.g., past criminal offenses, drug use, and delinquent peers; Frick, 2012; Frick & Viding, 2009; Salekin, 2008). During childhood and adolescence, children with CD with CU traits tend to have significant difficulty with emotional and interpersonal functioning. For example, children with high levels of CD and CU who were followed from 4-12 years old had the most negative outcomes at 12 years old when compared to other children with CD (e.g., peer problems, emotional problems, chaos in the home, negative parental discipline, and negative parental feelings towards the child; Fontaine, McCrory, Boivin, Moffitt, & Viding, 2011). Similarly, one study found that CU traits in seventh graders were highly predictive of antisocial outcomes at follow-up 2 years post-high school, including general delinquency, juvenile and adult arrests, and meeting early antisocial personality disorder criterion or diagnosis (McMahon et al., 2010). Finally, CU traits in boys at age 7 have been shown to predict criminal behavior at age 25 (Byrd, Loeber, & Pardini, 2012).

The outcomes of youths with childhood-onset of CD with CU traits can be difficult to ascertain due to a significant amount of research controlling for CD when measuring CU or examining CU traits alone. This is in part due to the potential predictive value of CU traits for developing adult psychopathy, as CU traits are similar to the construct of psychopathy (Frick, 2012). Research has consistently found that CU or psychopathic traits measured in childhood are positively correlated with adult measures of psychopathy, even when controlling for conduct

problems in childhood (Burke, Loeber, & Lahey, 2007; Frick et al., 2014; Lynam, Caspi, Moffitt, Loeber, & Stouthamer-Loeber, 2007).

Interventions

Given that youths with childhood-onset CD with CU traits tend to have worse outcomes and continued conduct problems into adulthood more than other children with CD, prevention and treatment are of the utmost importance. Unfortunately, the presence of CU traits with CD is also associated with poorer treatment outcomes (Frick & Dickens, 2006). A qualitative review of 22 independent samples found that poorer treatment outcomes were demonstrated in community, clinic-referred, and forensic samples of youths with CD and CU ranging from 4-20 years of age. Additionally, youths with the most stable and severe CU traits tend to demonstrate the poorest outcome when compared to other youths with CD (Hawes & Dadds, 2007). Unfortunately, little research has focused on whether CU traits themselves respond to treatment, although promising new studies have suggested that tailoring interventions to the child's specific risk factors may result in treatment gains. For example, Hawes and Dadds (2007) found that childhood-onset CD with CU traits may respond to early intervention, as CU traits are most malleable earlier in development. Similarly, Kolko and Pardini (2010) found that comprehensive and tailored interventions targeted at multiple areas (such as individual CBT, parent training, school consultation, peer relationship training, and crisis management) result in similar rates of growth for youths with CD and CU traits when compared to children with severe CD but no CU traits.

Another difficulty in treating youths with childhood-onset CD with CU traits is that most of the previously reviewed interventions that have been shown to be effective with CD include a significant focus on parent training components, and ineffective parenting is not as highly correlated with this pathway as the other two pathways of CD. Additionally, parenting training

has been shown to be inconsistently effective in helping youths with conduct problems and CU traits (Frick, 2012; Hawes & Dadds, 2005). However, there is more recent support for the implementation of different parent management techniques depending of the level of CU traits. For example, Hawes and Dadds (2005) found that altered parent training can reduce CU traits in some children, and perhaps this point is even truer at earlier ages. More specifically, this study found that children with and without CU traits responded similarly to the initial portion of the intervention that focused on parents' positive reinforcement to encourage prosocial behaviors. However, children with CU traits did not demonstrate additional improvement with the second part of the intervention that focused on teaching effective parenting discipline techniques, which may related to the under reponsivity to punishment associated with youths within this pathway of CD.

Beyond parenting training, there are other important targets of prevention and intervention with childhood-onset CD with CU traits. These targets include focusing on specific CU traits, such as enhancing the development of empathy, conscience development, and emotional expression (Chi-Ming, Greenberg, & Walls, 2003; Frick et al., 2014; Frick & White, 2008). In conjunction with interventions aimed at CU traits, treatment of childhood-onset CD with CU traits must also focus on the other two central risk factors of CD: aggression and impulsivity. It has been demonstrated that certain intensive interventions can reduce the level of conduct problems (e.g., aggression, impulsivity, and delinquency) in children and adolescents with elevated CU traits (Chi-Ming et al., 2003; Kimonis & Armstrong, 2012). Thus, the following sections will review a range of interventions for youths with childhood-onset CD with CU traits that have been shown to be efficacious or demonstrate promise in treating youths in this pathway.

Multisystemic therapy. In the previous chapter, MST was discussed at length as a treatment for youths with adolescent-onset CD. In summary, MST is an empirically supported treatment for reducing the frequency and severity of symptoms of CD and the central risk factors for that pathway to CD (e.g., teenage rebelliousness, ineffective parenting practices, and association with deviant peer groups; Henggeler & Sheidow, 2012). MST targets individual, family, and peer systems as facilitators of change through parent training in order to provide positive reinforcement for responsible behavior and consequences for irresponsible behavior through increased family structure, operationalized desired behavior, and identifying barriers to change, which not only address teen rebelliousness but also parenting problems associated with adolescent-onset CD (Henggeler & Sheidow, 2003).

In regard to an intervention with childhood-onset CD with CU traits, only a small amount of research, albeit promising, has suggested MST's effectiveness with the central risk factors in this pathway (such as, CU trait, aggression, and impulsivity). Butler, Baruch, Hickey, and Fonagy (2011) conducted a study on the effects of MST with 108 families of arrested youths with an average age of 15 years. The youths who received intensive MST demonstrated a greater decrease in parent-reported psychopathic traits, akin to CU traits, from pre- and post-treatment compared to youths in the control group. However, there was no significant decrease in the youths' self-reported psychopathic traits (Frick et al., 2014). The study also found that youth-reported delinquency ratings and parental reports of aggressive and delinquent behaviors decreased significantly following MST (Butler et al., 2011).

The study by Butler et al. (2011) demonstrated that MST has the potential for being an effective intervention for youths with childhood-onset CD with CU traits. A strength of MST related to this pathway of CD is that it was shown to be effective in reducing two of the three

central risk factors, specifically parent-reported CU traits and aggression. However, this particular study did not examine the effects of MST on impulsivity within youths with CD and CU traits. Additionally, the study did not control for age of onset or the presence of CU traits. Thus, much further work is needed to test the effectiveness of MST for youths with childhood-onset CD with CU traits, the effects of MST on impulsivity, and whether MST can be effective with children.

Functional family therapy. Similar to MST, FFT was also described in detail as an effective treatment for the adolescent-onset CD pathway. To review, FFT has a strong relational focus and works to develop family members' inner strengths and self-efficacy to improve their family dynamics and reduce conduct problems (Alexander et al., 2000; Henggeler & Sheidow, 2012; Sexton & Turner, 2011).

A study by White, Frick, Lawing, and Bauer (2013) examined the effectiveness of FFT with youths with CU traits in a sample of adolescents ages 11-17. The authors proposed that FFT's flexible structure allows for tailoring the treatment to unique needs of children with CU traits in order to make it consistent with treatment approaches used for adults with psychopathic traits. The results of the study indicated that FFT was effective in improving relationships with parents and reducing conduct problems in adolescents with high levels of CU traits. Despite these improvements with conduct problems, youths with high levels of CU traits still showed higher levels of conduct problems at the end of treatment compared to those with lower levels of CU traits. Additionally, youths with CU traits had greater violent reoffending during treatment than youths without CU traits (Frick et al., 2014).

In sum, these results demonstrate that youths with conduct problems and CU traits did show improvements in conduct problems across treatment (White et al., 2013). In addition, a

strength of FFT is that it has been shown to reduce aggression and violence in youths with CD: central risk factors of childhood-onset CD with CU traits (Baglivio et al., 2014; Henggeler & Sheidow, 2012; Sexton & Turner, 2011). However, FFT did not show effectiveness in reducing CU traits or impulsivity specifically, which are central risk factors of this pathway of CD. This study by White et al. (2013) indicated that FFT may have the potential for treating youths with childhood-onset CD with CU traits, yet research should continue to examine its effectiveness in treating CU traits, impulsivity, and if it can be administered to children under age 11.

Parent-child interaction therapy. In the previous chapter, PCIT was discussed as an effective intervention for youths with the childhood-onset with behavioral and emotional regulation problems pathway to CD. PCIT is a parenting skills training program for children with severe and persistent disruptive behavior disorders ages 2-7 years old (Brinkmeyer & Eyberg, 2003; Eyberg et al., 2008). It has been shown to be effective in treating conduct problems, aggression, and dysfunctional parenting practices, as well as a wide variety of individual and family problems (Bell & Eyberg, 2002). Despite its documented effectiveness with conduct problems, PCIT's effectiveness with youths with childhood-onset CD with CU traits has not been studied extensively (Kimonis & Armstrong, 2012).

However, a case study by Kimonis and Armstrong (2012) set out to examine the effectiveness of PCIT with a child with childhood-onset CD with pronounced CU traits due to previous success in adapting PCIT to various presenting problems (e.g., developmental delays). Kimonis and Armstrong suggested that PCIT would be effective in treating CU traits due to the components of PCIT that focus on increasing reward-oriented parenting and other positive aspects of parent-child attachment. During the treatment of a 5-year-old male with childhood-onset CD with CU traits, all components of the child-direction interaction and parent-directed

interaction were included. The treatment was adapted to include an adjunctive intensive reward-based strategy. The authors concluded that the use of a token economy system was partly successful at reducing conduct problems and CU traits in this patient.

This case study provides valuable information for future treatment of childhood-onset CD with CU traits with PCIT. PCIT already has significant strengths in treating aggression, a central risk factor in this pathway to CD (Thomas & Zimmer-Gembeck, 2007). PCIT does not explicitly target impulsivity (one central factor in this pathway to CD); however, improvements in parenting techniques may inadvertently decrease behavioral impulsivity as discussed with childhood-limited CD (Bell & Eyberg, 2002). If research can replicate the positive effect of PCIT on CU traits demonstrated in this case study, then PCIT may be a promising treatment for youths in this pathway of CD (Kimonis & Armstrong, 2012). Future empirical research may be beneficial in understanding the mechanisms for change that were seen in the reduction of CU traits in this case study.

Emotional recognition training. A controlled treatment study by Dadds, Cauchi, Wimalaweera, Hawes, and Brennan (2012) further illustrated the potential benefit of treatments specifically tailored to the unique needs of children with conduct problems and CU traits (Frick et al., 2014). This study conducted a randomized controlled trial of emotional recognition training (ERT) with children with conduct problems. In the study, ERT consisted of the MindReading program for training children to perceive and interpret human emotions accurately in four 90-minute sessions, which were held in daily parent-child interactional exercises. At the beginning of the first three sessions, the parents are present in order to learn the focus of the session and what exercises to practice between sessions. The fourth session includes both the parent and the child so that the child can demonstrate his/her learning. The parents concurrently

receive Integrative Family Interventions for Child Conduct Problems (IFICCP; Dadds & Hawes, 2006).

In the study by Dadds et al. (2012), children with high levels of conduct problems and CU traits demonstrated improvements in affective empathy and conduct problems after receiving both ERT and IFICCP in contrast to those children who received IFICCP alone. The authors suggested that this combination of interventions for children with CD with CU is effective due to the implementation of a series of parent-child empathic exercises. These exercises are suggested to foster parent-child warmth and intimacy, which can be an effective way to intervene early with CU traits in children (Dadds et al., 2012).

A strength of ERT with IFICCP is that it has been shown to reduce certain aspects of CU traits, which is a central risk factor of childhood-onset CD with CU traits, as it was effective in increasing affective empathy and emotional recognition in youths with CD and CU (Dadds et al., 2012). However, this study did not examine the impact of the intervention on aggression and impulsivity, the two other central risk factors of childhood-onset CD with CU traits. Although ERT did demonstrate a reduction in overall conduct problems in youths with CU traits, future research should continue to examine the efficacy of this intervention on reducing aggression and impulsivity specifically with respect to treating childhood-onset CD with CU traits.

Behavioral therapy. Conduct problems of youths with childhood-onset CD with CU traits can be particularly resistant to behavioral interventions due to their differing responses to rewards and punishments in comparison to other youths with CD (Frick et al., 2014).

Specifically, youths in this pathway are less responsive to punishment techniques when compared to other children with CD. With this in mind, Miller et al. (2014) examined the efficacy of modified behavioral interventions that de-emphasized punishment and emphasized

rewards with youths with conduct problems and CU traits. The study included 12 children divided into four behavioral interventions: standard behavioral treatment, low-punishment treatment, high-reward treatment, and combined treatment. The study found that the best treatment response was found in the low-punishment and standard treatment conditions, whereas the worst response was obtained in the combined condition. Additionally, the study did not find support for the high-reward condition.

A strength of modified behavioral therapy with low-punishment is that it demonstrated a decrease in aggressive behaviors in children with CD and CU traits (Miller et al., 2014). However, the sample size of the study is rather small for generalizing to larger populations of children. Additionally, this study did not examine the effects of modified behavioral therapy on CU traits or impulsivity, two other central risk factors in this pathway of CD. Future research may continue to examine the efficacy of low-punishment behavioral therapy with childhood-onset CD with CU traits, as it may prove to be a promising treatment or even adjunctive treatment for these youths.

Intensive inpatient treatment. Caldwell, Skeem, Salekin, and Van Rybroek (2006) conducted a controlled study on whether intensive inpatient treatment could be an effective treatment for serious juvenile offenders with CU traits. The treatment was conducted at Mendota Juvenile Treatment Center (MJTC), which has 14 -15 beds per unit and a staff-resident ratio double that of standard juvenile correction institutes. The MJTC treatment program was specifically aimed at reducing antagonistic interactions and interpersonal aggressiveness through services provided only by mental health providers (Caldwell et al., 2006). More specifically, the intervention employed reward-oriented approaches, targeted the specific interests of the youths, and taught empathy skills (Frick et al., 2014; S. White et al., 2013). Results of the study

indicated that adolescents with high levels of CU traits improved their behavior when they participated in this intensive inpatient program at MJTC, as these youths were less likely to recidivate or engage in violence at the 2-year follow-up than youths who underwent standard treatment. For example, only 12% of the youths who received treatment through MJTC were involved in community violence at the 2-year follow-up, compared to 49% of the youths who received standard treatment.

This study's findings suggest that intensive inpatient treatment may be effective in treating youths with childhood-onset CD with CU traits (Caldwell et al., 2006). In the study, the treatment yielded a significant decrease in engaging in violent or aggressive behaviors, which is a central risk factor for this pathway to CD. However, a weakness of this approach is that the study did not assess if the program had any effects on CU traits or impulsivity, both of which are central risk factors for this pathway of CD. Continued research on the impact on intensive inpatient treatment with reward-oriented approaches, teaching empathy, and targeting youths' self-interest may provide needed support for a treatment of youths in this pathway.

Summary

The interventions discussed in this chapter each address some or all of the risk factors for the childhood-onset pathway of CD with CU traits: aggression, impulsivity, and CU traits. In total, interventions and treatments for childhood-onset CD with CU traits appear to be most effective when they are tailored specifically to this population's unique temperament and personality characteristics. Similarly to the other pathways to CD, no intervention discussed addresses the risk factors from a pathway orientation. However, each intervention discussed does address the central risk factors in the pathways via unique targeted interventions. Summaries of

the risk factors addressed by each intervention, as well as areas of future research, are provided subsequently.

MST addresses each of the central risk factors for childhood-onset CD with CU traits. Specifically, MST has substantial support for reducing aggression in youths with CD (Henggeler & Sheidow, 2003, 2012). The therapy has also earned more recent support to indicate that it is effective in reducing CU traits (Butler et al., 2011). However, there has been little evidence to support its effectiveness with reducing impulsivity. Future research may examine MST's effectiveness specifically with youths with childhood-onset CD with CU traits as well as its effects on reducing impulsivity, as MST shows promise as an effective intervention with this pathway of CD if it can be modified to treat children as well as adolescents.

FFT specifically addresses aggression, one of the central risk factor of childhood-onset CD with CU traits (Alexander et al., 2000; Henggeler & Sheidow, 2012; Sexton & Turner, 2011). It has earned more recent support for reducing conduct problems with youths with CU traits (White et al., 2013). Although FFT can be effective in reducing conduct problems in youths in this pathway, there is little evidence to support its effectiveness in reducing CU traits or impulsivity. Research should continue to examine the impact on these two central risk factors for this pathway to CD, as these youths are responsive to FFT in other areas.

PCIT has received significant support for its effectiveness in reducing aggression in youths with CD, a central risk factor for the development of CD (Brinkmeyer & Eyberg, 2003; Eyberg et al., 2008; Thomas & Zimmer-Gembeck, 2007). A recent case study on PCIT with childhood-onset CD with CU traits demonstrated that PCIT may be able to be tailored to treat youths in this pathway specifically (Kimonis & Armstrong, 2012). Specifically, PCIT with adjunctive reward-based strategies was found to be effective in reducing CU traits in the case

study by Kimonis and Armstrong (2012). This promising finding should be studied further in order to replicate its effectiveness in reducing CU traits for other youths in this pathway, as well as to examine its impact on impulsivity.

ERT has been shown to be effective in reducing specific CU traits, such as affective empathy and emotional recognition in youths with CD and CU traits (Dadds et al., 2012). Therefore, this treatment may prove to be an effective intervention for youths in this pathway when it is combined with parent management training, as it reduced CU traits and conduct problems in these youths. The efficacy of ERT in conjunction with parent management training may be strengthened further by future studies examining the effects on aggression and impulsivity specifically with youths with childhood-onset CD with CU traits (Frick et al., 2014).

Behavior therapy that has been modified to incorporate low-punishment has also been shown to be a promising treatment for youths with childhood-onset CD with CU traits. In one study, this modified behavioral therapy was effective in decreasing aggressive behaviors in children with CD and CU traits (Miller et al., 2014). This modification of behavioral therapy may be an effective adjunctive treatment when combined with other treatments that are effective in reducing the other two central risk factors in this pathway, CU traits and impulsivity. Research may also continue to examine the efficacy of low-punishment behavioral therapy with larger sample sizes to determine if it can be generalized to larger populations of youths with CD and CU traits.

Finally, intensive inpatient treatment may be an alternative or effective treatment for youths with severe CD and CU traits (Frick et al., 2014; White et al., 2013). Intensive inpatient treatment with reward-oriented approaches, teaching empathy, and targeting the youths' self-interest has been demonstrated to reduce aggression in youths with CD and CU traits (Caldwell

et al., 2006). However, the impact of this tailored intervention on CU traits and impulsivity remains to be studied. Tailored inpatient interventions may prove highly useful for youths with severe CD and CU traits.

In summary, the childhood-onset with CU traits pathway of CD has been demonstrated to be the most difficult to treat and have more limited effective treatments than the other two pathways of CD. However, PCIT with adjunctive reward-based strategies demonstrates promise for effectively treating childhood cases within this disorder (Kimonis & Armstrong, 2012). MST shows promise for treating adolescents within this pathway of CD as it reduced parent-reports of CU traits (Butler et al., 2011). As such, future research should attempt to replicate the findings of Kimonis & Armstrong (2012) in larger sample sizes, as well as determine if MST can be supported for treatment with younger children due to its effectiveness with adolescents.

Chapter VI: Discussion

CD is among the most serious in its implications throughout the life course compared to other childhood psychiatric conditions. Youths with CD are at increased risk for substance use, decreased academic performance, high school dropout, and criminal records (Breslau et al., 2012; Frick, 2012; Zeitlin, 1999). Consequences of CD in childhood and adolescence have also been demonstrated to have a significant impact on these individuals in adulthood. Adults with a history of CD are more likely to have a history of criminal behavior, unemployment, divorce, physical disorders, psychiatric disorders, and are at higher risk for premature death than adults without a history of CD (Frick & Viding, 2009; Olino et al., 2010).

The impact of the CD on the individual, family members, victims, and society is significant and great cause for concern. As a result, there is a large body of research that has examined CD in great detail across a wide range of domains related to the disorder. However, there is lack of consistency and agreement across research findings regarding which constellation of risk factors predicts and affects the development of CD symptoms, in addition to operational definitions of these variables.

The current study aimed to consolidate existing research and demonstrate support for a comprehensive model of different developmental trajectories of CD that highlight the heterogeneity of the disorder. The purpose of the current study was to identify the most relevant risk factors associated with CD, to examine three possible developmental pathways that may have predictive validity for continued adult manifestations of conduct problems, and to identify interventions that address risk factors within each pathway. Currently, there are neither assessments nor treatments that are specifically oriented towards the developmental pathways of CD. However, future research can continue to facilitate this process as the three developmental

pathways to CD demonstrate promise in creating more effective prevention and more specific intervention techniques.

Assessment of Developmental Pathways

In order to assist with the utilization and implementation of these pathways in treatment planning, it is important to indicate means of assessing for these pathways and risk factors in youths with CD. Currently, there are no structured assessment measures that are specific to identifying which developmental pathway of CD fits the youth in question. However, the updated diagnostic criteria for CD in the *Diagnostic and Statistical Manual of Mental Disorders – Fifth Edition (DSM-5)* shows promise in identifying the developmental pathway in youths diagnosed with CD (APA, 2013).

Updates to the diagnostic criteria of CD in the *DSM-5* include new criteria that are more in line with the proposed pathway orientation to CD (APA, 2013). The use of the diagnostic criteria and specifiers for CD in the *DSM-5* can identify the pathway of the youths through specifiers for childhood- versus adolescent-onset. The presence of CU traits can also be identified with the revisions to the diagnostic criteria for CD in *DSM-5* by using the specifier for limited prosocial emotions. Thus, those youths with childhood-onset CD can now be identified by their respective pathways with the use of said specifiers in the diagnostics. In total, the *DSM-5* diagnostic criteria for CD now assesses three central constructs for identifying which developmental pathway the child in question is most likely aligning with, e.g., age of onset, severity of behavior, and presence of CU traits.

Besides the *DSM-5* diagnostic criteria for CD, there are assessments that can measure a variety of symptoms, behaviors, and traits associated with CD and each pathway, such as the *Schedule of Affective Disorders and Schizophrenia for School-Age Children – Present and*

Lifetime Version (K-SADS-PL; Kaufman, et al., 1997), Conduct Disorder Scale (CDS; Gilliam, 2002), Behavioral Assessment Scale for Children, Second Edition (BASC-2; Reynolds & Kamphaus, 2004), Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001), and Minnesota Multiphasic Personality Inventory-Adolescent (MMPI-A; Butcher et al., 1992) to name a few. Due to the heterogeneity of symptoms and risk factors associated within and between the different pathways of CD, multiple informant assessment methods may be necessary to obtain the best picture of each of the main risk factors, for example parent-, teacher-, and self-reports.

There are also relevant clinical inventories that have been developed to measure specific constructs that are risk factors associated with different developmental trajectories of CD. First and foremost, it is important to assess for age of onset of conduct problems in order to help determine the developmental pathway. Age of onset can be queried using the *DSM-5* diagnostic criteria for CD (APA, 2013), as well as assessed by the Self-Report Delinquency Scale (SRD; Elliott & Ageton, 1980). The SRD can assess for the number and type of delinquency acts, in addition to the age these acts were committed. When determining the age of onset, it is important to take into account both the parent and the child's report as research has shown that they show similar median ages of onset for conduct problems (Dandreaux & Frick, 2009).

In addition to assessing for age of onset, empirically validated assessment measures can be compiled into batteries in order to assess for each pathway of CD. In order to further assess for adolescent-onset CD beyond the measures listed above, it is important to also assess for the central risk factors of this pathway; parenting problems, rebelliousness, and association with deviant peer groups. The Alabama Parenting Questionnaire (APQ; Shelton, Frick, & Wootton, 1996) includes 42 items that assess a number of parenting constructs, such as parental

involvement, monitoring, and supervision. Rebelliousness can be measured by the Parent Intrusiveness Scale (PIS; Goldstein, Davis-Kean, & Eccles, 2005), which measures adolescents' perceptions that their parents allow too little autonomy, or the Traditionalism subscale of the Multidimensional Personality Questionnaire – Brief Form (MPQ-BF; Patrick, Curtin, & Tellegen, 2002), which measures a person's tendency to endorse conventional attitudes towards authority and traditional institutions. The Peer Delinquency Scale (PDS; Keenan, Loeber, Zhang, Stouthamer-Loeber, & Van Kammen, 1995) is a self-report measure developed for measuring the level of deviant peer group affiliations in youths.

In order to assess for childhood-onset CD with emotional and behavioral regulation problems, assessment measures will need to examine the central risk factors to this pathway, which are aggression, impulsivity, and problematic parenting. There are two different scales for aggression, which differentiate reactive versus proactive aggression, that have been clinically indicated for measuring aggression in youths with CD (Dodge & Coie, 1987; Fite, Stoppelbein, Greening, & Gaertner, 2009; Little, Jones, Henrich, & Hawley, 2003). Additionally, the Overt Aggression Scale (OAS) measures overt verbal and physical aggression (Silver & Yodofsky, 1991). Inventories for measuring impulsivity include the Barrett Impulsivity Scale (BIS-11; Patton, Stanford, & Barratt, 1995) and the UPPS Impulsive Behavior Scale (UPPS; Whiteside & Lynam, 2001). Subscales of the BASC-2 can also assess for impulsiveness within children (Reynolds & Kamphaus, 2004). The APQ can also be used with this developmental pathway to CD, similar to the adolescent-onset CD pathway (Shelton et al., 1996).

Lastly, an assessment battery for childhood-onset CD with CU traits would need to assess the central risk factors for this pathway, including aggression, impulsivity, and CU traits. The assessments for aggression and impulsivity used with childhood-onset CD with emotional and

behavioral regulation problems can also be used for this pathway to CD, such as the OAS (Silver & Yudofsky, 1991) and BIS-11 (Patton et al., 1995). Inventories that assess for CU traits, as well as related psychopathic traits, include the Inventory of Callous-Unemotional Traits (ICU), which is a 24-item self-report scale designed to assess for CU traits in youth (Frick, 2004b). The ICU was derived from the 6-item CU subscale of the Antisocial Process Screening Device (APSD; Frick & Hare, 2001). Two other checklists that are more specific to psychopathic traits are the Youth Psychopathic Traits Inventory (YPI; Andershed, Kerr, Stattin, & Levander, 2002) and the Psychopathic Checklist-Youth Version (PCL-YV; Forth, Kosson, & Hare, 2003), as psychopathic traits have been closely linked to CU traits (Frick, 2012).

Limitations

Many studies of CD and antisocial behavior have been conducted with samples that were entirely or largely male, or have tended to analyze data without taking sex into account (Frick & Dickens, 2006; Herba et al., 2006). Thus, the appropriateness of these developmental pathways to CD for females is less clear. Yet, epidemiological studies signify that CD is the second most common psychiatric disorder in adolescent females with a range of adverse outcomes that are similar to those associated with CD in males, such as criminal behavior (Bardone, Caspi, Dickson, & Silva, 1996; Zoccolillo, Tremblay, & Vitaro, 1996).

The limited research with females and CD may be a result of differences in prevalence rates between sexes. In general, males tend to outnumber females approximately 4:1 before adolescence and approximately 2:1 in adolescence (Frick & Dickens, 2006). Although females are less likely to show severe CD than males, both sexes show similar risk factors according to research. On the other hand, females and males may exhibit conduct problems and antisocial behaviors differently so that females are less likely to be diagnosed with CD before adolescence

(Herba et al., 2006). For example, females may not demonstrate overt antisocial and aggressive behavior; they may demonstrate other forms of conduct problems such as relational aggression.

It is clear that research should continue to examine any relevant sex differences with the developmental pathways to CD. It is important to be able to either generalize these developmental pathways to CD to all youths or establish unique developmental pathways for each sex. Further clarification of any relevant sex differences will continue to establish the necessity of individual and tailored interventions to best treat youths with CD.

Another limitation to this critical analysis, as well as the developmental pathways of CD, is the lack of uniform operational definitions within the research. The operational definitions of aggression, impulsivity, CU traits, and CD vary from study to study, especially when discussing absence or presence of a trait or disorder. Additionally, studies employ a wide variety of assessment tools to measure these traits. As a result, there is a lack of consistency across the studies and their findings, as well as a lack of consistency in the field related to CD, associated risk factors, and outcomes. The consistency, validity, and reliability of results can be improved if the field can move towards agreed upon operational definitions and assessments of these definitions.

Clinical Implications

Delineating specific and unique developmental pathways to CD may help to develop specific prevention and intervention strategies that address specific risk factors that co-occur in the illness. Although no existing treatment strategies target the specific developmental pathways discussed in this paper, research does suggest that some treatments have been found to be helpful in addressing risk factors associated with specific pathways to CD.

For example, Hawes and Dadds (2005) demonstrated that children with and without CU traits responded well to the initial portion of an intervention that was focused on positive reinforcement to encourage prosocial behaviors by parents. However, children with CU traits did not show additional improvement with the second portion of the intervention that focused on teaching effective parenting discipline techniques. By comparison, children without CU traits did demonstrate additional improvement with the second parenting intervention. Thus, this study supports individualized treatment planning, perhaps a different type of parenting discipline techniques that may be more effective for children with CU traits.

Another example was illustrated by a case study that tailored PCIT program for a child with CU traits (Kimonis & Armstrong, 2012). PCIT has significant empirical support for its effectiveness with reducing conduct problems in children (Eyberg et al., 2008). Kimonis and Armstrong (2012) increased the focus of treatment in this case study on reward-oriented parenting and on a warm, empathic parent-child attachment. The tailored intervention proved to be effective in reducing CU traits and behaviors, which have historically been more resistant to treatment than other risk factors associated with CD.

Future Directions

Current research indicates that the interventions for CD that are comprehensive by targeting multiple risk factors at various systemic levels are the most effective in reducing CD symptoms (Frick, 2012). None of the risk factors for CD operate in isolation from the others in the development and maintenance of CD. Therefore, continued research on developmental pathways to CD proves to be necessary for informing these broad yet individualized approaches to treatment.

Regrettably, there is extremely limited research testing the usefulness of matching youths within the three pathways of CD to different modalities of treatment depending on their unique presentations (Frick, 2012). The lack of existing research indicates that there is a clear need to continue to examine this issue. As a result, the treatments reviewed here do not actually operate from the developmental pathways orientation to CD. The treatments reviewed address certain risk factors but not in a comprehensive pathway-oriented manner. Most of the existing research has not considered the three developmental pathways to CD when examining risk factors for the disorder. Therefore, it is difficult to ascertain those factors that may be specific to children in one pathway and those that may be common risk factors across the different pathways (Frick, 2012; Frick & Viding, 2009).

In terms of treating youths with the most severe and stable CD, PCIT and MST appeared to have the most promise for effectively treating childhood-onset CD with CU traits (Butler et al., 2011; Kimonis & Armstrong, 2012). In the case of PCIT, future research should attempt to duplicate these results with a larger sample size in order to determine if adding adjunctive reward-based treatments to PCIT can be generalized to childhood-onset CD with CU traits. Additionally, future research should examine whether MST can be extended downward to younger samples as it has some support for effectiveness for reducing parent-reports of CU traits. Application of MST to the childhood-onset with CU traits pathway of CD may prove to be a promising treatment for this population.

Moving forward, research on and interventions for CD should begin to examine the disorder within this developmental pathway orientation and associated risk factors. It has been documented in multiple studies that interventions are more effective when they are tailored to unique characteristics of children within pathways to CD, even for those symptoms that have

proven resistant to treatment (Caldwell et al., 2006; Frick, 2012; Hawes & Dadds, 2005; Kimonis & Armstrong, 2012). Thus, it is critical that research continues to delineate which risk factors are associated with which pathway or are associated across pathways of CD. Additionally, research can further identify assessments and treatments of these youth considering these risk factors and pathways when designing comprehensive and individualized approaches to prevention and treatment. Specifically, early intervention may ameliorate any pervasive impact of CD on the individual, such as criminal records, and an adult trajectory of conduct problems or, in worst cases, antisocial personality disorder.

Additionally, this critical analysis did not focus on protective factors for CD and related clinical implications. There has been some attention to protective factors in the research, although it is an understudied component (Loeber et al., 2000; Burke et al., 2002). Future research should continue to examine protective factors for CD and if these factors can be bolstered in prevention or intervention techniques to increase treatment effectiveness.

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APPENDIX

GPS IRB Non-Human Subjects Determination Notice

PEPPERDINE UNIVERSITY

Graduate & Professional Schools Institutional Review Board

July 8, 2015

Protocol #: N0715D01

Project Title: Conduct Disorder: A Critical Analysis of the Literature and Implications for Adult Manifestation

Dear Ms. Saiz,

Thank you for submitting the Non-Human Subjects Verification Form and supporting documents for your above referenced project. As required by the Code of Federal Regulations for the Protect for Human Subjects (Title 45 Part 46) any activity that is research and involves human subjects requires review by the Graduate and Professional Schools IRB (GPS-IRB).

After review of the Non-Human Subjects Verification Form and supporting documents, GPS IRB has determined that your proposed research¹ activity does not involve human subjects. Human subject is defined as a living individual about whom an investigator (whether professional or student) conducting research obtains (1) data through intervention or interaction with the individual, or (2) identifiable private information. (45 CFR 46102(f))

As you are not obtaining either data through intervention or interaction with living individuals, or identifiable private information, then the research activity does not involve human subjects, therefore GPS IRB review and approval is not required of your above reference research.

We wish you success on your non-human subject research.

Sincerely,



Dr. Thema Bryant-Davis
Chair, Graduate and Professional Schools IRB
Pepperdine University

cc: Dr. Lee Kats, Vice Provost for Research and Strategic Initiatives
Mr. Brett Leech, Compliance Attorney
Dr. Judy Ho, Faculty Advisor

¹ *Research* means a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge. Activities which meet this definition constitute research for purposes of this policy, whether or not they are conducted or supported un-der a program which is considered research for other purposes. (45 CFR 46.102(d)).