

Clinical Practice Guidelines for Conduct Disorder

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INTERNATIONAL LITERATURE

Antisocial behavior is inevitable in the course of development of children and is among the most common presenting complaints in the practice of child and adolescent psychiatry. Its relationship to psychopathology is complex (Robins et al, 1991; Raine, 1993; Wehby et al., 1993; Carey, 1994; Gureje et al., 1994; Rutter, 1996). Not all-antisocial behavior is pathological, therefore, its presentation to the clinician requires careful assessment to delineate normative risk-taking behavior and isolated incidents of antisocial behavior from syndromal clustering of behavior problems. The introduction of a diagnostic category of “conduct disorders” made certain forms of antisocial behavior clusters independent of criminological definition, and allowed for more targeted study and treatment (Richters, 1993).

Conduct disorder (CD) must be delineated from other terms like delinquency and antisocial behavior. While CD is a psychiatric diagnostic term from mental health perspective, delinquency is a legal term and antisocial behavior is a societal term. CD is characterized by a pattern of behaviour that violates the basic rights of others or age-appropriate norms and rules of society.

Traditionally childhood antisocial problems were viewed either as an internal character deficit often referred to as “constitutional deficiency” or an environmental adaptation to disruptive life circumstances. It was not until longitudinal studies were conducted that the stability of conduct problems over time was realized (McCord & McCord, 1969; Rutter, 1988; Farrington et al., 1990; Robins & Rutter, 1990). Robins (1966) provided research on the natural history of delinquency, establishing a convincing link between childhood conduct problems and antisocial personality disorder in adults. With more epidemiological studies a developmental perspective began to replace the theories of constitutional inferiority. In 1980 the diagnosis of CD appeared for the first time in the Diagnostic and Statistical Manual of Mental Disorders (DSM-III) (American Psychiatric Association, 1980). The diagnostic term established the syndrome as existing independently from juvenile justice systems’ classifications of delinquency.

Apart from being common, CD is one of the most costly in terms of personal loss to patients, families, and society (Gureje et al., 1994). It is associated with high levels of distress and impairment (Lambert et al., 2001); it is difficult to treat, because of its complexity, pervasiveness and association with lack of resources in the families and communities in which it develops (Haddad et al., 1991). Prospective studies have also shown that conduct problems during childhood or adolescence are associated with significantly increased risk of other mental disorders, legal problems, and premature mortality (Robins, 1966; Pajer, 1998; Laub & Vaillant, 2000; Kim-Cohen et al., 2003; Simonoff et al., 2004).

CD is a severe and complex form of psychopathology, presenting with multiple deficits in a range of domains of functioning. Psychiatric interventions can be successful only if they are carefully coordinated, aimed at multiple domains of dysfunction, and delivered during extended periods of time.

LITERATURE REVIEW

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A pubmed search was performed covering the preceding years, from 1993 onwards. Key words related to the following topics were searched: CD (and oppositional defiant disorder [ODD]), aggression in children, CD (and ODD) and attention deficit hyperactivity disorder (ADHD), comorbidity of CD (and ODD), subtypes of CD (and ODD), and treatment of CD (and ODD). In addition, a manual review of *Indian Journal of Psychiatry*, *Indian Journal of Clinical Psychology* and *Indian Journal of Medical Research* was carried out. References from reference lists obtained from searches were reviewed. Practice parameters issued by the American Association of Child and Adolescent Psychiatry on CD and ODD, and evidence-based practices in conduct were also reviewed.

The authors concentrated on a subgroup of recent works whose findings were obtained in optimal scientific fashion and seemed to be most compatible with each other and with current clinical practice. These texts form the nucleus of the recommendations in these parameters and are indicated with an asterisk in the reference section.

DEVELOPMENTAL ISSUES

Longitudinal research has demonstrated an orderly development of symptoms of DBD with progression in age (Kelley et al., 1997; Loeber et al., 1997, 1998b). The onset of less serious symptoms tends to precede the onset of moderate symptoms, which precede the onset of serious symptoms. Symptoms of ODD typically appear during the preschool years, when they are considered normal. Temper tantrums reach their peak when children are 2-3 years of age. During the preschool years negativistic and oppositional behavior is common. Destructiveness, bullying and fighting decrease after the preschool years. Early adolescence is often associated with an increase in rebellious behavior. Teachers' reports indicate that most oppositional symptoms, such as arguing, screaming, disobedience, and defiance, peak between the ages of 8 and 11 years and then decline in frequency. By contrast, most symptoms of CD (truancy, stealing, drug and alcohol use, etc.), with the exception of lying, do not occur during the preschool years but become increasingly frequent during late childhood and adolescence

Loeber and colleagues (1993) presented a model of three levels of DBD according to the developmental sequence of the onset of symptoms and the severity of the symptoms - modified ODD, intermediate CD, and advanced CD. Modified ODD was a better predictor than ODD of boys who received a later diagnosis of CD. These researchers (Kelley et al., 1997; Loeber et al., 1993, 1997, 1998a) also found three developmental pathways to serious conduct and delinquent problem behavior: (1) an overt pathway, progressing from minor aggression to physical fighting and then to violence; (2) a covert pathway before age 15, from minor covert behaviors to property damage and then to moderate to serious forms of delinquency; and (3) an authority conflict pathway before age 12, progressing from stubborn behavior to defiance and authority avoidance (truancy, running away, staying out late at night).

Developmental Pathways from ODD to CD

Some researchers maintain that ODD is a relatively benign disorder with good prognosis (Loeber et al., 1991) while some believe that ODD is a mild form of CD (Lahey et al., 1997), with only a proportion of ODD cases progressing to CD (Loeber et al., 1991; Cohen and Flory, 1998). Factor analytical research supports the notion that ODD and CD are different dimensions of behavior (Loeber et al., 1991). ODD appears to belong to an oppositional-aggressive dimension, whereas CD represents mainly a construct characterized by truancy, stealing, lying, and other delinquent behavior. On the other hand, arguments based on etiology, response to treatment and the pattern of correlates do not support considering the disorder as a separate category, but there is insufficient evidence on these aspects of diagnostic validity to draw definite conclusions.

Other researchers perceive the two disorders to be hierarchically related. Cohen and Flory (1998), using longitudinal data, found that the risk of the onset of CD was four times higher in ODD cases than in children without prior ODD or CD. ODD emerged as a significant precursor of adolescent CD in children with ADHD independent of ADHD severity. Children with a diagnosis of ODD were almost three times more likely to

develop CD in adolescence (Whittinger et al, 2007).

It is unclear to what extent ODD constitutes a stepping stone to CD in girls. Recent research has suggested that there are two distinct trajectories for the development of antisocial behavior in boys: a childhood-onset pathway and an adolescent-onset pathway. Given that late onset of CD is more common in girls than boys, it is plausible that a proportion of girls with late onset do not show a history of ODD, and that for girls there are alternative pathways to CD (Silverthorn and Frick, 1999). The delayed-onset pathway for girls is analogous to the childhood-onset pathway in boys and that there is no analogous pathway in girls to the adolescent-onset pathway in boys. Moreover, it is unclear whether specific CD symptoms in girls, such as lying, usually precede the emergence of more serious behaviors, such as stealing.

Much of the work on developmental pathways has not extended into the preschool period. However, recent research has clarified that aggressive behavior in the first years of life is relatively common (Nagin and Tremblay, 1999) and decreases subsequently in most children. What is less clear is the extent to which escalation in the severity of aggression in middle to late childhood and in adolescence primarily represent children who never outgrew preschool aggression, children who temporarily ceased their aggression, or children who started aggression de novo (Burke et al, 2004).

Many researchers have studied the role of ADHD symptoms and development of later CD. Although ADHD co-occurs with CD, the association between ADHD and CD is largely accounted for by accompanying ODD (van Lier et al, 2007).

Developmental Pathways from DBD to Antisocial Personality Disorder

Childhood disruptive behaviour has powerful long-term effects on adult antisocial outcomes, which continue into middle adulthood (Simonoff et al, 2004). Cohen and colleagues (2003) found that for all adult disorders, 25% to 60% of cases had a history of conduct and/or ODD. Childhood predictors of persisting antisocial behaviour include high levels of aggression (Olweus, 1979), hyperactivity (Farrington et al, 1990), early age at onset (Tremblay et al, 1994) and aloofness or the absence of friendships (Kerr et al, 1997). Other factors have been postulated as mediators or 'stepping stones' between child and adult antisocial behaviour, these include delinquent peer groups (Fergusson & Horwood, 1995; Fergusson, 1996) and early transitions into adult life such as premature termination of education (Caspi et al, 1990).

EPIDEMIOLOGY

There is general agreement in the literature that CD is one of the most common forms of psychopathology in children and adolescents. The disorder constitutes the most common reason for referral for psychiatric evaluation of children and adolescents, accounting for 30% to 50% of referrals in some clinics (Kazdin, 1985).

The lifetime prevalence of CD has been estimated at between 6% and 16% for males and 2% and 9% for females in the U.S., based on DSM-III and DSM-III-R criteria (Loeber, et al., 2000; Maughan et al., 2004). The lifetime prevalence of DSM-IV CD is estimated to be 9.5% (12.0% among males and 7.1% among females) (Nock et al, 2006). Consistent with prior reports, CD is significantly associated with male gender, low education, marital disruption, and urban residence (Lambert et al., 2001; Lahey et al., 2002). The point or period prevalence of the disorder is reported as ranging widely, between 1% and 16%, depending on which criteria and assessment methods are used, which time window is considered, and how many informants are used (Loeber et al., 2000).

The ratio of boys to girls with CD is between 5:1 (Boyle et al., 1992) and 3.2:1 (Bird et al., 1988), depending on the age range studied. Studies reporting children 12 years of age or younger, showed that the prevalence of ODD was more than double for boys, while studies of adolescents showed a higher prevalence of ODD in girls. By comparison CD was diagnosed more often in boys in all ages (Rey, 1993), but as children mature, the gap between boys and girls closes. Gender-specific features, which become especially apparent in adolescence, include boys' tendency to exhibit more aggression, and girls' tendency to commit more covert crimes and these

engage in prostitution. In the most severely disturbed youth these gender-specific symptoms disappear. No significant gender differences in the effects of ADHD and CD on substance use and abuse in adolescents has been seen (Disney et al., 1999). The adult course for many adolescent girls with antisocial behavior is not benign. Compared to their nonantisocial peers, these women have higher mortality rates, a 10- to 40-fold increase in criminal behavior, a variety of psychiatric problems, dysfunctional and sometimes violent relationships, poor educational achievement, less stable work histories, and higher rates of service utilization (Pajer, 1998).

The families of children and adolescents with CD also have important differences when they are compared with other families (Frick et al., 1992, 1993; Plomin, 1994). Children with CD tend to come from large, low-income, urban families led by single mothers. Fathers of conduct-disordered children have a greater incidence of antisocial personality disorder and substance abuse, and they are often absent from the home. The mothers of CD children have high rates of depression, antisocial personality disorder, substance abuse and somatization disorders. Parents of children with CD tend to use corporal punishment coupled with a high rate of neglect and physical abuse (Luntz & Widom, 1994; Patterson et al., 1989, 1992). The parents of children with CD and comorbid ADHD have a greater history of violence, trouble with the law, arrests and imprisonment, when compared with the parents of children who have CD alone.

Ethnicity has not been a special focus of clinical study to date, but studies of hospital and clinic records (Kilgus et al., 1995) and self-report instruments (Zahner et al., 1993) support an influence of ethnic variables on diagnosis. An understanding of the cultural background of the child is important, as culture is endogenous to the socialization of youth and the development of specific self-regulatory strategies. Comparative transcultural studies are needed, to engineer therapies that suit cultural diversity.

ETIOLOGY AND RISK AND PROTECTIVE FACTORS

Current data best fit a cumulative risk factor model, where the likelihood of disruptive behavior increase as the risk accumulates (Burke et al., 2002).

Although the definitive model of CD has yet to be developed, one possible model is that of genetic liability triggered by environmental risk, mediated by factors such as poor coping skills. This model can be expanded to include environmental protective factors and the individual's resilience to improve prediction as to which children develop more significant psychopathology and which do not (Steiner et al., 1998, Steiner & Stone, 1999, Edens et al., 2001, Rhee and Waldman, 2002). A similar hypothesis is likely to be relevant for the development of ODD.

BIOLOGIC FACTORS

There has been a steady accumulation of data implicating, but not definitely proving biologic risks for aggressive behavior. These factors include among other things, genetic factors, central nervous system insults, underarousal of the nervous system, neurotransmitter aberrations, and difficult temperament (Carey & DiLalla, 1994; Bock & Goode, 1996; Raine, 2002)

Genetics

Support from some twin studies indicates that aggression and in extreme cases criminality have some degree of genetic contribution. However, it is unlikely that simple Mendelian inheritance or even a combination of genes can explain the highly complex behaviors of CD. Eaves and colleagues (2000), using clinical interview data from a study of twins, with maternal, paternal, and child reports, found a high genetic correlation, across sexes, in liability for ODD and CD. There was no evidence of rater contrast effects or of shared family environment influences in the twin resemblance for ODD and CD. However, Deater-Deckard (2000), in a study of preschool-age twins, considered data sources separately. No evidence of genetic effects was found when observer ratings were used, and the effects of shared environment mediated the correlations between parental and child behaviors. However, using parental ratings revealed a significant genetic mediation between parental

and child behaviors. Future behavioral genetic research must more fully ascertain the influence of different informants, developmental stages, and types of measurement in evaluating genetic, compared with shared and nonshared environmental contributions to DBD and its subtypes, and the distinction between aggressive and nonaggressive symptoms (Burke et al, 2004).

Disruptive and antisocial behavior has been shown to aggregate in families (Farrington et al., 2001), including parents and siblings of both genders (Szatmari et al., 1993). A history of parental antisocial behavior disorders is associated with a preadolescent onset of CD (Frick et al., 1992). In boys with comorbid ADHD and DBD, paternal externalizing disorder is strongly associated with comorbid CD and more moderately associated with comorbid ODD (Pfiffner et al., 1999). Family history of externalizing disorders distinguished between life-course persistent versus childhood-limited and adolescent-onset conduct problems (Odgers et al, 2007).

In girls, mother and daughter antisocial behaviors are linked, with stronger influence coming from parental psychological distress than parenting behaviors (Kaplan and Liu, 1999). Nonspecific risk for DBD comes from parental depression as well, which is related to the onset (Weissman et al., 1997) and persistence of DBD in offspring.

Genetic linkage studies have explored dopamine receptor DRD4 (Malhotra et al, 1996), catechol-O-methyltransferase (COMT) (Strous et al, 1997), and tryptophan hydroxlyase gene (Manuck et al 1999). A gene-gene interaction between DRD2 and DRD4 is associated with the development of CD and adult antisocial behavior in males (Beaver et al., 2007). These studies are at an early stage and more work is needed in this field.

Functional Neuroanatomy

Davidson (2000) considered evidence indicating that impairments in the function of the amygdala are associated with deficits in the interpretation of social cues, such as facial expression, and that a connection between the amygdala and prefrontal cortical regions serves to aid in the suppression of negative emotion. The prefrontal cortex receives a major serotonergic projection, which is dysfunctional in individuals who show impulsive violence. Baving et al. (2000) hypothesized that atypical EEG-measured frontal lobe activation patterns in children with ODD were a biological substrate of a negative affective style. The pattern of frontal brain activation seems to be gender-specific. In oppositional preschool and elementary school girls, right frontal activation emerged rather than the usual pattern of lower left frontal activation. In contrast, boys with ODD did not display any frontal brain asymmetry while healthy boys demonstrated a greater right than left frontal activation.

Neurotransmitters

During the past decade, increasing attention has been given to the study of neurochemistry associated with DBD. Blood serotonin is higher in boys with childhood- versus adolescent-onset CD and is positively associated with violence in adolescence (Unis et al., 1997). Low salivary cortisol level is associated with ODD (van Goozen et al., 1998) and both the early onset and persistence of aggression in a clinic sample of boys (McBurnett et al., 2000).

Under arousal of autonomic nervous system

Certain psychophysiological abnormalities have repeatedly been reported as risk factors for CD (Lahey et al., 1993; Raine, 1993). The best-researched area is the autonomic nervous system, which shows low reactivity on a variety of parameters in CD patients. Overall the data suggest that a subgroup of antisocial children are underaroused and hence seek high levels of stimulation to raise their low levels of arousal by engaging in risk taking and aggression.

Recent research has found reductions in the P300 electroencephalographic waveforms further highlighting the

prefrontal cortex as a site for underarousal (Iacono et al, 2002, Patrick et al, 2006). This theory suggests that these children may be more impulsive and unable to keep themselves from reacting to stimuli. Other theories linked to autonomic nervous system relate to increased fearfulness, reduced vagal tone, lower baseline heart rate, lower skin conductance and reduced noradrenergic functioning. Ultimately these disparate findings may correlate more strongly with one type of antisocial behaviors over others, making the clinical categorization all the more important in future research.

Prenatal and Perinatal Factors

Parental substance abuse has been linked to DBD in offspring. Maternal smoking during pregnancy has been found to predict CD in boys (Wakschlag et al., 1997), including an onset before puberty (Weissman et al., 1999). This association was statistically significant when controlling for socioeconomic status, maternal age, parental antisocial personality, substance abuse during pregnancy, and maladaptive parenting. Maternal smoking during pregnancy may have direct adverse effects on the developing fetus or be a marker for a heretofore unmeasured characteristic of mothers that is etiologic significance CD.

FUNCTIONAL FACTORS

Neuropsychological functioning

School-age children and adolescents with conduct problems typically exhibit deficits in verbal IQ, language abilities, and executive functions (Seguin et al., 1999; Speltz et al., 1999). Some literature suggests that neuropsychological profiles might distinguish between those who are delinquent only in adolescence versus those with an early onset and persistent course (Moffitt et al., 1994), although there is evidence to suggest that early psychosocial factors rather than neuropsychological deficits might account for these findings (Aguilar et al., 2000). Thus, whereas neuropsychological deficits provide a theoretically compelling explanation for childhood- versus adolescent-onset conduct problems, contradictory findings need to be resolved.

Intelligence and academic problems

Most studies have found that IQ scores of children with CD are on average 8 points lower than those of nondelinquent children, even when other variables such as SES, ethnicity, academic achievement, and motivation are controlled. Another consistent finding is that performance IQ is greater than verbal IQ (Lynam et al, 1993). But a review by Hogan (1999) suggested that this conclusion may be premature. Of 27 studies that reported a positive association between CD and IQ, 80% failed to control for ADHD. When ADHD was controlled, the CD-IQ relationship was often reduced to nonsignificance. Further confounding the issue, IQ appears to be related to low achievement and school failure, which are also related to later antisocial behavior (Frick et al., 1991). Also, very young girls with conduct problems, compared with those without such problems, tend to have higher scores on measures of intelligence (Sonuga-Barke et al., 1994; Fagot and Leve, 1998).

Reading problems

Some studies have found an association between reading disorders and CD (Maguin et al., 1993; Sanson et al., 1996). This link may be apparent from infancy and early childhood and may be associated with abnormal language processing within the left temporal cortex. For boys, disruptive behavior is a risk for later reading problems, but not vice versa (Maughan et al., 1996). For girls, however, early reading problems are predictive of teenage disruptive behavior (Maughan et al., 1996). Thus deficits in verbal ability may have a more serious impact on girls than boys. Other studies do not find robust association between reading deficits and conduct problems (Fergusson & Lingskey, 1997)

Temperament

Certain temperamental vulnerabilities can disrupt normal developmental processes during early childhood, such as the development of emotional regulatory abilities and the development of the affective components of

conscience, to place a child at risk for acting in an antisocial and aggressive manner. Moreover, the quality of parenting that a child experiences interacts with the child's temperament to either increase or decrease the child's risk for problem behavior (Robison et al., 2005). Temperament may facilitate the progression from early disruptive problems to CD (Nigg, 2006). In a review primarily focused on longitudinal studies, Sanson and Prior (1999) concluded that early temperament (specifically negative emotionality, intense and reactive responding, and inflexibility) is predictive of externalizing behavior problems by late childhood. In addition, an inhibited or approach-withdrawal temperament has been associated with fewer externalizing behavior problems in late childhood. Since the available evidence suggests that boys and girls differ in temperament, further studies of the gender-specific effects of temperament on DBD are needed.

Impulsivity and behavioral inhibition

Impulsivity is associated with the early onset and presence of antisocial behavior. White et al. (1994) found that behavioral, but not cognitive impulsivity was related to antisocial behavior. Kerr and colleagues (1997) distinguished between inhibition and social withdrawal in disruptive boys, and they found that behavioral inhibition decreased the risk of later delinquency, while socially withdrawn boys were at the greatest risk for delinquency. Behavioral inhibition may be positively related to anxiety, which has been shown to moderate physical aggression, even among already disruptive boys (Walker et al., 1991). Given findings of the attenuation of antisocial behavior by anxiety, further evidence is needed to determine how behavioral inhibition, anxiety, and social withdrawal differ from one another and in their influence on DBD.

Attachment

Although a link between attachment and DBD is of interest to many, strong evidence supporting this relationship is not yet in. Some studies report specific links between disorganized (Lyons-Ruth et al., 1993), insecure-avoidant (Pierrehumbert et al., 2000), or coercive insecure attachment (DeVito and Hopkins, 2001) and disruptive behavior, while others report no predictive relationship to DBD severity or diagnostic status (Speltz et al., 1999).

Social Skills

Children who lack social skills fail to attend to social cues from others. Aggressive and incarcerated delinquent boys demonstrate a bias to attribute hostile intentions to others. Boys with DBD, compared with control group boys, focus on concrete and external qualities and adopt an egocentric bias in describing their peers (Matthys et al., 1995). In a laboratory study of social problem-solving, boys with DBD and boys with ADHD had problems encoding social cues and generating responses, but boys with DBD more often selected aggressive responses to problems and felt more confident in their ability to carry out an aggressive response (Matthys et al., 1999). A review by Smetana (1990) is supportive of a relationship, albeit modest, between moral development and conduct problems.

Puberty and adolescent development

Early physical maturation is associated with increased problem behaviors in girls (Graber et al., 1997), but not in boys. Williams and Dunlop (1999) suggested that being "off-time" in pubertal development, whether early or late, is associated with deviant social status and thus contributes to antisocial behavior.

PSYCHOSOCIAL FACTORS

Parenting

Research have established both that parenting behaviours influence the development of childhood CD and that behavioural family interventions targeting specific parenting skills are the most effective way of preventing or reducing child behaviour problems (Frick et al., 1994). This association can be mediated by other psychosocial variables, including parenting attitudes and strategies, such as minimal involvement, parent-child conflict

management, monitoring, and harsh and inconsistent discipline, low emotional warmth have been correlated with children's disruptive or delinquent behavior (Frick, 1994). The relationship between parenting behavior and child conduct problems is a dynamic and reciprocal one. Whether this reflects genetic or social learning mechanisms, or both, is a matter of debate.

Little evidence disentangling parenting behaviors from parental psychopathology is available, but Kaplan and Liu (1999) suggest that while both contribute, parental psychopathology may be a stronger determinant of DBD in offspring than parenting behavior. Nonetheless, parenting behaviors may represent a more malleable point of intervention.

Much of the research has been done on boys. Parents interact differently with boys and girls, especially with regard to the development of conduct problems. Differential treatment between siblings by parents, particularly regarding parental negativity, influences disruptive behavior. The assessment of conflict in the context of the dynamic structure of the family (e.g., mother-daughter dyads, inter-sibling differences in parental behavior) may be particularly important for girls at risk for externalizing disorders (Deater-Deckard and Dodge, 1997). Coercive parenting behaviors appear to lead to aggressive behaviors in younger girls as well as boys (Eddy et al., 2001) while favorable parenting behaviors may be protective (McCord, 1991).

Child abuse

Childhood victimization of boys and girls, all categories such as emotional, physical, and sexual abuse, as well as maltreatment and neglect, is predictive of later antisocial personality disorder, criminality, and violence. A review of the literature regarding sexual abuse (Trickett and Putnam, 1998) found that problems of externalizing behaviors and conduct problems are evident in the literature reporting on samples from middle childhood and onward. Boys appear less likely to respond with internalizing problems, but are at an equal or greater risk than girls to demonstrate conduct problems.

Peer effects

Considerable evidence supports the hypothesis that peer relationships influence the growth of problem behavior in youth. Several aspects of peer relationships work to influence the development and maintenance of CD symptoms. One potential process is that peers both reject an individual demonstrating CD (Coie and Miller-Johnson, 2001) and reinforce pushy and demanding behaviors through acquiescence. In addition, affiliation with like peers further fixes the behavior and social role of the child with CD (Coie and Miller-Johnson, 2001). Peer relationships have different implications for DBD in boys and girls. Some investigators have demonstrated that aggression among girls' manifests as indirect or relational aggression (Crick and Grotpeter, 1995).

Neighborhood and socio-economic factors

Of all known forms of child psychopathology, disruptive behavior among both boys and girls is particularly associated with poor and disadvantaged neighborhoods (Loeber et al., 1995). This is highly contextual and not necessarily causal. Wikstrom and Loeber (2000) found that the effects of living in public housing countered the impact of any individual protective factors that were present. Using a composite of risk and protective factors, the authors demonstrated that boys with a composite that was balanced, or even favorable, were still likely to engage in antisocial behavior when living in public housing compared with advantaged neighborhoods. Other community factors found to be predictive of later violence include community disorganization, availability of drugs, and the presence of neighborhood adults involved in crime (Herrenkohl et al., 2000), as well as poverty, exposure to violence, and exposure to racial prejudice. Further families characterized by social isolation, broken homes, sparse networks, poor social ties, and poverty are much more likely to physically abuse the children, increasing their risk for aggression (Garbarino & Sherman, 1980).

Life stressors and coping skills

Exposure to daily stressors may add to the risk for DBD in children and can be exacerbated by life circumstances caused by their own DBD. Stressful life events were the strongest proximal influence on child behavior problems in a study of 9- to 16-year-olds (Mathijssen et al., 1999). Factors aggregate to produce increased vulnerability in these children. The Cambridge Study in Delinquent Development, in which 411 boys in working-class London, were followed from age 8 to 40 years, showed that having 4 to 5 factors present, increased the risk of disruptive behavior by 31% as against only 3% if no risk factor were present (Farrington, 1997). The interaction between individual and environmental risk factors really determines the overall variance in the outcome of these youths.

PROTECTIVE FACTORS

The Risk Resilience model posits that it is the gradual accumulation of risk as well as absence or weakness of protective factors and their interaction that ultimately lead to CD rather than single risk factors operating in isolation.

Protective factors are not simply the absence or opposite of risk factors. Protective factors are best defined as those variables that effect the core aspects of functioning positively in the presence of risk factors. Research, however, has largely ignored these factors in favor of elucidating risk. It is quite likely that more emphasis on these variables could significantly influence practice and policy.

Loeber has illustrated the gradual accumulation of factors in the genesis of CD (Loeber et al., 1993). Ecological variables, such as poverty, psychosocial toxicity, and lack of supportive community structure, are the first to exert influence. The adequacy of prenatal and perinatal health care affects the development of further risk, such as central nervous system impairment. Early in life, temperament (especially difficult), attachment (such as undifferentiated or anxious attachment) and early parenting in response to the child's coercive behavior exert important influence (Shannon et al, 2007). The role of parenting is important through the school-age years, but seems to decline from mid-adolescence onwards as internal psychological structures develop and become more important for self-regulation than parenting (Guerra et al., 1990; Kirkaldy and Mooshage, 1993; Feldman and Weinberger, 1994).

High IQ, the ability to relate well to others, good work habits at school, areas of competence outside school, positive social orientation, resilient temperament, anxiety (Rae-Grant et al., 1989; Bassarth, 2001) and a good relationship with at least one parent or other important adult offer protection against antisocial behavior and delinquency in the presence of risk. Being female may be protective via different parenting or socialization patterns; also, girls generally mature and acquire skills more quickly. Prosocial peers and a school atmosphere that fosters success, responsibility, and self-discipline also emerge as protective factors. The selection of non-delinquent peers and the selection of a "good" mate (as demonstrated by stable interpersonal relationships, a good work history, and capacity for good parenting) have been shown to protect against continuing criminal activity (Quinton et al., 1993). Strong and stable community institutions (for example, church, neighborhood organizations, and extended families), as opposed to disorganized, chaotic, and crumbling communities, tend to be protective (Bassarath, 2001).

CLINICAL PRESENTATION

Disruptive spectrum disorders are best considered as a continuum of impairment or behavior difficulty. ODD represents the least severe form of pathology in this spectrum, followed by CD and lastly antisocial personality disorder in adulthood. While there may not be always a linear pattern of progression from one to the next, many children exhibit a pattern of escalation and developmentally progress from one to the next.

Although the diagnostic manuals do not provide contextual and social perspective, but the diagnosis of CD should be considered only if the behavior is indicative of an underlying internal dysfunction in the individual and not a reactive adaptation to an immediate social context (Steiner, 1999).

NATURAL COURSE

Several studies document that for most patients, untreated CD follows a predictable course, reaching worse functioning in young adulthood, after which it seems to decline in severity (Offord et al., 1992; Loeber et al., 1993b; Robins & Rutter, 1990; Rutter, 1992b). Many children with CD develop life-course persistent antisocial behavior; however, other children exhibit childhood-limited or adolescence-limited CD symptoms and escape poor adult outcomes. Most children with CD go on to lead lives in which multiple domains of functioning are negatively affected.

The diagnosis of ODD is relatively stable over time, but most children (approximately 67%) will ultimately exit from the diagnosis after a 3-year follow-up (Hinshaw and Anderson, 1996; Loeber et al., 2000; Connor, 2002). Earlier age at onset of ODD symptoms conveys a poorer prognosis in terms of progression to CD (30%) and ultimately antisocial personality disorder and other personality disorders (10%) (Zoccolillo et al., 1992; Rutter et al., 1999; Loeber et al., 2000; Connor, 2002). About 40% of children with CD develop antisocial personality disorder (Zoccolillo et al., 1992). Which children desist from this progression is not clear based on current diagnostic criteria. Preschool children with ODD are likely to exhibit additional disorders several years later. With increasing age, comorbidity with ADHD (most common), anxiety, or mood disorders begins to appear (Lavigne et al., 2001).

Childhood disruptive behaviour has powerful long-term effects on adult antisocial outcomes, which continue into middle adulthood (Simonoff et al., 2004). Childhood predictors of persisting antisocial behaviour include high levels of aggression (Olweus, 1979), hyperactivity (Farrington et al., 1990), early age at onset (Tremblay et al., 1994) and aloofness or the absence of friendships (Kerr et al., 1997). Other factors have been postulated as mediators or 'stepping stones' between child and adult antisocial behaviour, including delinquent peer groups (Fergusson, 1996) and early transitions into adult life such as premature termination of education (Caspi et al., 1990). Although these childhood risk factors are established for late adolescent and early adult antisocial behaviour, it is not known whether they continue to exert an effect in later life. Intermediate, 'stepping stone' experiences partially mediate between childhood disruptive behaviour and adult outcomes. Reducing subsequent high-risk experiences among those with early disruptive behaviour might alter their life trajectory away from antisocial behaviour (Simonoff et al., 2004).

Beauchaine et al (2005), in a study on mediators, moderators and predictors of outcome of child externalizing behaviors, suggested that marital adjustment, maternal depression, paternal substance abuse, and child comorbid anxiety/depression each moderated treatment response. Moreover, critical, harsh, and ineffective parenting both predicted and mediated outcome, with the most favorable responses observed when parents scored relatively low on each construct at intake yet improved during treatment.

As mentioned before, contrary to popular notion the adult course for many adolescent girls with antisocial behavior is not benign. Compared to their non-antisocial peers, these women have higher mortality rates, a 10- to 40-fold increase in criminal behavior, a variety of psychiatric problems, dysfunctional and sometimes violent relationships, poor educational achievement, less stable work histories, and higher rates of service utilization (Pajer, 1998). ADHD is a significant risk factor for CD in girls. CD is associated with increased risk for academic, psychiatric and sexual behavior problems compared to ADHD girls without CD (Monuteaux et al., 2007).

NOSOLOGY

The current nosology for disruptive spectrum disorders does not well reflect the understanding that has emerged from research (Steiner, 1999; Buitelaar, 2003). Much of the current nosology presumes that normative and non-normative patterns can be distinguished purely on phenomenology. The contextual and environmental variables that have become critical to our understanding of aggression and violence are not included. Many recent studies have addressed the nosological issues.

DSM IV-TR Diagnostic Criteria for Conduct Disorder

A. A repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated, as manifested by the presence of three (or more) of the following criteria in the past 12 months, with at least one criterion present in the past 6 months:

Aggression to people and animals

- (1) often bullies, threatens, or intimidates others
- (2) often initiates physical fights
- (3) has used a weapon that can cause serious physical harm to others (e.g., bat, brick, broken bottle, knife, gun)
- (4) has been physically cruel to people
- (5) has been physically cruel to animals
- (6) has stolen while confronting a victim (e.g., mugging, purse snatching, extortion, armed robbery)
- (7) has forced someone into sexual activity

Destruction of property

- (8) has deliberately engaged in fire setting with the intention of causing serious damage
- (9) has deliberately destroyed others' property (other than by fire setting)

Deceitfulness or theft

- (10) has broken into someone else's house, building, or car
- (11) often lies to obtain goods or favors or to avoid obligations (i.e., "cons" others)
- (12) has stolen items of nontrivial value without confronting a victim (e.g., shoplifting, but without breaking and entering; forgery)

Serious violations of rules

- (13) often stays out at night despite parental prohibitions, beginning before age 13 years
- (14) has run away from home overnight at least twice while living in parental or parental surrogate home (or once without returning for a lengthy period)
- (15) is often truant from school, beginning before age 13 years

B. The disturbance in behavior causes clinically significant impairment in social, academic, or occupational functioning.

C. If the individual is age 18 years or older, criteria are not met for Antisocial Personality Disorder.

Specify type based on age at onset:

Childhood-Onset Type: onset of at least one criterion characteristic of CD prior to age 10 years

Adolescent-Onset Type: absence of any criteria characteristic of CD prior to age 10 years

Specify severity:

Mild: few if any conduct problems in excess of those required to make the diagnosis and conduct problems cause only minor harm to others

Moderate: number of conduct problems and effect on others intermediate between "mild" and "severe"

Severe: many conduct problems in excess of those required to make the diagnosis or conduct problems cause considerable harm to others

DSM IV TR Diagnostic Criteria for Oppositional Defiant Disorder

A. A pattern of negativistic, hostile, and defiant behavior lasting at least 6 months, during which four (or more) of the following are present:

- (1) often loses temper
- (2) often argues with adults
- (3) often actively defies or refuses to comply with adults' requests or rules
- (4) often deliberately annoys people
- (5) often blames others for his or her mistakes or misbehavior
- (6) is often touchy or easily annoyed by others
- (7) is often angry and resentful
- (8) is often spiteful or vindictive

Note: Consider a criterion met only if the behavior occurs more frequently than is typically observed in individuals of comparable age and developmental level.

B. The disturbance in behavior causes clinically significant impairment in social, academic, or occupational functioning.

C. The behaviors do not occur exclusively during the course of a Psychotic or Mood Disorder.

D. Criteria are not met for CD, and, if the individual is age 18 years or older, criteria are not met for Antisocial Personality Disorder.

ICD 10 Diagnostic Guidelines for Conduct Disorders

F91 CD

Judgements concerning the presence of CD should take into account the child's developmental level. Temper tantrums, for example, are a normal part of a 3-year-old's development and their mere presence would not be grounds for diagnosis. Equally, the violation of other people's civic rights (as by violent crime) is not within the capacity of most 7-year-olds and so is not a necessary diagnostic criterion for that age group.

Examples of the behaviours on which the diagnosis is based include the following: excessive levels of fighting or bullying; cruelty to animals or other people; severe destructiveness to property; firesetting; stealing; repeated lying; truancy from school and running away from home; unusually frequent and severe temper tantrums; defiant provocative behaviour; and persistent severe disobedience. Any one of these categories, if marked, is sufficient for the diagnosis, but isolated dissocial acts are not.

Exclusion criteria include uncommon but serious underlying conditions such as schizophrenia, mania, pervasive developmental disorder, hyperkinetic disorder, and depression.

This diagnosis is not recommended unless the duration of the behaviour described above has been 6 months or longer.

F91.0 CD Confined to the Family Context

Diagnosis requires that there be no significant conduct disturbance outside the family setting and that the child's social relationships outside the family be within the normal range.

In most cases these family-specific CD will have arisen in the context of some form of marked disturbance in the child's relationship with one or more members of the nuclear family. In some cases, for example, the disorder may have arisen in relation to conflict with a newly arrived step-parent. The nosological validity of this category remains uncertain, but it is possible that these highly situation-specific CD do not carry the generally poor prognosis associated with pervasive conduct disturbances.

F91.1 Unsocialized CD

The lack of effective integration into a peer group constitutes the key distinction from "socialized" CD and this has precedence over all other differentiations. Disturbed peer relationships are evidenced chiefly by isolation from and/or rejection by or unpopularity with other children, and by a lack of close friends or of lasting empathic, reciprocal relationships with others in the same age group. Relationships with adults tend to be marked by discord, hostility, and resentment. Good relationships with adults can occur (although usually they lack a close, confiding quality) and, if present, do not rule out the diagnosis. Frequently, but not always, there is some associated emotional disturbance (but, if this is of a degree sufficient to meet the criteria of a mixed disorder, the code F92.- should be used).

Offending is characteristically (but not necessarily) solitary. Typical behaviours comprise: bullying, excessive fighting, and (in older children) extortion or violent assault; excessive levels of disobedience, rudeness, uncooperativeness, and resistance to authority; severe temper tantrums and uncontrolled rages; destructiveness to property, fire-setting, and cruelty to animals and other children. Some isolated children, however, become involved in group offending. The nature of the offence is therefore less important in making the diagnosis than the quality of personal relationships.

The disorder is usually pervasive across situations but it may be most evident at school; specificity to situations other than the home is compatible with the diagnosis.

F91.2 Socialized CD

The key differentiating feature is the presence of adequate, lasting friendships with others of roughly the same age. Often, but not always, the peer group will consist of other youngsters involved in delinquent or dissocial activities (in which case the child's socially unacceptable conduct may well be approved by the peer group and regulated by the subculture to which it belongs). However, this is not a necessary requirement for the diagnosis: the child may form part of a nondelinquent peer group with his or her dissocial behaviour taking place outside this context. If the dissocial behaviour involves bullying in particular, there may be disturbed relationships with victims or some other children. Again, this does not invalidate the diagnosis provided that the child has some peer group to which he or she is loyal and which involves lasting friendships.

Relationships with adults in authority tend to be poor but there may be good relationships with others. Emotional disturbances are usually minimal. The conduct disturbance may or may not include the family setting but if it is confined to the home the diagnosis is excluded. Often the disorder is most evident outside the family context and specificity to the school (or other extrafamilial setting) is compatible with the diagnosis.

There are several differences between ICD-10 and DSM-IV classification of DBD. While DSM-IV has a categorical approach, ICD-10 follows a dimensional approach, partly supported by research data, whereby ODD is regarded as a milder form of CD. ICD-10 lists this grouping as plural to indicate heterogeneity of the DBD. A list of 23 behaviors is given and there is some weighing of the criteria, as seven behaviors of greater severity need present only once to fulfill the criterion. ICD-10 uses a finer stratification of CD and avoids co morbidity diagnosis. Various subtypes as well as a mixed disorder of conduct and emotions are permitted. But

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In contrast to DSM-III-R criteria, DSM-IV criteria allow for sub-typing CD according to age of onset (before or after age 10) and severity (mild, moderate, or severe). The age-based amendment reflects empirical findings that show that childhood-onset CD has a different comorbidity profile than adolescent-onset CD. There is no differential weighing of the various antisocial behaviors listed in DSM-IV, contributing to the poor negative predictive value. Some of the behaviors listed are endorsed by a majority of adolescents (e.g., truancy from school, staying out all night despite parental prohibitions) whereas others occur only exceedingly rarely (carrying out robberies) (Steiner, 1999).

A major debate considered whether ODD was sufficiently distinct from normal oppositional behavior to warrant its inclusion as a distinct diagnostic category and whether the criteria of ODD were a milder form of CD. Studies show that the developmental patterns of behavior in ODD and CD follow a different course but a developmental progression from symptoms of ODD to CD is also evident (Rey, 1993). There is evidence from factor analytic studies that symptoms of ODD tend to occur together, the internal consistency of the criteria is high, and the behavior has been found to be stable over time, and to have a developmental profile different from symptoms of CD. ODD is characterized by an oppositional-aggressive dimension while CD represents a construct characterized by truancy, stealing, lying, and other delinquent behavior. On the other hand arguments based on etiology, response to treatment or the pattern of correlates do not support considering the diagnosis as separate categories, but there is insufficient evidence on these aspects of diagnostic validity to draw definite conclusions.

There is current debate about the appropriateness of applying diagnostic nosology to preschool children (Campbell, 2002). Since noncompliance and aggression are more common in early childhood than other developmental periods, it is possible that the operational definitions of the symptoms of oppositional defiant and CD reflect behaviors that are normative for preschool children. The validity of interviews based on DSM specifically has been questioned because the reported rates of disorders diagnosed on the basis of this methodology appear to be high. In a recent study by Keenan and Wakschlag (2004), the DSM-IV nosology appears to be a valid diagnostic system for discriminating between typical and atypical disruptive behaviors in preschool children. In the Environmental Risk Longitudinal Twin Study, the prevalence of CD and moderate-to-severe CD were 6.6% and 2.5%, respectively (Kim-Cohen et al., 2005). Children diagnosed with CD were significantly more likely than comparison subjects to self-report antisocial behaviors, to behave disruptively during observational assessment, and to have risk factors known to be associated with CD in older children (effect sizes ranging from 0.26 to 1.24). These studies indicate that behavioral problems of preschool-age children meeting diagnostic criteria for CD should not be ignored.

For clinical trials the definitions used in DSM-IV are preferred as they are better operationalised. The definition of CD is, however, much more severe in DSM-IV than ICD-10.

Subtypes

Different researchers have proposed various subtypes of CD. It is likely that many of the subtypes of CD will ultimately be found to overlap and that only a more complex model of sub classification will do the clinical complexities justice.

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relationships with authority figures), covert (e.g., stealing) and overt (e.g., violence) domains. The three subtypes follow different developmental patterns and have distinct comorbidities and prognosis (Loeber et al., 1993; Loeber et al., 1994).

The distinction between socialized and under socialized (Quay, 1986) delinquents has been dropped in the DSM-IV. Debate continues, however, on whether the distinction between delinquents whose behavior is largely determined by ecological circumstances rather than internal and perhaps biological deficits should be retained.

Another dichotomous subtyping differentiates between overrestrained and underrestrained delinquent boys. The crime path of over-restrained delinquents differs significantly from the more common under-restrained type. Over-restrained boys commit fewer but significantly more violent crimes against persons. They tend to be older than under-restrained delinquents, do not lack prosocial skills, and in many ways seem over-socialized. Their academic and vocational functioning is usually not impaired and they may appear pseudo-mature. Such individuals have been described in the literature as “repressors” (Weinberger, 1990). They have a marked inability to attend to emotions and to elaborate mental states, especially when they are negatively charged. Their relapse rates are lower than under-restrained youths’ but are not insubstantial. Over-restrained boys may need exploratory psychotherapeutic treatment to provide reasonable explanations for the crimes they have committed. These boys also may require intervention for problems in anger management.

Research has documented 2 distinct developmental trajectories along which children develop CD - trajectories that differ in the timing at which the symptoms begin to emerge, the correlates associated with the disorder, and the long-term outcome of the disorder (Hinshaw et al., 1993; Moffit, 1993; Patterson, 1996; Connor et al, 2007). Children with a “childhood-onset pattern” begin showing severe antisocial behaviour prior to adolescence, show several enduring psychosocial vulnerabilities (e.g. neuropsychological impairments, and family dysfunction), and are at high risk for continuing to show a severe pattern of violent and antisocial behaviour into adulthood. Moffitt (1993) proposed that children in the childhood-onset group develop CD through a transactional process wherein a difficult and vulnerable child who often also experiences an inadequate rearing environment. Children in the “adolescent-onset” pattern tend to show a more abrupt onset of severe conduct problems coinciding with the onset of adolescence. They also tend to have less dysfunctional family backgrounds, are less likely to have cognitive impairments, are less likely to have problems of impulsivity and overactivity, show a greater desire and ability to maintain social relationships, and show better adult adjustment than their childhood-onset counterparts (Moffitt et al., 1993; Moffitt and Caspi, 2001). Their antisocial behaviour is seen as an exaggeration of the normative developmental process of identity formation that takes place in adolescence.

In a recent study, the latent class analysis of DSM-IV symptoms generated a much more complex characterization of CD subtypes than prior studies and revealed five subtypes of CD: three specialized (Rule Violations, Deceit/Theft, and Aggressive) and two more general and more severe (Severe Covert and Pervasive CD). This five-category system bears important similarities to dichotomous schemes proposed in prior studies, but synthesizes the earlier schemes in a way that documents greater complexity and variation in severity than in any of the dichotomous classifications (Nock et al., 2006).

Frick et al. (1993) conducted a meta-analysis of more than 60 published factor analyses on more than 28,401 children and adolescents. They found that CD could be described by two bipolar dimensions. The first dimension was an overt–covert dimension and second dimension was a destructive–nondestructive dimension. This dimension divided the overt behaviors into those that were overt-destructive (aggression) and those that were overt-nondestructive (oppositional), and it divided the covert behaviors into those that were covert-destructive (property violations) and those that were covert nondestructive (status offenses; i.e., those behaviors that are illegal because of the child or adolescent’s age).

Thus, it is likely that the DSM-IV childhood-onset group, the Loeber “three-channel disturbed group,” the “under-restrained” group, and the “under socialized group” describe a core of patients with similar profiles es.

from different perspectives. At the present time, data support each of these models and each should be considered to optimize management and treatment of this heterogeneous category of patients.

CO-MORBIDITY

Many studies document the extensive comorbidities found with CD. Comorbidities should be considered during treatment planning, as they provide suitable targets for multimodal intervention. Although it is clear that CD is associated with other disorders, little is known about whether comorbid disorders precede or follow the onset of CD, whether comorbidities differ by CD subtype, or whether CD is associated with the adult persistence of comorbid disorders.

Rates of ODD in samples of children with ADHD reportedly average 35%; when ODD and CD are combined the rates of comorbidity with ADHD rise to 50%-60% (McCracken, 1999). Of children with hyperactivity, the subgroup that also has CD has the worst social adjustment in later life (Barkley, Fischer, Edelbrock, & Smallish, 1990). ADHD facilitates the early onset of CD, which is a strong predictor of adverse outcome. A 30-year prospective follow up study of hyperactive boys with CD revealed that boys with comorbid CD are at increased risk of adult criminality. In fact, combining ADHD and CD into a single diagnosis has been debated, but several studies find that the disorders' risk factors are different and their respective predictive powers for adult criminal outcomes are independent, yet additive (Farrington et al., 1990). Family and genetic studies support the premise that children with comorbid ADHD-CD may present an etiologically distinct subtype. These children are particularly challenging and require intensive intervention to prevent greater morbidity and impairment. However, multimodality-treated boys with Hyperactive/ADHD did not fare better than drug-treated-only boys with ADHD (Satterfield et al, 2007).

ODD is a frequently comorbid condition, although it is debatable whether ODD constitutes a separate diagnostic entity or a developmental antecedent of CD (Steiner et al., 2007). ICD 10 description and DSM-IV criteria preclude the diagnosis of ODD in presence of full CD criteria. Subjects with ODD and with comorbid CD had higher rates of mood disorders and social impairment than those with ODD alone (Steiner et al., 2007).

Substance use disorders are extremely common in CD. In the literature reviewed by Armstrong and Costello (2002), 60% of adolescents with drug use, abuse or dependence had comorbid psychiatric diagnosis, the commonest being CD and ODD. In a 25-year longitudinal study of a birth cohort of 1265 New Zealand born children the association between early attentional problems and later substance use abuse and dependence was largely mediated via the association between conduct and attentional problems (Ferguson et al, 2007).

Among Axis II disorders, the predominant comorbidities are borderline personality disorder in girls, antisocial personality disorder in boys, mental retardation, and specific developmental disabilities. The extent of personality comorbidity on Axis II in juveniles with CD (Eppright et al., 1993) raises questions about the validity of existing diagnostic criteria and the usefulness of interviews that produce these diagnoses for this age group. Antisocial personality disorder in DSM-IV is unique among personality disorder diagnoses in requiring the individual to satisfy a number of childhood criteria in addition to relevant traits exhibited in adulthood. Few differences were found between two groups of antisocial personality disorder adults with or without antisocial traits in childhood on the measures examined. This failure to find clinically important differences between the two groups is in agreement with previous reports and needs to be taken into account in future revisions of antisocial personality disorder in DSM (Perdikouri, 2007)

Internalizing disorders usually are associated with CD during adolescence. Anxiety disorders appear at a higher level than chance, especially for girls, after puberty. While anxiety disorders in isolation seem to protect against CD, when comorbid, their protective influence depends on the age when they appear (Loeber & Keenan, 1994b). Depression and CD each increase in prevalence during puberty, and also co-occur much more frequently. CD appears to antedate depression. Boys are more affected by this comorbidity before adolescence, while subsequently girls predominate. In a large, multisite, gender-and ethnically diverse sample of 431 youth from 5th to 7th grade it was seen that youth with co-occurring problems in 5th grade demonstrate significantly lower academic adjustment and social competence two years later (Ingoldsby et al, 2006). Categorical analyses

suggested that, in terms of adjustment problems, youth with co-occurring symptomatology were generally no worse off than those with CD-alone, and those with depressive symptoms-alone were similar over time to those showing no symptomatology at all. While, the impact of depression on CD ranges from mixed to none, it does add the possibility of suicidal behavior to the clinical picture. Somatoform disorders, which generally appear during adolescence and predominate in girls, are frequently comorbid with CD, but little is known about their impact on the disorder (Loeber & Keenan, 1994b).

The Methods for the Epidemiology of Child and Adolescent Mental Disorders (MECA) Study revealed that while ADHD was associated with generalized social phobia, more severe externalizing behavior (ODD and CD) was only associated with performance-focused social phobia (Marmorstein, 2006).

The comorbidities follow different developmental trajectories and have different effects on gender and prognosis (Loeber & Keenan, 1994b). ADHD occurs first in the externalizing spectrum, especially before adolescence, after which its frequency declines. ADHD is followed by ODD, and then CD. Finally, substance abuse occurs in adolescence. The association between ADHD and CD is especially strong for boys in terms of prognosis. The addition of substance abuse to ADHD and CD is predictive of violent behavior in boys. In girls, it is much less clear whether the combination of ADHD and CD with substance abuse yields violent results. However, girls do show a much higher risk than boys to develop CD if they have ADHD (Loeber & Keenan, 1994b). In both genders, ODD seems to have a critical role in the progression from simple behavior problems to CD.

DIFFERENTIAL DIAGNOSIS

Disturbances of conduct may be part of many childhood psychiatric conditions, such as mood disorders, psychotic disorders and learning disorders. Therefore, clinicians must obtain a history of the chronology of the symptoms to determine whether the conduct problems are transient or a reactive phenomenon or an enduring pattern. Isolated acts of antisocial behavior and aggression do not qualify for a diagnosis of CD. Oppositional behavior is both normal and adaptive depending upon the developmental stages, these periods of negativism must be differentiated from ODD.

The relationship of ODD and CD is still debatable. Historically, ODD is regarded as a mild precursor of CD but some evidence indicates that the two disorders are independent. The main distinguishing clinical feature of the two disorders is that in CD, the basic rights of others are violated, whereas in ODD hostility and negativism fall short of seriously violating the rights of others.

A child may exhibit conduct-disordered behaviour in response to a stressful event such as starting school, conflict between parents, and physical or sexual abuse. Usually the onset of the behaviour is associated with the stressful event and diminishes as the situation improves. Oppositional behavior temporarily occurring as a reaction to stress should be diagnosed as adjustment disorder. Oppositional behavior may also be present in ADHD, cognitive disorders and mental retardation. Whether a concomitant diagnosis of ODD should be made depends on the severity, pervasiveness and duration of such behavior. Adolescents may show conduct-disordered behaviour in response to a recent stressful event or from a recent association with a peer group of troubled youth. If the problem behaviour is isolated and if the youth's level of functioning was good before the behaviour occurred, then conduct symptoms are most likely secondary to another disorder such as adjustment disorder, post-traumatic stress disorder or depression. Disruptive behaviour associated with anxiety or depressive disorders should dissipate with treatment of these disorders.

Mood disorders are often present in children with aggressive behavior. A child or adolescent who is manic may engage in dangerous and disruptive behaviour including impulsive violations of rules and aggression. There will be other behaviours not typical of CD, however, such as pressured speech, flight of ideas, increased appetite and a decreased need for sleep that serves to distinguish CD from manic behaviour. Significant acting out frequently occurs among children and adolescents with major depression and dysthymic disorder. A depressed adolescent may be defiant to parents and other persons in authority, and behaviour may include truancy and failure, use of alcohol or illegal drugs, sexual activity, and the appearance of delinquent

behaviours. Unlike the conduct-disordered youth, however, the depressed youth usually shows a change in mood that comes before the disruptive behaviour. As the youth's mood improves, the deviant behaviour diminishes. The coexistence of major depression with CD increases the risk of impulsive suicidal behavior.

Learning disorders are frequently associated with CD. McGee et al (1986) found that reading disabled boys were about three times as likely as their peers to have an externalizing disorder. Learning disabilities are accompanied by personality characteristics that predispose the individual to CD (Larson, 1988).

The construct of externalizing behavior problems refers to a grouping of behavior problems that are manifested in children's outward behavior and reflect the child negatively acting on the external environment (Campbell et al., 2000; Eisenberg et al., 2001). These externalizing disorders consist of disruptive, hyperactive, and aggressive behaviors (Hinshaw, 1987). ADHD features of disinhibition, inattention and distractibility should be distinguished from lying, serious aggression and illegal behaviors, however, as mentioned before, ADHD and ODD and CD are frequently comorbid. Substance use disorders are also common in adolescents with CD. Additionally, substance use is likely to further reduce impulse control and increase contact with deviant peers (Barnes et al, 1990). Age under 18 prevents the diagnosis of personality disturbances but in some cases borderline, narcissistic and antisocial personality disorders should be considered (Steiner, 1999).

Problem behaviour also may be a symptom of a serious psychiatric disorder, such as psychosis. The child's assessment should identify a history of hallucinations, delusions, or a thought disorder. Disruptive behaviour may result from an organic personality disorder in children with a congenital or acquired injury to the central nervous system, such as fetal alcohol syndrome, head injury, or encephalopathy. Aggressive outbursts also may indicate psychomotor seizures. In such cases, the aggression is generalized and not aimed at a specific person. There also may be other symptoms of a seizure disorder, such as aura, confusion, and EEG changes.

Intermittent explosive disorder, featuring unprovoked, sudden aggressive outbursts, can only be correctly diagnosed when the child's behavior does not meet the criteria for CD (Searight, 2001). Patients with intermittent explosive disorder deny plans to harm anyone but report that they assaulted another person without realizing it. In children and adolescents with intermittent explosive disorder, these episodes are the only signs of behavior disturbance. Other than unplanned acts of aggression, patients with intermittent explosive disorder do not engage in repeated violations of other rules or in illegal behavior such as theft or running away from home.

In short, although a number of disorders show symptoms similar to CD and they can be comorbid with CD, usually the persistent pattern of violating societal norms, antisocial behaviour and a history of problems with the law help to distinguish CD.

CD AND AGGRESSION

Anger is believed to have three components (Lewis & Michalson, 1983), the emotional state of anger, the expression of anger and the understanding of anger. The first component is the emotion itself, defined as an affective or arousal state, or a feeling experienced when a goal is blocked or needs are frustrated. Different children express anger in various ways such as crying, sulking, physically or verbally retaliating the provocateur. Children develop ideas about how to express emotions primarily through social interaction in their families and later by watching television or movies, playing video games, and reading books (Honig & Wittmer, 1992). Some children learn a negative, aggressive approach to expressing anger (Cummings, 1987; Hennessy et al., 1994) and, when confronted with everyday anger conflicts, resort to using aggression in the classroom (Huesmann, 1988). Because the ability to regulate the expression of anger is linked to an understanding of the emotion (Zeman & Shipman, 1996), and because children's ability to reflect on their anger is somewhat limited, children need guidance from teachers and parents in understanding and managing their feelings of anger.

Humans seem to learn to regulate the use of physical aggression during the preschool years. Those who do not,

seem to be at highest risk of serious violent behavior during adolescence and adulthood. Chronic physical aggression during childhood, which, in some cases, becomes serious violence during adolescence and adulthood, starts with high levels of physical aggression during infancy and toddlerhood (Tremblay et al, 2004). Physical aggression peaks at perhaps around the second year of life, and subsequently shows distinct developmental trajectories in different individuals (Nagin & Tremblay, 2001; Shaw et al, 2003). Generally speaking, aggression is found to be more common in boys than in girls. While boys often engage in physical aggression, girls are more likely to exhibit what has been termed “relational aggression,” such as exclusion of others from their social group, and slander (Hadley, 2003). The term relational aggression refers to behaviors that harm others through damaging their relationships, feelings of acceptance, inclusion in social groups, and friendships.

Tremblay et al. (2004) study indicated that children who are at highest risk of not learning to regulate physical aggression in early childhood have mothers with a history of antisocial behavior during their school years, mothers who start childbearing early and who smoke during pregnancy, and parents who have low-income and have serious problems living together. Deficiencies in a triad of emotional intelligence competencies: empathy, self-regulation of anger, and impulsivity often lie at the root of aggressiveness (Goleman, 1999). Not all such angry children are bullies; some are withdrawn social outcasts who overreact to being teased or what they perceive as slights or unfairness. They misperceive neutral acts as threatening ones and tend to attack in return. Studies show that the prototypical pathway to violence and criminality with children who are aggressive begins in early childhood. Typically, from their earliest school years their poor impulse control contributes to their being poor students. By fourth or fifth grade these children are rejected by their peers. They gravitate to other delinquent peer groups. Between grade four and grade nine they drift towards truancy, drinking and substance abuse. By high school years this outcast group typically drops out of school in a drift towards delinquency, engaging in petty crimes such as shoplifting, theft and drug dealing.

Childhood externalizing behavior problems and aggression are important predispositions to later violent offences (Farrington, 2001; Liu, 2004). Not only is childhood physical aggression a precursor of the physical and mental health problems that will be visited on victims, but also aggressive children themselves are at higher risk of alcohol and drug abuse, accidents, violent crimes, depression, suicide attempts, spouse abuse, and neglectful and abusive parenting (Tremblay et al, 2004). Furthermore, violence commonly results in serious injuries to the perpetrators themselves.

MANAGEMENT

ASSESSMENT

The clinical presentation of this disorder can be quite diverse and difficult to assess. In addition the context in which these symptoms occur is quite variable. Further the child and other informants differ widely in their appreciation of some of the problems and hence it becomes mandatory to employ a range of methods for assessment across different settings, addressing multiple domains and using multiple informants. Particular attention should be paid to collect data that allow further subtyping of the disorder and identify comorbidities as they influence treatment selection, course and outcome of the disorder.

In obtaining information for both assessment and subsequent treatment, the success of these tasks will require building a therapeutic alliance with the parents and the child separately. The clinician is advised to accept inconsistencies and contradictions and not attempt to clear them up as in a single session as they may lead to alienation and premature confrontations. Interview of parent and child as well as other informants like schoolteachers may be needed. External observations help in determining that despite variation in the social environment, the child continues to manifest oppositional behavior. This information will help determine how many domains of functioning are affected, and confirm the diagnosis.

The evaluation must include a detailed physical examination and an assessment of neuropsychiatric and neuropsychological functioning if needed. Particular attention must be given during the mental state examination to disturbances of mood and affect, suicidality, impulsivity and comorbidities.

Delineation of ODD and CD from normative oppositional behavior and transient antisocial acts is of paramount importance. A degree of oppositional and negativistic behavior is common among children. Learning to resist and even oppose the will of others is part of normal development, particularly during the phases of separation-individuation in the second and third years of life and during adolescence, when such behavior may be explained as a manifestation of the need to separate from parents and establish an independent identity. Temper tantrums reach their peak when children are 2-3 years of age (Goodenough, 1939; Shepherd et al, 1971). During the preschool years negativistic and oppositional behavior is common, resulting in angry outbursts and ensuing conflicts with parental authority about matters that vary with age, such as toilet training or possessions at age 2 and tidiness at age 5. Destructiveness, bullying, and fighting decrease after the preschool years (Rutter and Giller, 1983). Early adolescence is often associated with an increase in rebellious behavior (Looney and Oldham, 1989). Teachers' reports indicate that most oppositional symptoms, such as arguing, screaming, disobedience, and defiance, peak between the ages of 8 and 11 years and then decline in frequency (Achenbach and Edelbrock, 1986). The clinician always needs to explore carefully the possibility that the child's oppositionality is triggered or even caused by incidences of physical abuse, sexual abuse, or neglect in the family or in the child's extended social orbit, and thus are reactive and contextually driven.

Focusing on the following aspects of behavior can produce valuable information in terms of conceptualizing the problem and its treatment:

PATTERNS OF BEHAVIOR: Children who exhibit episodic, short term and reactive violence are more responsive to current medication and psychological therapies. In contrast, children with more stable patterns of behavior involving premeditation, planning and true lack of morality are less responsive and need prompt referral to experts (Steiner, 1997; Steiner and Dunne, 1997; Steiner and Stone, 1999)

PRECIPITANTS: A simple traditional history is not sufficient to understand the dynamics of disruptive behaviors. Information about the social environment needs to be obtained in depth. Clinician needs to be especially attentive to changes in the peer group, family structure, environment and abuse (Brownfield and Thompson, 2002; Sirpal, 2002). It is essential to ascertain the degree to which these changes may be normative. Disruptive behaviors may be the first signs of new onset or ongoing abuse.

DEGREE OF DISRUPTION: This variable clearly depends on interactive processes and is based on the degree of acceptance and tolerance of the child's behavior in any context. The clinician may prefer using a severity scale for this portion of his assessment.

A structured diagnostic schedule as part of the clinical assessment may be helpful. Currently available schedules include the Diagnostic Interview Schedule for Children by age (DISC-IV) (Shaffer et al., 2000) and Diagnostic Interview for Children and Adolescents (DICA) (Reich, 2000), which are respondent-based structured interview schedules that can be administered by lay interviewers and capture most psychiatric diagnoses that occur in children adolescents using DSM-IV and ICD-10 criteria. The Schedule for Affective Disorders and Schizophrenia for School-age Children (K-SADS) (Kaufman et al., 1997; Ambrosini, 2000) and Child and Adolescent Psychiatric Assessment (CAPA) (Angold and Costello, 2000) are interviewer-based schedules that should be administered by trained clinicians.

A number of severity scales completed by parents and teachers have been used successfully to measure response to treatment, both in placebo-controlled studies and in open studies. These include the Overt Aggression Scale (OAS) (Malone et al., 2000), the Modified Overt Aggression Scale (MOAS) (Buitelaar et al., 2001), the Aberrant Behaviour Checklist (ABC) (Aman and Singh, 1985), the Iowa Aggression Scale from the Conners' questionnaire, and a conduct subscale of the Quay Revised Behavior Problem Checklist (Klein et al., 1997). The Aberrant Behaviour Checklist (ABC) (Aman and Singh, 1985) has been widely used and has been found capable of distinguishing active treatment from placebo, even in the developmentally disabled (Buitelaar et al., 2001). The Nisonger Child Behaviour Rating Forms (NCBRF) (Tasse et al., 1996) has been used successfully in placebo-controlled studies in both children and adolescents in developmentally disabled subjects (Aman et al., 2002; Snyder et al., 2002) and has been found to correlate well with the ABC. Global

scales such as the CGI-severity and CGI-improvement scales completed by the investigator have also proved to be effective in distinguishing treatments from placebo and been used in efficacy studies (Buitelaar et al., 2001; Aman et al., 2002; Snyder et al., 2002).

Broadly the following areas are the focus of assessment:

- CD behaviors
- ODD/CD Diagnosis
- Type of CD: overt/covert CD or childhood onset/ adolescent onset CD
- Presence of noncompliance/ reactive or proactive aggression, relational aggression
- Delinquency
- Functional impairment/ adaptive disability
- Comorbid conditions specially ADHD, depression, anxiety, substance abuse, language impairment, academic underachievement
- Risk Factors - biologic (temperament), cognitive correlates, parent- child relation, parenting practices, peer interaction, social context

Sheldrick (1999) suggests a traditional adult forensic approach to risk assessment in young offenders who are violent. The following should be considered: situations, triggers, frequency, severity and trends over time

- ***Index offence***

Seriousness

Nature and quality

Victim characteristics

Intention and motive

Role in offence

Behaviour

Attitude to offence

Victim empathy

Compassion for others

- ***Past offences***

Juvenile record

Number of previous arrests

Convictions for violence

Cautions

Self-reported offending

- ***Past behavioural problems***

Violence

Self-harm

Fire-setting

Cruelty to animals

Cruelty to children

Prevention

Prevention is regarded by many as a key element in DBD intervention (Coie and Jacobs, 1993; Loeber and Farrington, 1998; Offord et al., 1998; Committee on Preventive Psychiatry, 1999; Loeber and Farrington, 2001). Offord and colleagues (1998) describe an integration of universal, targeted, and clinical intervention strategies, as having inherent multiplicative benefits. That is, addressing risk factors within increasingly targeted or individualized treatment efforts (such as resistance to substance abuse) may be more effective if universal interventions (such as community interventions) are also in place to address risk factors at other levels. For example, recent findings regarding the Fast Track program, a multimodal program combining universal and targeted interventions, demonstrated modest success in the prevention of conduct problems in young children approximately 4 years after having been identified as at-risk (Conduct Problems Prevention Research Group, 2002).

Tremblay and colleagues (1999), in reviewing the literature on prevention efforts, were able to find only 20 studies that used DSM criteria of DBD with non-referred children aged 12 and younger, had a follow-up of at least 1 year, and used sound methodology. The majority of these studies used at least two modes of intervention, which makes the identification of specific mechanisms for prevention difficult, but this highlights the increased effectiveness of addressing multiple risk domains in treatment. Frequently, successful prevention programs included a parent-directed component; other aspects of successful prevention included social-cognitive skills training (when combined with other interventions), academic skills training, proactive classroom management and teacher training, and group therapy. The authors observed that a number of high-quality studies are under way that will, in time, help to improve the available prevention data.

TREATMENT

Given its great societal implications, it is not surprising that the treatment of CD has been the focus of a large number of controlled treatment-outcome studies. CD has long been regarded as relatively intractable and resistant to treatment interventions.

Findings from the past 10 years suggest no giant leaps in treatment of CD but, instead, a number of small steps, such as new strategies in service delivery (Burke et al., 2004). The vast majority of treatment approaches show modest effect sizes. Programmes should be multimodal and should address the developmental needs of the child.

There is consensus among experts that early intervention is better; prevention is more effective than treatment; and extensive approaches in naturalistic settings are more effective than those that work in special settings (Kazdin, 1995). Experts agree that any dramatic, one-time, time limited, or short-term intervention is usually not going to be successful (Hinshaw and Anderson, 1996; Steiner, 1999; Burke et al., 2002; Connor, 2002). Inoculation approaches continue to resurface in a variety of forms (e.g., boot camps, shock incarceration). These approaches are at best ineffective and at worst injurious, especially when used in isolation from evidence-based approaches (Mendel, 1995; Rutter et al., 1999; Connor, 2002).

Developmental considerations

PRESCHOOL AGE CHILDREN: CD is rarely manifested in this age group but early intervention may prevent future development of conduct problems. Risk and resilience factors for this age group include poverty, perinatal complications, maternal attachment problems, temperamental traits, poor goodness of fit, and level of parental education (Steiner, 1997; Steiner, 1999). Programs such as Head Start may help prevent delinquency.

Such programs usually provide children with stimulation, provide parents with education about normal development and maturation, and provide parental support in times of crisis. A comprehensive intervention model for a clinical infant development program has been described and may serve as a focal point for other community services (Greenspan, 1987). In clinical settings, targets for intervention include the temperamental characteristics of the child, the goodness of fit between the child and the parent, and the facilitation of parental efficacy, especially in handling the child's normative coercive behaviors and tantrums. Although stimulants and other medications are prescribed frequently for this age group, especially by primary care physicians, there is no convincing support that medication is effective in the short- or long-term, especially in the absence of ADHD.

SCHOOL AGE CHILDREN: Risk and resilience factors in school-aged children involve greater and newer domains of functioning than for preschoolers. There is growing ability to function outside of the family, to respond to demands from authority figures, to perform academically, to perform under pressure, to acquire an age-appropriate peer group with major emphasis on same sex peers, to assume increasing responsibilities in the home, to assist parents, and to be able to function without constant parental supervision (Steiner, 1997; Steiner, 1999). In this age group, the primary target for intervention should be the child and the family, as well as the school context in which the child operates (Kazdin, 1995). Suitable targets are prosocial functioning and antisocial behaviors. Multiple studies show the effectiveness of parent training programs and child centered programs aimed at building social skills, peer relations, ability to comply with demands from authority figures and academic skills. Social competence can also be induced by techniques like television viewing of problem situations and fantasy play (Tremblay et al., 1991).

ADOLESCENTS: In adolescence, risk and resilience factors highlight progressive decline in importance of parenting, and greater importance of internal self-regulation. Risk-taking, developing sexual relationships, performing at higher levels academically and vocationally, maintaining friendships, becoming a constructive member of a group, and coping with developing bodily strengths, skills, and sources of gratification also become important. Other important areas to focus in this age group include juvenile offences, juvenile justice issues, and involvement with substance and alcohol (Steiner, 1997; Steiner, 1999).

Since adolescents rely on peers more than parents for the generation of values and to chart a course of action, interventions should be targeted to peers, as well as to the family. Perhaps the most promising approach is the Multi-Systemic Therapy, which treats adolescents with CD in their psychosocial environments, while combining aggressive case management in the community with targeted family interventions. Carefully designed studies have shown this approach to be superior to incarceration and other treatments, at substantially reduced cost (Feldman & Weinberger, 1994).

Psychoeducational packages targeting social skills, conflict resolution and anger management are available to augment treatment. Some have better empirical support than others; the better ones can be recommended to educational and other settings dealing with groups of adolescents and parents (Mendel, 1995). Psychopharmacological management is increasingly being considered for this age group.

Nonpharmacological treatments

Four treatments have proven to be effective in controlled outcome studies (Frick 2001). Three of the four effective treatments come from the cognitive-behavioural tradition that emphasizes the role of social learning. The fourth combines the use of stimulant medication with cognitive behavioral approaches.

By and large, isolated individual treatment of disruptive behavioral disorder has not been proven to be a superior form of treatment. Brestan and Eyberg's (1998) review found only modest support for individual treatment compared with more effective parent-training programs, but characterized interventions in anger control/stress inoculation, assertiveness training, and rational-emotive therapy as "probably efficacious." Other studies have found child-focused problem-solving skills training programs (Kazdin, 1996; Webster-Stratton and Hammond, 1997) and moral development interventions (Arbuthnot, 1992) to be effective in reducing disruptive behavioral disorder behaviors and in building prosocial skills. Individual interventions

may be most effective as a component of a broader treatment program addressing a variety of risk domains.

Multimodal interventions show the greatest successes in treating DBD as they that address multiple risk factors in comprehensive programs e.g., The Fast Track Program, multisystemic therapy, etc. (Borduin, 1999; Conduct Problems Prevention Research Group, 2000).

Contingency Management Treatment: The contingency management treatment approach has typically focused on the contention that many children with CD come from families in which they have not been exposed to a consistent and contingent environment - a poor socialization experience that plays a major role in their deficient ability to modulate behaviour, for example, to delay gratification or to conform to parental and societal expectations (Patterson, 1996). Also, some children with CD have a temperamental vulnerability which makes them more susceptible to a noncontingent environment: they may, for example, be over-focused on the potential positive consequences of their behavior to the extent that they do not consider potential negative consequences (O'Brien, 1996). These programs all involve 1) establishing clear behavioural goals that gradually shape a child's behaviour in areas of specific concern, 2) developing a system to monitor whether the child is reaching these goals, 3) having a system to reinforce appropriate steps toward reaching these goals, and 4) providing consequences for inappropriate behaviour.

PARENT MANAGEMENT TRAINING: A critical focus of parent management training programs is to teach parents how to develop and implement very structured contingency management programs in the home. Parent management training programs, however, also focus on 1) improving the quality of parent-child interactions; 2) changing antecedents to behaviour to enhance the likelihood that positive prosocial behaviors will be displayed by children; 3) improving parents' ability to monitor and supervise their children; and 4) teaching parents more effective discipline strategies. Deficits in these specific aspects of parenting have been consistently linked to child CD in a large body of research.

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There is evidence from randomized trials that suggests that PMT strategies are among the most effective in the treatment of DBD (Brestan and Eyberg, 1998; Frick, 2001; McMahon, 2006), and are associated with improvements across settings and over time (Kazdin, 1997). However, as Greene and Doyle (1999) observed, the improvement found in many studies of parent management training, though significant, still fails to bring children out of the clinically impaired range of functioning. The authors suggest that a failure to consider the transactional nature of DBD between parent and child may be related to this lack of clinically significant improvement. In a randomized, controlled study of young children with DBD, Webster-Stratton and Hammond (1997) found the combination of parent and child training to be superior to either component alone and to a control condition. The effects were maintained at 1-year follow-up and were associated with component-specific changes in parent behaviors and child behaviors. In a study of parent management training versus family-oriented problem-solving communication training, Barkley and colleagues (2001) found that while both interventions were associated with significant overall improvement, problem-solving communication training, when provided by itself, was associated with a significantly higher dropout rate than treatment that involved parent management training. Finally, parent psychopathology, expectations regarding treatment and family stressors are predictive of retention in and success of treatment (Burke et al, 2004). Corresponding improvement in parent and family functioning has been found with child improvement after parent management training and problem-solving treatment in children with DBD (Kazdin and Wassell, 2000). A pragmatic randomized control trial evaluating efficacy of the Webster-Stratton Incredible Years basic parenting programme in preschoolers showed that significant improvement in the intervention group on most of the

measures of parenting and problem behaviour (Hutchings et al, 2007).

Many very explicit treatment manuals have been developed for implementing parent management training for various age groups (for example, preschool [Hembree-Kigin, 1995], school-age [Forehand, 1981], and adolescent [Patterson, 1987]) and for children with specific needs - for example, children with attention-deficit hyperactivity disorder (ADHD) (Barkley, 1987). As a result, sources of guidance exist for the implementation of these programs. Further, these techniques have been provided in many different modalities - with individual parents, with groups of parents, and even through videotaped instruction (Webster-Stratton, 1997). Key limitations of these treatment approaches, however, have been the large number of parents who do not complete the parenting programs and their lack of effectiveness for the most dysfunctional families.

Functional family therapy has been shown to be effective in treating older children and adolescents with CD in severely distressed families from diverse ethnic and socioeconomic backgrounds (Gordon et al 1995).

Meta-analysis of eight randomized controlled trials involving 749 children and adolescents (aged 10–17 years) with CD and/or delinquency suggests that family and parenting interventions for juvenile delinquents and their families have beneficial effects on reducing time spent in institutions and their criminal activity (Woolfenden et al, 2002). In addition to the obvious benefit to the participant and their family, this may result in a cost saving for society.

COGNITIVE BEHAVIORAL SKILLS TRAINING : Most CBST programs include some method of having a child inhibit impulsive or angry responding (Kendall and Braswell, 1985; Lochman, 1992). This approach is designed to overcome the deficits in social cognition and in social problem-solving experienced by many children and adolescents with CD (Day et al, 1992, Dodge et al, 1997). Key limitations to the effectiveness of most cognitive-behavioural programs are the difficulties encountered in getting children to use the skills learned in the program outside the therapeutic setting (Kendall et al, 1990) and to maintain the skills over extended periods of time after the intervention has ended.

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FAMILIES AND SCHOOLS TOGETHER (FAST TRACK): The FAST Track Program was developed by the Conduct Problems Prevention Research Group to be a long term, multi-component, and multi-site intervention early in children's development of conduct problems. Specifically, after the first year of the FAST Track intervention (Conduct Problems Prevention Research Group, 1999), children in the treatment group, compared with control children, showed evidence of better social-coping skills and more advanced word-attack skills, more positive peer relations and better grades at school. Parents in the intervention group showed more warmth and positive involvement with their children; used less harsh, and more appropriate and consistent, discipline; and showed more positive school involvement; than did parents in the control condition. The intervention groups showed significantly better scores on 4 of the 10 outcome measures, with an average effect size of 0.21 (range 0.02 to 0.53).

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scores on 4 of the 10 outcome measures, with an average effect size of 0.21 (range 0.02 to 0.53).

Multi Systemic Therapy: Multi systemic therapy has been demonstrated not only to be effective in reducing antisocial behavior, but also to be highly cost-effective (Aos et al., 2001). Multi systemic therapy adopts a proactive and flexible focus in addressing risks at the individual, family, peer, school, and neighborhood level. Multi systemic therapy is an expansion of a systems orientation to family therapy. In systemic family therapy, problems in children's adjustment, such as CD, are viewed as being embedded within the larger family context. Multi systemic therapy expands this notion to include other contexts, such as the child's peers, school, and neighborhood.

In a controlled treatment-outcome study, 88 adolescent repeat offenders underwent multi systemic therapy and a control group of 68 offenders received traditional outpatient services. At a 4-year follow-up, only 26% of the youths who underwent multi systemic therapy were rearrested, compared with 71% of the control-group adolescents (Borduin et al, 1995). In another outcome study, the group receiving multi systemic therapy showed half as many arrests and spent an average of 73 fewer days incarcerated than did adolescents who received standard services (Henggeler et al, 1992).

COMMUNITY BASED INTERVENTIONS: While treatment foster care is heavily relied on in practice for treating severely disruptive children, Reddy and Pfeiffer (1997) found only a modest positive change in general behavior problems across 11 studies of treatment foster care. Similarly, studies of school-based prevention programs (Howard et al., 1999), which range from the use of metal detectors and playground activities to overall school organization and philosophy, have found mild positive outcomes at best, with little behavioral change.

Interventions that include peer groups should be cautious about group composition. Dishion et al. (1999), in a review of the literature combined with empirical investigations, reported finding iatrogenic effects of early-adolescent interventions that bring together children with conduct problems. They suggested that in such group interventions, the reinforcement of deviant behavior among the group participants actually resulted in worsened problem behaviors after intervention.

Treatment of Aggression

For acute and emergency treatment of aggression, psychosocial crisis management should be used before medication. Data from clinical trials reveal that approximately 50% of youth show a significant reduction in symptoms shortly after being hospitalized, even without active medication treatment (Malone and Simpson, 1998). Such "nonspecific therapeutic intervention" was effective in reducing particularly aggressive symptoms with affective and/or explosive characteristics (Schur et al., 2004). Psychosocial interventions supported by clinical data include contingency management programs, such as token economies; systematic social skills training, including problem solving; and anger management. Individualized program components, such as behavioral "report cards," were found useful for reducing specific behaviors like bullying or provocations (Schur et al., 2004).

When psychotropic medications are prescribed, they may be most effective when administered as part of a comprehensive psychotherapeutic and educational program or within a "therapeutic milieu". Medications including anti-psychotics, stimulants, mood stabilizers, beta-blockers, alpha 2 agonists have been used for treatment of aggression (Pappadopulos et al., 2003; Schur et al., 2004).

The NICE guidelines (2006) provide the following overall recommendations regarding nonpharmacological treatments:

- Group-based parent-training/education programmes are recommended in the management of children with CD.
- Individual-based parent-training/education programmes are recommended in the management of children with CD only in situations where there are particular difficulties in engaging with the parents or a family's

needs are too complex to be met by group-based parent-training/education programmes.

- It is recommended that all parent-training/education programmes, whether group- or individual-based, should:
- Be structured and have a curriculum informed by principles of social-learning theory
- Include relationship-enhancing strategies
- Offer a sufficient number of sessions, with an optimum of 8 to 12, to maximise the possible benefits for participants
- Enable parents to identify their own parenting objectives
- Incorporate role-play during sessions, as well as homework to be undertaken between sessions, to achieve generalisation of newly rehearsed behaviours to the home situation
- Be delivered by appropriately trained and skilled facilitators who are supervised, have access to necessary ongoing professional development, and are able to engage in a productive therapeutic alliance with parents
- Adhere to the programme developer's manual and employ all of the necessary materials to ensure consistent implementation of the programme

Psychopharmacologic treatment

In all cases, psychopharmacological treatment alone is insufficient to treat CD. Medications are best looked on as adjuncts in the treatment of uncomplicated CD, and may be useful for crisis management and short-term intervention.

No definitive studies on role of psychopharmacology are available. Co-morbid conditions and their specific symptoms, such as aggression, mood lability, or impulsivity, may be targets for psychopharmacological intervention (Steiner, 1999). Antidepressants, lithium carbonate, anticonvulsants, and propranolol have been used clinically, but rigorous scientific studies demonstrating their efficacy have yet to be conducted. Neuroleptics have been shown to decrease aggressive behavior, but their potential side effects may outweigh their benefits, especially in long-term use.

Until further studies are performed, the clinician may consider using these medications for the management of youths with severe or nonresponding CD. Side effects, including sedation with the secondary cognitive effects, hypotension, extrapyramidal symptoms, tardive dyskinesias, and obesity, should be weighed against the possible benefits of the pharmacological treatment. Given the high risk for substance abuse in youths with CD, caution should be exercised when prescribing stimulants to this population. Careful assessment for comorbid disorders (e.g., mood disorders, ADHD) is indicated because behavior problems or CD may be accounted for or aggravated by the presence of comorbid conditions. Finally, adherence to treatment should be monitored because it is usually low in youths with CD.

When one considers the frequency with which aggressive youth are treated with psychotropic medications, as well as the gaps in our knowledge of the long-term safety and efficacy of these practices, it is clear that controlled trials are urgently needed in this area (Schur et al, 2004).

Steiner (1999) recommends the following algorithm. In the presence of lability of mood or explosive outbursts, lithium, sodium valproate or carbamazepine may be helpful. Clonidine may also be considered for explosive outbursts. If irritability is a major antecedent to the conduct problems, serotonin specific reuptake inhibitors may be considered. In the presence of mental retardation or organic brain damage propranolol or a brief course of other psychotropics may be used. In case of clear danger to others antipsychotic drugs may be used. If all

these drugs do not help buspirone or trazodone may be prescribed.

MOOD STABILIZERS: Two randomized controlled trials compared the effects of lithium with placebo and reported that at therapeutic levels, lithium was efficacious and safe for the short-term treatment of aggressive inpatient children and adolescents with CD (Campbell et al., 1995; Malone et al., 2000). A third study did not find differences between lithium and placebo in a small sample of inpatient adolescents; however, lithium was administered for only 2 weeks (Rifkin et al., 1997). A randomized controlled trials comparing lithium, haloperidol, and placebo showed that both lithium and haloperidol were efficacious for the treatment of inpatient aggressive children, but lithium was better tolerated than haloperidol (Campbell et al., 1984).

Children and adolescents with a DBD plus explosive temper and mood lability preferentially responded to divalproex under double-blind, placebo-controlled conditions (Donovan et al, 2000). Carbamazepine at therapeutic levels was not significantly better than placebo for the treatment of a small sample of aggressive hospitalized children with CD (Cueva et al., 1996).

ANTIPSYCHOTICS: The empirical evidence base for the use of these medications in youth is relatively small. In Campbell and colleagues' (1984) double-blind, placebo-controlled study comparing lithium and haloperidol in children with CD, aggressive type, subjects on haloperidol (mean optimal dose = 2.95 mg/day) were less hyperactive, aggressive, and hostile than on placebo. Similarly, both molindone and thioridazine were efficacious for the treatment of hospitalized aggressive children, but molindone was better tolerated than thioridazine (Greenhill et al., 1985). Although typical antipsychotics appear to be effective for treating aggressive target symptoms in various disorders, the risk of serious and potentially fatal side effects, including dyskinesias and neuroleptic malignant syndromes, raises concern about their use in children and adolescents and has likely led to the increase in the use of atypical antipsychotics among youth (Gillberg, 2000).

Among children, open-label trials and chart reviews have demonstrated risperidone's association with reduced aggression in complex, comorbid disorders, including those involving psychosis. In one of the largest randomized controlled trials to date, 118 children with CD, ODD, or DBD not otherwise specified with mild to moderate mental retardation or borderline IQ were randomly assigned to risperidone (mean dose = 1.23 mg/day) or placebo. In this 11-site study, risperidone-treated subjects showed significant improvements on multiple behavior measures including the Conduct Problem subscale of the Nisonger Child Behaviour Rating Forms (Aman et al., 2000), compared with controls. Fifty of these same subjects completed a 48-week open-label follow-up trial and continued to show significant reductions in aggression (Findling et al., 2000a). Risperidone was reported to be superior to placebo and safe for the short-term treatment of a small group of outpatient children and adolescents with CD (Findling et al., 2000). One study found Risperidone as safe and effective in treating DBD in children with subaverage intelligence over a cumulative period of 2 years (Reyes et al, 2006). Weight gain, extrapyramidal symptoms, and hyperprolactinemia are commonly observed, especially with higher doses of risperidone. The long-term course and impact of these side effects is unclear and should be explored (Schur et al, 2004). Preliminary studies suggest safety and effectiveness of quetiapine in CD (Findling et al, 2006).

STIMULANTS: The best case for stimulant medication can be made for the management of comorbid ADHD symptoms with stimulants (Steiner et al, 1997; Kutcher et al, 2004). The effectiveness of stimulant medication for reducing conduct problems in children with both ADHD and CD has been shown in several controlled medication trials (Hinshaw, 1991; Hinshaw et al., 1992; Pelham et al, 1993). Given the problems with substance abuse in the CD population, however, caution should be exercised in providing stimulants without extensive clinical support for the diagnosis, and the clinician should be cognizant of the street value of these medications to patients and their parents.

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the diagnosis, and the clinician should be cognizant of the street value of these medications to patients and their parents.

Methylphenidate was significantly better than placebo and well tolerated for the treatment of a large group of outpatient children and adolescents with CD (Klein et al., 1997). Methylphenidate not only reduced the ADHD symptomatology but also specific symptoms of CD, although the response to methylphenidate could have been accounted for by the large (70%) comorbidity with ADHD. However, controlling for the severity of the ADHD did not alter the results. Connor et al. (2002) conducted a meta-analysis of 28 studies from 1970–2001 (combined N = 683) in which youth were given stimulants to treat overt and covert aggression associated with ADHD. They found that stimulants had significant beneficial effects in the treatment of ADHD-related aggression and that these effects were independent from, but similar in magnitude to, their effects on the core symptoms of ADHD.

In a subset analysis of 98 children from two identical multi-site, double-blind, randomized, placebo-controlled trials involving 9 weeks of treatment with atomoxetine or placebo, atomoxetine did not significantly reduce the severity of ODD symptoms though it was effective for symptoms of ADHD (Kaplan et al., 2004).

ANTIDEPRESSANTS: Case reports indicate that selective serotonin reuptake inhibitors (SSRI's) were effective in reducing aggression in male youth with various aggressive disorders (Ghaziuddin and Alessi, 1992). No serious side effects were reported in any of these cases.

ALPHA 2 AGONISTS: Small randomized controlled trials have reported that clonidine may be useful for the management of aggressive behaviors of ADHD youths with CD or ODD (Hunt et al., 1986; Connor et al., 2000). In a meta-analysis of 11 double-blind, controlled, and randomized studies from 1980 and 1999, the alpha 2-agonist clonidine demonstrated a moderate effect size (0.58 ± 0.16) on symptoms of ADHD alone and with comorbid CD, developmental delay, and tic disorders (Connor et al., 1999). Cantwell et al. (1997) reported harmful side effects in four children who were treated with clonidine for ADHD. One child died of exercise-related syncope, which may have been related to clonidine treatment. These findings raise questions about the use of alpha-agonists in youth that must be addressed by future studies.

BETA BLOCKERS: A literature review conducted in 1993 on the use of beta-blockers to treat aggression in youth found that 145 (83%) of 175 patients in 31 reports of studies of adults and children showed improvements, although no double-blind studies of children and adolescents were found (Connor, 1993). There have been reports of the following side effects associated with beta-blockers among children: sedation, mild hypotension, lowered heart rate, bronchoconstriction, hypoglycemia (in patients with diabetes), dizziness, sleep disruption, and, possibly, growth hormone abnormalities (Coffey, 1990).

COSTS OF INTERVENTION

Scott and colleagues (2001) found that the cost of using public services (including foster and residential care, remedial education services, and other societal costs) was three times greater for those with CD than for those with conduct problems that did not meet criteria for CD, and 10 times that of those with no conduct problems. A review of analyses concerning the costs of intervention in delinquency by Welsh (2001) noted the striking paucity of analyses related to the economic costs and benefits of interventions with preadolescent delinquents and the lack of standardized elements that should be included in benefit-cost analyses. Because of the difficulty in estimating the full economic value of benefits from intervention programs compared with the ease of determining the full costs of the programs, these analyses are biased toward a low estimate of economic benefits.

Aos and colleagues (2001) found favorable benefit-cost ratios for the Perry Preschool Project, as well as other early childhood education for disadvantaged youths. Several programs designed for adolescents were found to provide very high benefit-cost ratios, including multi systemic therapy, functional family therapy, aggression replacement training, and multidimensional treatment foster care.

INDIAN LITERATURE

Indian literature is rather sparse with regard to childhood behavioral problems. Some epidemiological studies have estimated the prevalence of childhood behavior problems including CD.

ASSESSMENT INSTRUMENT

The Childhood Psychopathology Measurement Schedule (CPMS; Malhotra et al, 1988) is an Indian adaptation of the Achenbach's Child Behavior Checklist (CBCL). It is bilingual (Hindi and English) semi-structured interview schedule yielding 75 symptoms standardized on Indian children with satisfactory reliability (0.88-0.98) and validity. At a cut off score of >10, CPMS has 82% sensitivity and 87% specificity. It has a section on conduct problems, which yields a dimensional score.

EPIDEMIOLOGY

Various Indian community studies have reported prevalence of CD to vary from 0.2% to 13.5%. Deivasgamani (1990) reported the prevalence of CD to be 11.3%, while Sarkar et al (1995) reported prevalence of antisocial behavior to be 7.1%. Psychiatric morbidity in rural primary school children (n=460) in west Bengal was found to be 33.3% with CD being the commonest diagnostic category with a prevalence of 13.5% (Banerjee, 1997). A study by Sarkhel et al (2006) on 240 students from four schools at Kanke, Ranchi reported prevalence of CD to be 4.6%, with the prevalence in boys being 6.8% and girls 1.9%. In this study the boys to girls ratio of CD was 4.5:1 (7:1 in childhood onset type and 2:1 in adolescent onset type). Childhood onset type of CD (72.7%) was more common than adolescent onset type (27.3%). CD was of moderate severity in 63.6% and mild in 36.4% and none had severe CD. Among children with CD 36.4% had comorbid ADHD diagnosis (75% hyperactive-impulsive type and 25% combined type). In a community based sample of 6 to 14 year old children from Rohtak, prevalence of psychiatric disorders in children was 16.5%. CD was the most common (4.5%) psychiatric disorder (Gaur et al, 2007). The lower rates of CD were reported in robust studies that were not focused on behavioural disorders. Srinath et al (2005) reported prevalence of CD to be 0.2%; while Malhotra et al (2002) estimated prevalence of psychiatric disorders in school children (n= 963, 4-11 yrs) at 6.33% with CD in 1.14%.

Retrospective analysis of case records of children (n=152) admitted in Children and Adolescent Psychiatry ward at NIMHANS, Bangalore revealed that 10.5% of all short term admissions were for CD (Bharath et al, 1997).

RISK FACTORS

Family influences and peer influences contributed respectively 22.2% and 11.3% in adolescent aggression in a study done in a small locality mainly consisting of low socioeconomic group tribal cluster inhabitants in Mangalore (Talwar, 1998). Family related factors such as family organization, family conflicts and temperamental differences among parents accounted for greater influence on aggression than peer-related influences (Talwar, 1998).

NOSOLOGY

In a retrospective clinical study from North India (Malhotra et al., 1999), it was found that the hyperkinetic CD group has younger age of onset, a more gradual development and longer duration of conduct symptoms as compared to CD children. Hyperkinetic CD children also had temperamental deviance (in the form of inattention and distractibility), lower IQ, more perinatal complications and delayed milestones as compared to CD group; which made significant contribution to discriminant function between the two groups. Results point towards different pathways of development of conduct symptomatology in the hyperkinetic CD group as compared to CD group.

COMORBIDITY

Krishnakumar and Geeta (2006) evaluated the risk factors, clinical features and co-morbidity in depressive disorder in children below the age of 12 years. Majority of children had other associated psychiatric disorders,

which included dysthymic disorder, anxiety disorders, CD and conversion disorder. CD was the only comorbid diagnosis in two subjects (7%) out of 30 subjects with onset of bipolar illness in childhood and adolescence (Srinath et al, 1998).

TREATMENT

A study on 10 delinquent children found that modeling produces statistically significant decrease in level of aggression (Vidyasagar & Mishra, 1993). Another study in 20 aggressive CD children where a psychological intervention program (play therapy and parental counseling) was administered over 8 weeks in 16 sessions found significant improvement in aggressive CD, family environment and overall adjustment (Dogra and Veeraghavan, 1994).

REVIEW OF PRACTICE GUIDELINES

The following treatment guidelines have been reviewed to generate these practice parameters: Practice Parameter for the Assessment and Treatment of Children and Adolescents With ODD (AACAP, 2007), Practice Parameters for the Assessment and Treatment of Children and Adolescents with CD (AACAP, 1997), Evidence Based Practices for Children and Adolescents with CD (Children's Mental Health Ontario, 2001), Parent-training/education programmes in the management of children with CD (NICE technology appraisal guidance 102, 2007), CD: Diagnosis and Treatment in Primary Care (Searight et al, 2001).

Research and practice consensus indicates that successful treatment must address multiple domains in a coordinated manner over a period of time. Outpatient treatment of CD usually involves the child/youth, family, school and peer group. Some milder forms of CD, however, require minor intervention, usually training for the child (social skills, problem solving) and training for the parents (behaviour management, parenting skills) and consultation to schools. Moderate and severe CD often involves comorbid disorders that require treatment (e.g., ADHD, developmental disabilities, substance abuse disorder, anxiety disorder, mood disorders). Chronic CD, which is usually childhood-onset type, requires early intervention, extensive treatment in multiple domains and long-term follow-up (Offord & Bennett, 1994). Since CD involves mostly externalizing symptoms, there is a preference for social learning interventions that provide structure in the life of a child, rather than psychopharmacological or intrapsychic approaches alone.

Research indicates that therapy for CD should involve a multimodal continuum of interventions that is delivered with enough frequency and long enough to produce the desired treatment outcomes.

ANOTE REGARDING SCIENTIFIC DATA AND CLINICAL CONSENSUS

Practice parameters are strategies for patient management, developed to assist clinicians in decision-making. These parameters, based on evaluation of the scientific literature and relevant clinical consensus, describe generally accepted approaches to assess and treat specific disorders, or to perform specific medical procedures.

These parameters are not intended to define the standard of care; nor should they be deemed inclusive of all proper methods of care or exclusive of other methods of care directed at obtaining the desired results. The ultimate judgment regarding the care of a particular patient must be made by the clinician in light of all the circumstances presented by the patient and his or her family, the diagnostic and treatment options available, and available resources. Given inevitable changes in scientific literature and technology, these parameters will be reviewed periodically and updated when appropriate.

OUTLINE OF PRACTICE PARAMETERS FOR THE ASSESSMENT AND TREATMENT OF CHILDREN AND ADOLESCENTS WITH CD

I. DIAGNOSTIC ASSESSMENT

Every child presenting with significant conduct problems merits a careful diagnostic assessment. Interview patient and parents (separately and together) to obtain history. Interview other family members and medical, school, and other personnel (e.g. judicial) as indicated (the order of obtaining data may vary). Successful

assessment and treatment of CD requires the establishment of therapeutic alliances with the child and family separately while avoiding being drawn into a power struggle. Relying extensively on collateral information may further alienate patients and prevent clinicians from engaging them appropriately, although this may vary with the age of the child. While collecting collateral information the clinician must remember not to assess the child's report on the basis of this information. Clinicians must aim to quickly clarify their role as helpers and confidantes to the patient. The child must be interviewed alone for significant part of the evaluation to avoid alienation. Simultaneously, the clinician needs to constructively raise issues regarding efficacy of parenting without making the parent feel accused or judged.

Moreover, to become effective, the clinician needs to be sensitive to sub cultural differences in parenting styles and standards of obedience in the family. It is obvious that such differences are not easily discussed when treatment is offered by a clinician from a different sub cultural background.

Delineation of ODD and CD from normative oppositional behavior and transient antisocial acts is of paramount importance for the clinician, but difficult. Isolated occurrences of antisocial behavior in a child or adolescent with good levels of premorbid functioning and preserved functioning in the majority of his or her current domains are more likely associated with a positive prognosis. This is especially true if it can be shown that some of his or her problems are the result of peer-related conflicts or a recent significant stressor. The clinician always needs to explore carefully the possibility that the child's conduct problems are triggered or even caused by incidences of physical abuse, sexual abuse, or neglect in the family or in the child's extended social orbit, and thus are reactive and contextually driven.

A. PARENT INTERVIEW: TO OBTAIN PATIENT'S HISTORY AND FAMILY HISTORY.

1. Ask for specific conduct problems observed by the parent(s); whether parents have observed sibling violence, abuse of family pets, and cruelty to animals outside of family (these factors are associated with more serious CD and chronic CD); age of onset of conduct problems
2. Prenatal and birth history, focusing on substance abuse by mother, maternal infections, substance use and medications.
3. Developmental history, focusing on disorders of attachment (e.g. parental depression and substance abuse), temperament, aggression, oppositionality, attention, and impulse control.
4. Context in which the child exhibits the problem behaviour (alone or in a group)
5. Specific events associated with the onset of the behaviour problems, including injury or illness
6. Corporal punishment of the child (history of severe corporal punishment appears in backgrounds of children with CD and amplifies severity)
7. Physical and sexual abuse history (as victim and perpetrator).
8. Identify target symptoms as per ICD 10 or DSM-IV.
9. Longitudinal history of symptom development, including impact on family and peer relationships and academic problems (with attention to IQ, language, attention, and learning disabilities) and overall functional disability.
10. Medical history, with particular attention to CNS pathology (i.e., head trauma, other illnesses involving CNS, chronic illnesses, extensive somatization).
11. Family dynamics: Family coping style, resources (socioeconomic status, social support/isolation, problem-solving skills, conflict-resolution skills), and stressors. Assess parenting skills, including limit setting, structure, harshness, abuse, neglect, permissiveness, inconsistency, and management of child's aggression. Explore the parents' and patient's coercive interaction cycles leading to reinforcement of non-

compliance.

12. Family history of antisocial behavior in first degree relatives including incarceration, violence, physical or sexual abuse of patient or family members.
13. Psychiatric disorders in family members such as ADHD, CD, substance use disorders, developmental disorders (e.g., learning disabilities), tic disorders, somatization disorder, mood disorders, and personality disorders.
14. Adoptions and placements of child in foster care (including extended family) and institutions.

B. PATIENT INTERVIEW.

Adolescent interview may precede parental interview. The child does not necessarily see his or her behavior as a problem, or may even see it as a justified response to particular contextual circumstances. ICD-10 target symptoms may not be apparent or acknowledged during patient interview, but may be discovered by interviewing parents and other informants.

Evaluate the child or adolescent alone for the following:

1. Capacity for attachment, trust, and empathy.
2. Tolerance for and discharge of impulses.
3. Capacity for showing restraint, accepting responsibility for actions, experiencing guilt, using anger constructively, and acknowledging negative emotions.
4. Cognitive functioning.
5. Mood, affect, self-esteem, and suicide potential.
6. Specific questions about peer relationships
7. Peer relationships (loner, popular, drug-, crime-, or gang-oriented friends).
8. Disturbances of ideation (inappropriate reactions to environment, paranoia, dissociative episodes, and suggestibility).
9. Presence of psychiatric symptoms
10. Evidence of self-injury, suicidal and homicidal thoughts and behaviour
11. History of early, persistent use of tobacco, alcohol, or other substances.
12. Psychometric self-report instruments might provide useful information.
13. Evaluate the level of insight and remorse over actions in the child.

C. SCHOOL INFORMATION.

Information should be gathered on intellectual, scholastic and school functioning.

1. Academic performance
2. Behavior problems at school
3. Teacher response to problem behavior
4. Specific learning problems (high concurrence with CD)

5. Relationship with peers
6. Teacher's perception of the child's strengths and weaknesses
7. Standard parent- and teacher-rating scales e.g. Child Behavior Checklist (Teacher Form) or the Conners Teacher Rating Scale, may be useful.

D. PHYSICAL EVALUATION.

1. Physical examination within last 12 months; baseline pulse rate.
2. Information from family doctor, pediatrician, or other health care providers.
3. Vision and hearing screening as indicated.
4. Evaluation of medical and neurological conditions (e.g., head injury, seizure disorder, chronic illnesses) as indicated, looking especially for soft neurological signs, suggesting nonspecific CNS dysfunction, signs of organic impairment such as fetal alcohol syndrome, signs of abuse or self-injury.
5. Urine and blood drug screening as indicated, especially when clinical evidence suggests substance abuse that patient denies.

E. FUNCTIONAL EVALUATION OF CHILD'S BEHAVIOR

A portion of the assessment of the child with DBD should take the form of a functional analysis of the child's behavior, including identification of the antecedents and consequences of the child's behavior and parent and other's behavior that may reinforce the child's problem behaviors.

F. OTHERS

1. Referral to appropriate services for IQ, speech and language, and learning disability
2. Neuropsychiatric testing if available test data and information are not sufficient.

II. DIAGNOSTIC FORMULATION

The assessments obtained from the above sources will help the clinician determine whether the child has CD, the type of CD (childhood- or adolescent-onset), whether a psychiatric or medical problem is causing the disorder, and whether there is an additional comorbid disorder.

A. IDENTIFY TARGET SYMPTOMS AS PER ICD-10 OR DSM IV.

B. THE SUBTYPE OF THE DISORDER (childhood- vs. adolescent-onset; overt vs. covert vs. authority; under- vs. over-restrained; socialized vs. under socialized)

C. Co-morbid Diagnosis.

Possible alternate primary diagnoses with conduct symptoms complicating their presentation, especially in adolescents. These syndromes may be confused or concurrent with CD. Because aggressive and oppositional behavior complicates a wide range of other diagnoses in this age range, it is recommended that if comorbid conditions are present, then medication should be targeted to those specific syndromes as much as possible.

Comorbid conditions to be looked for specifically include:

1. ADHD.
2. Intermittent explosive disorder.
3. Substance use disorders.

4. Mood disorders (bipolar and depressive).
5. Post-traumatic stress disorder and dissociative disorders.
6. Borderline or narcissistic personality disorder.
7. Somatization disorder.
8. Adjustment disorder.
9. Organic brain disorder and seizure disorder.
10. Paraphilias.
11. Specific developmental disorders (e.g. learning disabilities).
12. Mental retardation.
13. Schizophrenia

III. TREATMENT

Treatment programmes should be multimodal. Because of the frequent presence of comorbidity and multiple dysfunctional domains, multimodal treatment is often indicated. Different modalities may be more important for individual cases, depending on the age of the child; the severity of the presenting problems; and the goals, resources, and circumstances of the parents. Treatment must be delivered for an adequate duration (usually several months or longer) and may require multiple episodes either continuously or as periodic booster sessions, reinforcing previous skills or improvements. The treatment of CD is multitarget, multimodal, and extensive, combining individual psychotherapy, family psychotherapy, pharmacotherapy, and ecological interventions (including placement [e.g. with extended family] and school-based interventions), especially when severe and persistent. Different ages may call for different admixtures of these treatments. In preschool, emphasis should be placed on parental education and training. In schoolage, school-based interventions, family-based treatment, and occasionally individual approaches are indicated. In adolescence, individual approaches are more often used along with family interventions. Throughout all ages, psychopharmacological interventions can be useful adjuncts.

As a chronic condition, CD requires extensive treatment and long-term follow-up. Mild CD might respond to minor intervention, i.e. consultation with parents and schools. Patients with severe CD are likely to have comorbidities that require treatment.

A. TREAT COMORBID DISORDERS (e.g., ADHD, specific developmental disabilities, intermittent explosive disorder, affective or bipolar disorder, anxiety disorder, and substance use disorder).

B. FAMILY INTERVENTIONS

Family intervention is an essential component for treating CD. They include parent guidance, training, and family therapy.

There is a substantial and growing body of evidence concerning the important role that familial risk factors play in facilitating young children's entry and progression along the "early-starter" pathway of conduct problems. Thus CD could be prevented or attenuated if parents of difficult/aggressive preschoolers are helped to acquire skills such as how to:

- play with a child
- help a child learn
- prepare a child for school

- use praise and encouragement
- set limits effectively
- handle misbehavior
- access community resources and work with teachers and schools

In addition parents can be encouraged to anticipate and solve problems so that they can prevent and manage future problems with their children on their own. Programs for younger children typically include an additional emphasis on parent-child play experiences where positive parent-child interactions are promoted, to set the stage for the implementation of positive parenting strategies.

Parent management training is one of the most substantiated treatment approaches in child mental health. Parent Training can be defined as an approach to treating child behaviour problems by using “procedures in which parents are trained to alter their child’s behaviour in the home. The parents meet with a therapist or trainer who teaches them to how to use reinforcement (e.g., contingent delivery of attention, praise, points) and punishment (e.g., time out from reinforcement, loss of privileges, and reprimands) techniques contingent on the child’s behavior, to provide consequences consistently, to attend to appropriate behaviors and to ignore inappropriate behaviors. There is an extensive amount of practice and shaping of parent behavior within the sessions to develop skills in carrying out the procedures. The principles of this approach can be summarized as follows:

1. Reduce positive reinforcement of disruptive behavior.
2. Increase reinforcement of prosocial and compliant behavior. Positive reinforcement varies widely, but parental attention is predominant. Punishment usually consists of a form of time out, loss of tokens, and/or loss of privileges.
3. Apply consequences and/or punishment for disruptive behavior.
4. Make parental response predictable, contingent, and immediate. Train parents to establish consistent positive and negative consequences and well-defined expectations and rules. Work to eliminate harsh, excessively permissive, and inconsistent behavior management practices.
5. Arrange for treatment of parental psychopathology (i.e. substance abuse).
6. Identify and work with parental strengths.

C. TREATMENT FOR THE CHILD OR ADOLESCENT.

Choice of treatment for the child or adolescent depends on age, type and severity of CD, strengths, interaction and processing style, and ability to engage in treatment. Usually a combination of behavioral and explorative approaches is indicated, especially when there are internalizing and externalizing comorbidities. Although cognitive behavioural interventions and skills training appear helpful in the short-term, especially for older children, their long-term efficacy has not been established. Individual psychodynamic therapy with an explorative approach or an attachment-based approach may be useful for some CD children. Explorative approaches help to establish a therapeutic relationship that will effectively engage the child or adolescent in therapy.

D. PSYCHOSOCIAL SKILL-BUILDING TRAINING SHOULD SUPPLEMENT THERAPY.

E. PEER INTERVENTION

Peer intervention to discourage deviant peer association and promote a socially appropriate peer network. Since adolescents rely more on peers than parents or teachers for values and direction, intervention with

adolescents should include a focus on peers as well as family. Recommended intervention with peers includes:

- Peer intervention to replace deviant peer group with socially appropriate group
- Promote prosocial interactions with peers at school

F. SCHOOL INTERVENTION

Children and adolescents with CD may have poor scholastic achievements and may be disliked by other students and teachers. Due to frustration and exclusion these children resort to bullying others and engage in anti social groups. Lack of suitable classes, limited resources in the school system, and the need for teachers to have basic child management and parenting skills makes it very difficult to work effectively with CD children in school.

School intervention includes appropriate placement, to promote an alliance between parents and school, and to promote prosocial peer group contact. Vocational training may be useful. Recommended interventions in the school includes:

- Placement in a suitable class (e.g., day treatment, special education, behaviour class)
- Referral to appropriate academic resources (e.g., literacy training, life skills, vocational school)
- Educate teachers about effective behaviour management for CD students
- Build a strong alliance between parents and school
- Promote prosocial interactions with peers at school

G. COMMUNITY INTERVENTIONS SHOULD BE CONSIDERED AS INDICATED.

1. Juvenile justice system intervention, including court supervision and limit-setting, as well as special programs when available.
2. Social services referral, to help the family access benefits and service providers, e.g., in patients with learning disabilities, mental retardation.
3. Out-of-home placement (e.g. with extended family, residential treatment) when indicated.
4. Job and independent-living skills training.

H. PSYCHOPHARMACOLOGY

Medications are recommended only for treatment of target symptoms and comorbid disorders, and are recommended only on the basis of clinical experience, which shows them to be efficacious in some patients. Adequate efficacy studies are lacking in patients with CD and comorbidity (e.g., stimulants for ADHD, antidepressants for mood and anxiety disorders, low-dose major tranquilizers for paranoid ideation with aggression, anti-convulsants for partial complex seizure disorder).

Antidepressants, lithium carbonate, carbamazepine, and propranolol are currently used clinically for CD, but rigorous scientific studies to demonstrate their efficacy have not been done.

Neuroleptics' risks may outweigh their usefulness in the treatment of aggression in CD and require careful consideration before use.

G. Level of care: inpatient vs. outpatient

Treatment of CD usually takes place in outpatient and community settings, although residential treatment may be indicated by severe family dysfunction, marked noncompliance, or persistent involvement with a deviant

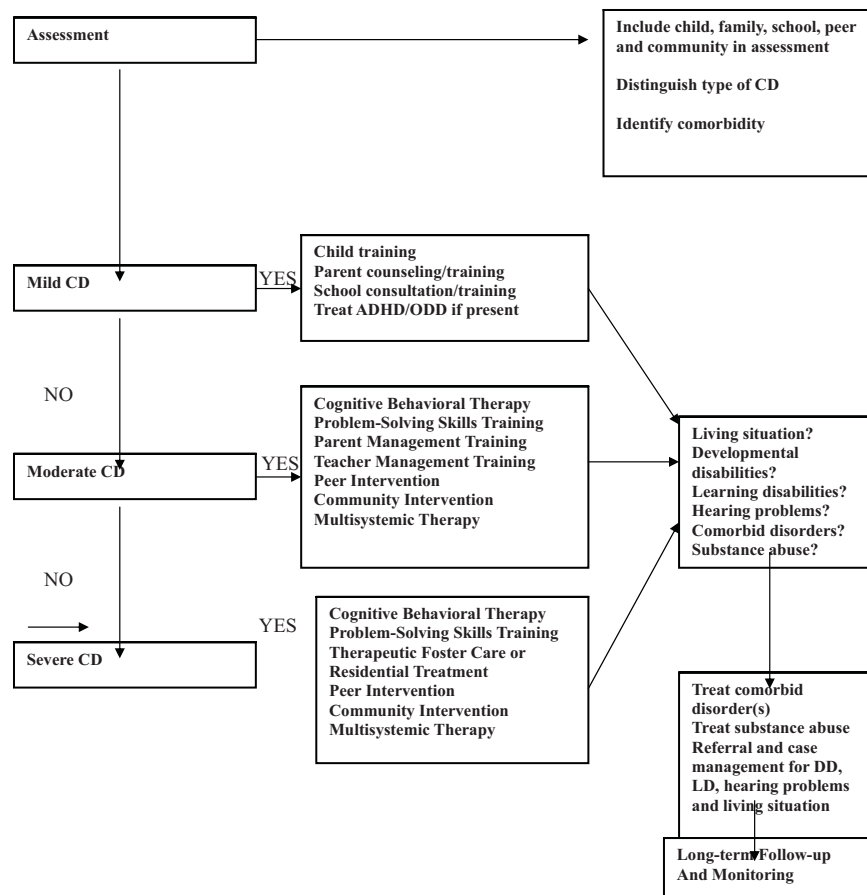
peer group. Imminent risk to self or others, such as suicidal, self-injurious, homicidal, or aggressive behavior, or imminent deterioration in medical status, remain clear indications for the need for hospitalization

Inpatient and residential treatment should include:

- a. A setting that provides for discipline (e.g., behavioral rules) and community contact.
- b. Significant involvement of family members through parent training and family therapy.
- c. Individual and group therapy for the child or parents as indicated.
- d. School consultation and teacher involvement in treatment, including special education and vocational training.
- e. Specific therapies for comorbid disorders.
- f. Psychosocial skills training to improve social function (e.g., assertiveness, anger control).
- g. Ongoing coordination with school, social services, and juvenile justice personnel to assure timely and appropriate discharge and return to community.

CHILDREN AND ADOLESCENTS WITH CD: DECISION PATH DIAGRAM

Adapted from Evidence Based Practices for Children and Adolescents with CD. Children's Mental Health Ontario, May 2001



References :

- Achenbach TM, Edelbrock CS (1986), *Manual for the Teacher's Report Form and Teacher Version of the Child Behavior Profile*. Burlington: University of Vermont, Department of Psychiatry.
- Aguilar B, Sroufe LA, Egeland B, Carlson E (2000), Distinguishing the early-onset/persistent and adolescence-onset antisocial behavior types: from birth to 16 years. *Dev Psychopathol* 12:109-132.
- Aman MG, De Smedt G, Derivan A, Lyons B, Findling RL; Risperidone Disruptive Behavior Study Group (2002), Double blind placebo controlled study of risperidone in treatment of disruptive behaviors in children with sub average intelligence. *Am J Psychiatry* 159:1337-1346.
- Aman MG, Singh NN (1985), Psychometric characteristics of the Aberrant Behavior Checklist. *Am J Mental Deficiency* 89:492-502.
- Ambrosini PJ (2000), Historical development and present status of the Schedule for Affective Disorders and Schizophrenia for School-age Children (K-SADS). *J Am Acad Child Adolesc Psychiatry* 39:49-58.
- American Academy of Child and Adolescent Psychiatry (2002), Practice parameter for the prevention and management of aggressive behavior in child and adolescent psychiatric institutions, with special reference to seclusion and restraint. *J Am Acad Child Adolesc Psychiatry* 41(2 Suppl):4S–25S
- American Psychiatric Association (1994), *Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV)*. Washington, DC: American Psychiatric Association.
- Angold A, Costello EJ (2000), The Child and Adolescent Psychiatric Assessment (CAPA). *J Am Acad Child Adolesc Psychiatry* 39:39-48.
- Anita, Gaur DR, Vohra AK, Subash S, Khurana H (2003), Prevalence of psychiatric morbidity among 6 to 14 year old children. *Indian J Comm Med* 28:3.
- Aos S, Phipps P, Barnoski R, Lieb R (2001), *The Comparative Costs and Benefits of Programs to Reduce Crime (Document 01-05-1201)*. Washington, DC: Washington State Institute for Public Policy (www.wsipp.wa.gov/crime/pdf/costbenefit.pdf).
- Arbuthnot J (1992), Sociomoral reasoning in behavior-disordered adolescents: cognitive and behavioral change. In: *Preventing Antisocial Behavior: Interventions From Birth Through Adolescence*, McCord J, Tremblay RE, eds. New York: Guilford, pp 283-310.
- Armstrong TD, Costello EJ (2002), Community studies on adolescent substance use, abuse, or dependence and psychiatric comorbidity. *J Consult Clin Psychol* 70:1224-1239.
- Banaschewski T, Brandeis D, Heinrich H, Albrecht B, Brunner E, Rothenberger A (2003), Association of ADHD and conduct disorder - brain electrical evidence for the existence of a distinct subtype. *J Child Psychol Psychiatr* 44:356-376.
- Bannerje T (1997), Psychiatric morbidity among rural primary school children in West Bengal *Indian J Psychiat* 39:130-135.
- Barkley RA (1987). *Defiant children: a clinician's manual for parent training*. New York: Guilford.
- Barkley RA, Edwards G, Laneri M, Fletcher K, Metevia L (2001), The efficacy of problem-solving communication training alone, behavioral management training alone, and their combination for parent-adolescent conflict in teenagers with ADHD and ODD. *J Consult Clin Psychol* 69:926-941.

- Barkley RA, Fischer M, Edelbrock CS, Smallish L. (1990) The adolescent outcome of hyperactive children diagnosed by research criteria: I. An 8-year prospective follow-up study. *J Am Acad Child Adol Psychiatry* 29:546–557.
- Barnes GM, Farrell MP, Windle M (1990), Parent-adolescent interactions in the development of alcohol abuse and other deviant behaviors. In: Barber BK, Rollins BC eds. *Parent-adolescent relationships*. New York: University Press: 121-142.
- Bassarath L (2001), Conduct disorder: a biopsychosocial review. *Can J Psychiatry* 46:609-616.
- Baving L, Laucht M, Schmidt MH (2000), Oppositional children differ from healthy children in frontal brain activation. *J Abnorm Child Psychol* 28:267-275.
- Beauchaine TP, Webster-Stratton C, Reid MJ (2005), Mediators, moderators, and predictors of 1-year outcomes among children treated for early-onset conduct problems: a latent growth curve analysis. *J Consult Clin Psychol*; 73:371-388.
- Beaver KM, Wright JP, DeLisi M, Walsh A, Vaughn MG, Boisvert D, Vaske J (2007), A gene x gene interaction between DRD2 and DRD4 is associated with conduct disorder and antisocial behavior in males. *Behav Brain Funct* 22:30
- Bharath S, Srinath S, Sheshadri S, Girimji S (1997), Child and adolescent psychiatry inpatient facility. *Indian J Pediatr* 64:829-832.
- Bock G, Goode J, (Eds) (1996), *Genetics of criminal and antisocial behaviour*. Ciba Foundation Symposium 194. Chichester: John Wiley & Sons.
- Borduin CM (1999), Multisystemic treatment of criminality and violence in adolescents. *J Am Acad Child Adolesc Psychiatry* 38:242-249.
- Borduin CM, Mann BJ, Cone LT, Henggeler SW, Fucci BR, Blaske DM, et al (1995), Multisystemic treatment of serious juvenile offenders: long term prevention of criminality and violence. *J Consult Clin Psychol* 63:569-578.
- Brestan EV, Eyberg SM (1998), Effective psychosocial treatments of conduct-disordered children and adolescents: 29 years, 82 studies, and 5272 kids. *J Clin Child Psychol* 27:180-189.
- Brownfield D, Thompson K (2002), Distinguishing the effects of peer delinquency and gang membership on self reported delinquency. *J Gang Res* 50:1-10.
- Buitelaar JK, Van der Gaag RJ, Cohen Kettens PT, Melman CTM (2001), A randomized controlled trial of risperidone in the treatment of aggression in hospitalized adolescents with subaverage cognitive abilities. *J Clin Psychiatry* 62:239-248.
- Buitelaar JK, Montgomery SA, van Zwieten-Boot BJ (2003), Conduct disorder: guidelines for investigating efficacy of pharmacological intervention *Eur Neuropsychopharmacol* 13:305-311.
- *Burke JD, Loeber R, Birmaher B (2002), Oppositional defiant and conduct disorder: a review of the past 10 years, part II. *J Am Acad Child Adolesc Psychiatry* 41:1275-1293.
- *Burke JD, Loeber R, Birmaher B (2004), Oppositional defiant disorder and conduct disorder: a review of the past 10 years, Part II. *Focus* 2:558-576.

- *Campbell M (1992), The pharmacological treatment of conduct disorders and rage outbursts. *Psychiatr Clin North Am* 15:69-85.
- Campbell M, Adams PB, Small AM, Kafantaris V, Silva RR, Shell J, Perry R, Overall JE (1995), Lithium in hospitalized aggressive children with conduct disorder: a double-blind and placebo-controlled study. *J Am Acad Child Adolesc Psychiatry* 34:445-453.
- Campbell M, Small AM, Green WH, Jennings SJ, Perry R, Bennett WG, Anderson L (1984), Behavioral efficacy of haloperidol and lithium carbonate: a comparison in hospitalized aggressive children with conduct disorder. *Arch Gen Psychiatry* 41:650-656.
- Campbell SB (2002), *Behavior Problems in Preschool Children: Clinical and Developmental Issues*. New York: Guilford.
- Campbell SB, Shaw DS, Gilliom M (2000), Early externalizing behavior problems: toddlers and preschoolers at risk for later maladjustment. *Dev Psychopathol* 12:467-488.
- Cantwell DP, Swanson J, Connor DF (1997), Case study: adverse response to clonidine. *J Am Acad Child Adolesc Psychiatry* 36:539-544.
- Carey G, DiLalla D (1994), Personality and psychopathology: genetic perspectives. *J Abnormal Psychol* 103:32-43.
- Caspi A, Elder JMH, Herbener ES (1990), Childhood personality and the prediction of life-course patterns. In: *Straight and Devious Pathways from Childhood to Adulthood*, Robins L, Rutter M, eds. New York: Cambridge University Press, pp. 13-55.
- Coffey BJ (1990), Anxiolytics for children and adolescents: traditional and new drugs. *J Child Adolesc Psychopharmacol* 1:57-83.
- Cohen P, Flory M (1998), Issues in the disruptive behavior disorders: attention deficit disorder without hyperactivity and the differential validity of oppositional defiant and conduct disorders. In: *Widiger T, ed. DSM-IV Sourcebook, Vol 4*. Washington, DC: American Psychiatric Press, pp 455-463.
- Coie JD, Jacobs MR (1993), The role of social context in the prevention of conduct disorder. *Dev Psychopathol* 5:263-275.
- Coie JD, Miller-Johnson S (2001), Peer factors and interventions. In: *Child Delinquents*, Loeber R, Farrington DP, eds. Thousands Oaks, CA: Sage, pp 191-209.
- *Committee on Preventive Psychiatry, Group for the Advancement of Psychiatry (1999), Violent behavior in children and youth: preventive intervention from a psychiatric perspective. *J Am Acad Child Adolesc Psychiatry* 38:235-241.
- Conduct Problems Prevention Research Group (1999), Initial impact of the FAST Track prevention trial for conduct problems: I. The high risk sample. *J Consult Clin Psychol* 67:631-47.
- Conduct Problems Prevention Research Group (2000), Merging universal and indicated prevention programs: the fast track model. *Addictive Behav* 25:913-927.

- Conduct Problems Prevention Research Group (2002), Evaluation of the first 3 years of the Fast Track prevention trial with children at high risk for adolescent conduct problems. *J Abnorm Child Psychol* 30:19-35.
- Connor DF (1993), Beta blockers for aggression: a review of the pediatric experience. *J Child Adolesc Psychopharmacol* 3:99-114.
- Connor DF (2002), *Aggression and Antisocial Behavior in Children and Adolescents: Research and Treatment*. New York: The Guilford Press.
- Connor DF, Barkley RA, Davis HT (2000), A pilot study of methylphenidate, clonidine, or the combination in ADHD comorbid with aggressive oppositional defiant or conduct disorder. *Clin Pediatr (Phila)* 39:15-25.
- Connor DF, Fletcher KE, Swanson JM (1999), A meta-analysis of clonidine for symptoms of attention-deficit hyperactivity disorder. *J Am Acad Child Adolesc Psychiatry* 38:1551-1559.
- Connor DF, Ford JD, Albert DB, Doerfler LA (2007), Conduct disorder subtype and comorbidity. *Ann Clin Psychiatry* 19:161-168
- Connor DF, Glatt SJ, Lopez ID, Jackson D, Melloni RH (2002), Psychopharmacology and aggression, I: a meta-analysis of stimulant effects on overt/covert aggression-related behaviors in ADHD. *J Am Acad Child Adolesc Psychiatry* 41:253-261.
- Crick NR, Grotpeter JK (1995), Relational aggression, gender, and social-psychological adjustment. *Child Dev* 66:710-722.
- Cueva JE, Overall JE, Small AM, Armenteros JL, Perry R, Campbell M (1996), Carbamazepine in aggressive children with conduct disorder: a double-blind and placebo-controlled study. *J Am Acad Child Adolesc Psychiatry* 35:480-490.
- Cummings E. (1987), Coping with background anger in early childhood. *Child Dev* 58:976-984.
- Davidson RJ, Putnam KM, Larson CL (2000), Dysfunction in the neural circuitry of emotion regulation: a possible prelude to violence. *Science* 289:591-594.
- Day DM, Bream LA, Pal A (1992), Proactive and reactive aggression: an analysis of subtypes based on teacher perceptions. *J Clin Psychol*, 2:210-217.
- Deater-Deckard K (2000), Parenting and child behavioral adjustment in early childhood: a quantitative genetic approach to studying family processes. *Child Dev* 71:468-484.
- Deater-Deckard K, Dodge KA (1997), Externalizing behavior problems and discipline revisited: nonlinear effects and variation by culture, context, and gender. *Psychol Inq* 8:161-175.
- Deivasigamani TR (1990), Psychiatric morbidity in primary school children: an epidemiological study. *Ind* 756-760

J Psychiatry 32:756-760

- Denham SA., Zoller D, Couchoud EA (1994), Socialization of preschoolers' emotion understanding. *Dev Psychol* 30:928-937.
- DeVito C, Hopkins J (2001), Attachment, parenting, and marital dissatisfaction as predictors of disruptive behavior in preschoolers. *Dev Psychopathol* 13:215-231.
- Dishion TJ, McCord J, Poulin F (1999), When interventions harm: peer groups and problem behavior. *Am Psychol* 54:755-764.
- Disney ER, Elkins IJ, McGue M, and Iacono WG (1999), Effects of ADHD, conduct disorder, and gender on substance use and abuse in adolescence. *Am J Psychiatry* 156:1515-1521.
- Dodge KA, Lochman JE, Harnish JD, Bates JE, Pettit GS (1997). Reactive and proactive aggression in school children and psychiatrically impaired chronically assaultive youths. *J Abnorm Psychol* 106:37-51.
- Dogra A, Veeraraghvan (1994), A study of psychological intervention of children with aggressive conduct disorder. *Ind J Clin Psychol* 21:28-32.
- Donovan SJ, Stewart JW, Nunes EV, Quitkin FM, Parides M, Daniel W, Susser E, Klein DF (2000), Divaproex treatment for youth with explosive temper and mood lability: a double-blind, placebo-controlled crossover design. *Am J Psychiatry* 157:818-820.
- Eaves L, Rutter M, Silberg JL, Shillady L, Maes H, Pickles A (2000), Genetic and environmental causes of covariation in interview assessments of disruptive behavior in child and adolescent twins. *Behav Genet* 30:321-334.
- Eddy JM, Leve LD, Fagot BI (2001), Coercive family processes: a replication and extension of Patterson's coercion model. *Aggressive Behav* 27:14-25.
- Edens JF, Skeem JL, Cruise KR, Cauffman E (2001), assessment of juvenile psychopathy and its association with violence: a critical review. *Behav Sci Law* 19, 53-80.
- Eisenberg N, Cumberland A, Spinrad TL, Fabes RA, Shepard SA, Reiser M, et al (2001), The relations of regulation and emotionality to children's externalizing and internalizing problem behavior. *Child Dev* 72:1112-1134
- Eisenberg, N., Fabes, R., Schaller, M., Carlo, G., Miller, P. (1991), The relations of parental characteristics and practices to children's vicarious emotional responding. *Child Dev* 62:1393-1408
- Eppright T, Kashani J, Robinson B, Reid J (1993), Comorbidity of conduct disorder and personality disorders in an incarcerated juvenile population. *Am J Psychiatry* 150:1233-1236.
- *Children's Mental Health Ontario (2001), Evidence Based Practices for Children and Adolescents with Conduct Disorder. Ontario: Children's Mental Health Ontario.
- Fabes, R. A., Eisenberg, N. (1992), Young children's coping with interpersonal anger. *Child Dev* 63:116-128.
- Fagot BI, Leve LD (1998), Teacher ratings of externalizing behavior at school entry for boys and girls: similar early predictors and different correlates. *J Child Psychol Psychiatry* 39:555-566.
- Farrington D, Loeber R, Van Kammen W (1990), Long-term criminal outcomes of hyperactivity-hildhood to Adulthood. Cambridge: Cambridge University Press, pp 62-81

- impulsivity-attention deficit and conduct problems in childhood. In: Robins L, Rutter M, eds. *Straight and Devious Pathways from Childhood to Adulthood*. Cambridge: Cambridge University Press, pp 62-81
- Farrington DP (1997), Early prediction of violent and nonviolent youth offending. *Eur J Criminal Policy Res* 5:51-66.
 - Farrington DP (2001), Predicting adult official and self-reported violence. In: Pinard GF, Pagani L., eds. *Clinical assessment of dangerousness: Empirical contributions*. New York: Cambridge University Press, pp 66–88.
 - Farrington DP, Jolliffe D, Loeber R, Stouthamer-Loeber M, Kalb LM (2001), The concentration of offenders in families, and family criminality in the prediction of boys' delinquency. *J Adolesc* 24:579-596.
 - Farrington DP, Loeber R & Van Kammen WB (1990), Long-term criminal outcomes of hyperactivity-impulsivity-attention deficit and conduct problems in childhood. In: Robins L, Rutter M, eds. *Straight and Devious Pathways from Childhood to Adulthood*. Cambridge: Cambridge University Press, pp. 62 -81.
 - Feldman S, Weinberger D (1994), Self-restraint as a mediator of family influences on boys' delinquent behavior: a longitudinal study. *Child Dev* 65:195-211.
 - Fergusson DM (1996), The role of adolescent peer affiliations in the continuity between childhood behavioral adjustment and juvenile offending. *J Abnorm Child Psychol* 24, 205-221.
 - Fergusson DM, Horwood L J (1995), Early disruptive behaviour, IQ, and later school achievement and delinquent behaviour. *J Abnorm Child Psychol* 23:183-199.
 - Fergusson M, Horwood LJ, Ridder EM (2007), Conduct and attentional problems in childhood and adolescence and later substance use, abuse and dependence: results of a 25-year longitudinal study. *Drug Alcohol Depend* 88 (Suppl 1):S14-S26.
 - Fergusson DM, Lynskey MT (1997), Early reading difficulties and later conduct problems. *J Child Psychol Psychiatry* 38:899-907[*]
 - Fergusson DM, Lynskey MT (1997), Early reading difficulties and later conduct problems. *J Child Psychol Psychiatry* 38:899-907
 - Findling RL, Aman M, Derivan A (2000a), Long-term safety and efficacy of risperidone in children with significant conduct problems and borderline IQ or mental retardation. In: *Scientific Proceedings of the 39th Annual Meeting of the American College of Neuropsychopharmacology*, Puerto Rico, 224.
 - Findling RL, McNamara NK, Branicky LA, Schluchter MD, Lemon E, Blumer JL (2000), A double-blind pilot study of risperidone in the treatment of conduct disorder. *J Am Acad Child Adolesc Psychiatry* 39:509-516.
 - Findling RL, Reed MD, O'Riordan MA, Demeter CA, Stansbrey RJ, McNamara NK (2006), Effectiveness, safety, and pharmacokinetics of quetiapine in aggressive children with conduct disorder. *J Am Acad Child Adolesc Psychiatry* 45: 792-800.
 - Forehand R., McMahon RJ (1981), *Helping the noncompliant child: a clinician's guide to parent training*. New York: Guilford.

- *Frick PJ (1994), Family dysfunction and the disruptive disorders: a review of recent empirical findings. In: Ollendick TH, Prinz RJ, eds. *Advances in Clinical Child Psychology*. New York: Plenum, pp 203-226.
- *Frick PJ (2001), Effective interventions for children and adolescents with conduct disorder. *Can J Psychiatry* 46:597-608.
- Frick PJ, Kamphaus RW, Lahey BB, Loeber R, Christ MA, Hart EL, Tannenbaum LE (1991), Academic underachievement and the disruptive behavior disorders. *J Consult Clin Psychol* 59:289-294.
- Frick PJ, Lahey BB, Loeber R, Stouthamer-Loeber M, Christ MAG, Hanson K (1992), Familial risk factors to oppositional defiant disorder and conduct disorder: parental psychopathology and maternal parenting. *J Consult Clin Psychol* 60:49-55.
- Frick PJ, Lahey BB, Loeber R, Tannenbaum LE, Van Horn Y, Christ MAG, et al. (1993). Oppositional defiant disorder and conduct disorder: A meta-analytic review of factor analyses and cross-validation in a clinic sample. *Clin Psychol Rev* 13:319–340.
- Garbarino J, Sherman D. High-risk neighborhoods and high-risk families: the human ecology of child maltreatment. *Child Dev* 1980; 5:188–198.
- Ghaziuddin N, Alessi NE (1992), An open clinical trial of trazodone in aggressive children. *J Child Adolesc Psychopharmacol* 2:291-297.
- Gillberg C (2000), Typical neuroleptics in child and adolescent psychiatry. *Eur J Child Adolesc Psychiatry* 9(suppl 1):I/2-I/8.
- Goleman D (1999), Emotional Intelligence. In: Kaplan HI, Sadock BJ, eds. *Comprehensive Textbook of Psychiatry*, 7th Edition. New York: Williams & Wilkins, pp 446-462.
- Goodenough FL (1931), *Anger in Young Children*. Minneapolis, University of Minnesota Press.
- Gordon DA, Graves K, Arbuthnot J (1995), The effect of functional family therapy for delinquents on adult criminal behavior. *Crim Justice Behav* 22:60-73.
- Greene RW, Doyle AE (1999), Toward a transactional conceptualization of oppositional defiant disorder: implications for assessment and treatment. *Clin Child Fam Psychol Rev* 2:129-148.
- Greenhill LL, Solomon M, Pleak R, Ambrosini P (1985), Molindone hydrochloride treatment of hospitalized children with conduct disorder. *J Clin Psychiatry* 46:20-25.
- Greenspan S (1987), A model for comprehensive preventive intervention services for infants, young children, and their families. *Clin Infant Rep* 3:377-390.
- Guerra N, Huesmann L, Zelli A, (1990), Attributions for social failure and aggression in incarcerated delinquent youth. *J Abnorm Child Psychol* 18:347-355.
- Gureje O, Omigbodun O, Gater R, Acha R (1994), Psychiatric disorders in a paediatric primary care clinic. *Br J Psychiatry* 165:527-530.
- Haddad J, Barocas R, Hollenbeck A (1991), Family organization and parent attitudes of children with conduct disorder. *J Clin Child Psychol* 20:152-161.
- Hadley M (2003), Relational, indirect, adaptive, or just mean: Recent work on aggression in adolescent girls—Part I. *Stud Gender Sexuality* 4:367–394.

- Hembree-Kigin TL, McNeil CB (1995), *Parent-Child Interaction Therapy*. New York: Plenum.
- Henggeler SW, Melton GB, Smith LA (1992), Family preservation using multisystemic therapy: an effective alternative to incarcerating juvenile offenders. *J Consult Clin Psychol* 60:953-961.
- Henggeler SW, Schoenwald SK, Borduin CM, Rowland MD, Cunningham PB (1998), *Multisystemic treatment of antisocial behavior in children and adolescents*. New York: Guilford.
- Hennessy KD, Rabideau GJ, Cicchetti D, Cummings EM (1994), Responses of physically abused and nonabused children to different forms of inter-adult anger. *Child Dev* 65:815-828.
- Herrenkohl TI, Maguin E, Hill KG, Hawkins JD, Abbott RD, Catalano RF (2000), Developmental risk factors for youth violence. *J Adolesc Health* 26:176-186.
- Hinshaw SP (1987), On the distinction between attentional deficits/hyperactivity and conduct problems/aggression in child psychopathology. *Psychol Bull* 101:443-463
- Hinshaw SP (1991), Stimulant medication and the treatment of aggression in children with attention deficits. *J Clin Child Psychol* 20:301-312.
- Hinshaw SP, Anderson CA (1996), Conduct and oppositional defiant disorders. In: Mash EJ, Barkley RA, eds. *Child Psychopathology*. New York: The Guilford Press, pp 113-149.
- Hinshaw SP, Heller T, McHale JP (1992), Covert antisocial behavior in boys with attention-deficit hyperactivity disorder: external validation and effects of methylphenidate. *J Consult Clin Psychol* 60:274-281.
- Hinshaw SP, Lahey BB, Hart EL (1993), Issues of taxonomy and co-morbidity in the development of conduct disorder. *Dev Psychopathol* 5:31-50.
- Hinshaw SP (1987), On the distinction between attentional deficits/hyperactivity and conduct problems/aggression in child psychopathology. *Psychol Bull* 101:443-463.
- Hogan AE (1999), Cognitive functioning in children with oppositional defiant disorder and conduct disorder. In: Quay HC, Hogan AE, eds. *Handbook of Disruptive Behavior Disorders*. New York: Kluwer Academic/Plenum, pp 317-335.
- Honig A, Wittmer D (1992). *Prosocial development in children: caring, sharing, and cooperation: a bibliographic resource guide*. New York: Garland.
- Howard KA, Flora J, Griffin M (1999), Violence-prevention programs in schools: state of the science and implications for future research. *Appl Prev Psychol* 8:197-215.
- Huesmann, L. (1988). An information processing model for the development of aggression. *Aggressive Behav* 14:13-24.
- Hunt D, Minderaa R, Cohen D (1986), The therapeutic effect of clonidine in attention deficit disorder with hyperactivity: a comparison with placebo and methylphenidate. *Psychopharmacol Bull* 22:229-236.
- Iacono WG, Carlson SR, Malone SM, McGue M (2002), P3 event-related potential amplitude and the risk for disinhibitory disorders in adolescent boys. *Arch Gen Psychiatry* 59:750-757.
- Ingoldsby EM, Kohl GO, McMahon RJ, Lengua L (2006), Conduct Problems Prevention Research Group. Conduct problems, depressive symptomatology and their co-occurring presentation in childhood as predictors of adjustment in early adolescence. *J Abnorm Child Psychol* 34:603-621.
- Kaplan HB, Liu X (1999), Explaining transgenerational continuity in antisocial behavior during early pp 163-191.

adolescence. In: Cohen P, Slomkowski C, Robins LN, eds. Historical and Geographical Influences on Psychopathology. Mahwah, NJ: Erlbaum, pp 163-191.

- Kaplan S, Heiligenstein J, West S, Busner J, Harder D, Dittmann R, Casat C, Wernicke JF (2004), Efficacy and safety of atomoxetine in childhood attention-deficit/hyperactivity disorder with comorbid oppositional defiant disorder. *J Attention Disord* 8:45-52.
- Kaufman J, Birmaher B, Brent D, Rao U, Flynn C, Moreci P, Williamson D, Ryan N, (1997), Schedule for Affective Disorders and Schizophrenia for School-Age Children - Present and Lifetime Version (K-SADS-PL): initial reliability and validity data. *J Am Acad Child Adolesc Psychiatry* 36:980-988.
- *Kazdin A (1985), *Treatment of Antisocial behavior in Children and Adolescents*. Homewood, IL: Dorsey Press, 1985.
- *Kazdin A (1995), *Conduct Disorders in Childhood And Adolescence*. Thousand Oaks, CA: Sage Publications, Inc.
- *Kazdin AE (1996), Problem solving and parent management in treating aggressive and antisocial behavior. In: Hibbs ED, Jensen PS, eds. *Psychosocial Treatments for Child and Adolescent Disorders: Empirically Based Strategies for Clinical Practice*. Washington, DC: American Psychological Association, pp 377-408.
- Kazdin AE (1997), Parent management training: evidence, outcomes, and issues. *J Am Acad Child Adolesc Psychiatry* 36:1349-1356.
- Kazdin AE, Wassell G (2000), Therapeutic changes in children, parents, and families resulting from treatment of children with conduct problems. *J Am Acad Child Adolesc Psychiatry* 39:414-420.
- Keenan K, Wakschlag LS (2004), Are oppositional defiant and conduct disorder symptoms normative behaviors in preschoolers? A comparison of referred and nonreferred children. *Am J Psychiatry* 161:356-358.
- Kelley BT, Loeber R, Keenan K, DeLamatre M (1997), *Developmental Pathways in Boys' Disruptive and Delinquent Behavior*. Washington, DC: Office of Juvenile Justice and Delinquency Prevention, US Department of Justice.
- Kendall PC, Braswell L (1985), *Cognitive-Behavioral Therapy for Impulsive Children*. New York: Guilford.
- Kendall PC, Reber M, McLeer S, Epps J, Ronan KR (1990), Cognitive-behavioral treatment of conduct disordered children. *Cognit Therapy Res* 14:279-297.
- Kerr M, Tremblay RE, Pagani L, Vitaro F.(1997), Boys behavioral inhibition and the risk of later delinquency. *Arch Gen Psychiatry* 54, 809-816.
- Kerr, M., Tremblay, R. E., Pagani, L., *et al* (1997) Boys: behavioral inhibition and the risk of later delinquency. *Archives of General Psychiatry* 54:809–816
- Kilgus M, Pumariega A, Cuffe S (1995), Influence of race on diagnosis in adolescent psychiatric inpatients. *J Am Acad Child Adolesc Psychiatry* 34:67-72.
- Kim-Cohen J, Arseneault L, Caspi A, Tomas MP, Taylor A, Moffitt TE (2005), Validity of DSM-IV conduct disorder in 4½-5 year old children: A longitudinal epidemiological study. *Am J Psychiatry* 162:1108-1117.
- Kim-Cohen J, Caspi A, Moffitt TE, Harrington H, Milne BJ, Poulton R (2003), Prior juvenile diagnoses in adults with mental disorder: developmental follow-back of a prospective-longitudinal cohort. *Arch Gen Psychiatry* 60:709-717.

- Kirkcaldy B, Mooshage B (1993), Personality profiles of conduct and emotionally disordered adolescents. *Pers Individ Differences* 15:95-96.
- Klein RG, Abikoff H, Klass E, Ganeles D, Seese LM, Pollack S (1997), Clinical efficacy of methylphenidate in conduct disorder with and without attention deficit hyperactivity disorder. *Arch Gen Psychiatry* 54:1073-1080.
- Krishnakumar P, Geeta MG (2006), Clinical profile of depressive disorder in children. *Indian Pediatr*.43:521-526.
- Kutcher S, Aman M, Brooks SJ, Buitelaar J, van Daalen E, Fegert J, et al. (2004), International consensus statement on attention-deficit/hyperactivity disorder (ADHD) and disruptive behaviour disorders (DBDs): clinical implications and treatment practice suggestions. *Eur Neuropsychopharmacol* 14:11-28.
- Lahey B, Hart E, Pliszka S, Applegate B, McBurnett K (1993), Neurophysiological correlates of conduct disorder: a rationale and a review of research. *J Clin Child Psychol* 22:141-153.
- Lahey BB, Loeber R, Burke J, Rathouz PJ, McBurnett K (2002), Waxing and waning in concert: dynamic comorbidity of conduct disorder with other disruptive and emotional problems over 7 years among clinic-referred boys. *J Abnorm Psychol* 111:556-567.
- Lahey BB, Loeber R, Quay HC, Frick PJ, Grimm J (1997), Oppositional defiant disorder and conduct disorder. In Widiger TA, Frances AJ, Pincus HA, Ross R, First MB, Davis W, eds. *DSM-IV Sourcebook*, Vol 3. Washington DC: American Psychiatric Association, pp 189-209.
- Lambert EW, Wahler RG, Andrade AR, Bickman L (2001), Looking for the disorder in conduct disorder. *J Abnorm Psychol* 110:110-123.
- Larson KA (1988), A research review and alternative hypothesis explaining the link between learning disability and delinquency. *J Learning Disabilities* 21:357-363.
- Laub JH, Vaillant GE (2000), Delinquency and mortality: A 50-year follow-up study of 1,000 delinquent and nondelinquent boys. *Am J Psychiatry* 157:96-102.
- Lavigne JV, Cicchetti C, Gibbons RD, Binns HJ, Larsen L, DeVito C (2001), Oppositional defiant disorder with onset in preschool years: longitudinal stability and pathways to other disorders. *J Am Acad Child Adolesc Psychiatry* 40:1393-1400.
- Lavin M, Rifkin A, (1993), Diagnosis and pharmacotherapy of conduct disorder. *Prog Neuro-Psychopharmacol Biol Psychiatry* 17:875-885.
- Lewis M, Michalson L (1983), *Children's emotions and moods*. New York: Plenum.
- Liu J (2004), Childhood Externalizing Behavior: Theory and Implications. *J Child Adolesc Psychiatr Nurs* 17:93–103.
- Lochman JE (1992), Cognitive-behavior intervention with aggressive boys: three-year follow-up and preventive effects. *J Consult Clin Psychol* 1992; 60:426-432.
- Loeber R, Burke JD, Lahey BB, Winters A, Zera M (2000), Oppositional defiant and conduct disorder: a review of the past 10 years, part I. *J Am Acad Child Adolesc Psychiatry* 39:1468-1484.
- Loeber R, DeLamatre MS, Keenan K, Zhang Q (1998a), A prospective replication of developmental pathways in disruptive and delinquent behavior. In: Cairns RB, Bergman LR, Kagan J, eds. *Methods and Models for Studying the Individual*. Thousand Oaks, CA: Sage, pp 185-216.
- Loeber R, Farrington DP, eds (1998), *Serious and Violent Juvenile Offenders: Risk Factors and Successful*

Interventions. Thousand Oaks, CA: Sage.

- Loeber R, Farrington DP, eds (2001), *Child Delinquents: Development, Intervention, and Service Needs*. Thousand Oaks, CA: Sage.
- Loeber R, Green SM, Keenan K, Lahey BB (1995), Which boys will fare worse? Early predictors of the onset of conduct disorder in a six-year longitudinal study. *J Am Acad Child Adolesc Psychiatry* 34:499-509.
- Loeber R, Keenan K (1994b), Interaction between conduct disorder and its comorbid conditions: effects of age and gender. *Clin Psychol Rev* 14:497-523.
- Loeber R, Keenan K, Lahey B, Green S, Thomas C (1993), Evidence for developmentally based diagnoses of oppositional defiant disorder and conduct disorder. *J Abnorm Child Psychol* 21:377-410.
- Loeber R, Keenan K, Russo MF, Green SM, Lahey BB, Thomas C (1998b), Secondary data analyses for DSM-IV on the symptoms of oppositional defiant disorder and conduct disorder. In: Widiger T, ed. *DSM-IV Sourcebook*, Vol 4. Washington, DC: American Psychiatric Press.
- Loeber R, Keenan K, Zhang Q (1997), Boys' experimentation and persistence in developmental pathways toward serious delinquency. *J Child Fam Stud* 6:321-357.
- Loeber R, Lahey BB, Thomas C (1991), Diagnostic conundrum of oppositional defiant disorder and conduct disorder. *J Abnorm Psychol* 100:379-390.
- Loeber R, Wung P, Keenan K, Giroux B, Stouthamer-Loeber M, Van Kammen W, Maughan B (1993b), Developmental pathways in disruptive behavior. *Dev Psychopathol* 5:101-132.
- Looney JG, Oldham DG (1999), Normal adolescent development. In: Kaplan HI, Sadock BJ, eds. *Comprehensive Textbook of Psychiatry*, 5th Ed. Baltimore, Williams & Wilkins.
- Lynam D, Moffitt TE, Stouthamer-Loeber J (1993), Explaining the relation between IQ and delinquency: race, class, test motivation, school failure, or self-control. *J Abnorm Psychol* 102:187-196.
- Lyons-Ruth K, Alpern L, Repacholi B (1993), Disorganized infant attachment classification and maternal psychosocial problems as predictors of hostile-aggressive behavior in the preschool classroom. *Child Dev* 64:572-585.
- Maguin E, Loeber R, LeMahieu P (1993), Does the relationship between poor reading and delinquency hold for different age and ethnic groups? *J Emotional Behav Disorders* 1:88-100.
- Malhotra AK, Virkkunen M, Rooney W, Eggert M, Linnoila M, Goldman D (1996), The association between the dopamine D4 receptor (DRD4) 16 amino acid repeat polymorphism and novelty seeking. *Mol Psychiatry* 1:388-391.
- Malhotra S, Varma VK, Verma SK, Malhotra A (1988), Childhood psychopathology measurement schedule: development and standardization. *Indian J Psychiatry* 30:325-31
- Malhotra S, Aga VM, Balraj, Gupta N (1999), Comparison of conduct disorder and Hyperkinetic conduct disorder: A retrospective clinical study from North India. *Ind J Psychiatry* 41:111-121.
- Malhotra S, Kohli A, Arun P (2002), Prevalence of psychiatric disorders in school children in Chandigarh, India. *Indian J Med Res* 116:21-28
- Malone RP, Delaney MA, Luebbert JF, Cater J, Campbell M (2000), A double-blind placebo-controlled study of lithium in hospitalized aggressive children and adolescents with conduct disorder. *Arch Gen* .

Psychiatry 57:649-654.

- Malone RP, Simpson GM 1998, Use of placebos in clinical trials involving children and adolescents. *Psychiatr Serv* 49:1413–1414, 1417
- Manuck SB, Flory JD, Ferrell RE, Dent KM, Mann JJ, Muldoon MF (1999), Aggression and anger-related traits associated with a polymorphism of the tryptophan hydroxylase gene. *Biol Psychiatry* 45:603-614.
- Marmorstein NR (2006), Generalized versus performance-focused social phobia: patterns of comorbidity among youth. *J Anxiety Disord* 20:778-793.
- Marion, M. (1995). *Guidance of young children*. Columbus, Oh: Merrill.
- Mathijssen JJJP, Koot HM, Verhulst FC (1999), Predicting change in problem behavior from child and family characteristics and stress in referred children and adolescents. *Dev Psychopathol* 11:305-320.
- Matthys W, Cuperus JM, Van Engeland H (1999), Deficient social problem-solving in boys with ODD/CD, with ADHD, and with both disorders. *J Am Acad Child Adolesc Psychiatry* 38:311-321.
- Matthys W, Walterbos W, Van Engeland H, Koops W (1995), Conduct-disordered boys' perceptions of their liked peers. *Cognit Ther Res* 19:357-372.
- Maughan B, Pickles A, Hagell A, Rutter M, Yule W (1996), Reading problems and antisocial behaviour: developmental trends in comorbidity. *J Child Psychol Psychiatry* 37:405-418.
- Maughan B, Rowe R, Messer J, Goodman R, Meltzer H (2004). Conduct disorder and oppositional defiant disorder in a national sample: developmental epidemiology. *J Child Psychol Psychiatry* 45:609-621.
- McBurnett K, Lahey BB, Rathouz PJ, Loeber R (2000), Low salivary cortisol and persistent aggression in boys referred for disruptive behavior. *Arch Gen Psychiatry* 57:38-43.
- McCord J (1991), Competence in long-term perspective. *Psychiatry* 54:227-237.
- McCord W, McCord J (1969), *Origins of Crime*. Montclair, NJ: Patterson Smith.
- McCracken J T (1999), Attention-Deficit disorders. In: Kaplan HI, Sadock BJ, eds. *Comprehensive Textbook of Psychiatry*, 7th Edition. New York: Williams & Wilkins, pp 2679-2692.
- McGee R, William S, Share DL, Anderson J, Silva P (1986), The relationship between specific reading retardation, general reading backwardness and behavioural problems in a large sample of Dunedin boys: A longitudinal study from 5 to 11 years. *J Child Psychol Psychiatry Allied Disciplines* 27:597-610.
- Mendel R (1995), "Prevention or Pork? A hard-headed look at youth-oriented anti-crime programs." Washington, DC: American Youth Policy Forum.
- Moffitt TE (1993), Adolescence-limited and life-course persistent antisocial behavior: a developmental taxonomy. *Psychol Rev* 100:674-701.
- Moffitt TE, Caspi A (2001). Childhood predictors differentiate life-course persistent and adolescence-limited antisocial pathways among males and females. *Dev Psychopathol* 13:355-375.
- Moffitt TE, Caspi A, Dickson N, Silva PA, Stanton W (1996). Childhood-onset versus adolescent onset antisocial conduct in males: natural history from age 3 to 18. *Dev Psychopathol* 8:399-424.

- Moffitt TE, Lynam DR, Silva PA (1994), Neuropsychological tests predicting persistent male delinquency. *Criminol* 32:277-300.
- Monuteaux MC, Faraone SV, Michelle Gross L, Biederman J (2007), Predictors, clinical characteristics, and outcome of conduct disorder in girls with attention- deficit/hyperactivity disorder: a longitudinal study. *Psychol Med* 24:1-11
- Nagin D, Tremblay RE (1999), Trajectories of boys' physical aggression, opposition, and hyperactivity on the path to physically violent and nonviolent juvenile delinquency. *Child Dev* 70:1181-1196.
- Nagin DS & Tremblay RE (2001), Parental and early childhood predictors of persistent physical aggression in boys from kindergarten to high school. *Arch Gen Psychiatry* 58:389-394.
- *NICE Technology Appraisal Guidance 102 (September 2007). Parent-training/education programmes in the management of children with conduct disorders
- Nigg JT (2006), Temperament and developmental psychopathology. *J Child Psychol Psychiatry* 47:395-422.
- Nock MK, Kazdin AE, Hiripi E, Kessler RC (2006), Prevalence, subtypes, and correlates of dsm-iv conduct disorder in the national comorbidity survey replication. *Psychol Med* 36:699-710.
- O'Brien BS, Frick PJ (1996), Reward dominance: associations with anxiety conduct problems, and psychopathy in children. *J Abnorm Child Psychol* 24:223-240.
- Odgers CL, Milne BJ, Caspi A, Crump R, Poulton R, Moffitt TE (2007), Predicting prognosis for the conduct-problem boy: can family history help? *J Am Acad Child Adolesc Psychiatry* 46: 1240-1249
- Offord D, Bennett K (1994), Conduct disorder: long-term outcomes and intervention effectiveness. *J Am Acad Child Adolesc Psychiatry* 33:1069-1078
- Offord D, Boyle M, Racine Y, Fleming J, Cadman D (1992), Outcome, prognosis, and risk in a longitudinal follow-up study. *J Am Acad Child Adolesc Psychiatry* 31:916-923.
- Offord DR, Kraemer HC, Kazdin AE, Jensen PS, Harrington R (1998), Lowering the burden of suffering from child psychiatric disorder: trade-offs among clinical, targeted and universal interventions. *J Am Acad Child Adolesc Psychiatry* 37:686-694.
- Olweus D (1979), Stability in aggressive reaction patterns in males: a review. *Psychol Bull* 86, 852-875.
- Pajer KA (1998), What happens to "bad" girls? A review of the adult outcomes of antisocial adolescent girls. *Am J Psychiatry* 155:862-870.
- Pappadopulos E, Macintyre Ii JC, Crismon ML, Findling RL, Malone RP, Derivan A, et al. (2003), Treatment recommendations for the use of antipsychotics for aggressive youth (TRAAY). Part II. *J Am Acad Child Adolesc Psychiatry* 42:145-161
- Patrick CJ, Bernat EM, Malone SM, Iacono WG, Krueger RF, McGue M (2006), P300 amplitude as an indicator of externalizing in adolescent males. *Psychophysiol* 43:84-92.
- Patterson GR (1996), Performance models for antisocial boys. *Am Psychol* 41:432-444.
- Patterson GR, Forgatch MS (1987), *Parents and Adolescents Living Together*. Eugene, Or: Castalia.
- Pelham WE, Carlson C, Sams SE, Vallan G, Dixon MJ, Hoza B (1993), Separate and combined effects of methylphenidate and behavior modification on boys with attention deficit-hyperactivity disorder in the classroom. *J Consult Clin Psychol* 61:506-515.

- Perdikouri M, Rathbone G, Huband N, Duggan C (2007), A Comparison of adults with antisocial personality traits with and without childhood conduct disorder. *Ann Clin Psychiatry* 19:17-23.
- Pfiffner LJ, McBurnett K, Lahey BB, Loeber R, Green S, Frick PJ, Rathouz PJ.(1999), Association of parental psychopathology to the comorbid disorders of boys with attention deficit-hyperactivity disorder. *J Consult Clin Psychol* 67:881-893.
- Pierrehumbert B, Miljkovitch R, Plancherel B, Halfon O, Ansermet F (2000), Attachment and temperament in early childhood: implications for later behavior problems. *Infant Child Dev* 9:17-32.
- Quay H (1986), Conduct disorders. In: Quay H, Werry J, eds. *Psychopathological Disorders of Childhood*, 3rd Edition. New York: Wiley & Sons, pp. 35-72.
- Quinton D, Pickles A, Maughan B, Rutter M (1993), Partners, peers, and pathways: assortative pairing and continuities in conduct disorder. *Dev Psychopathology* 5:763-783.
- Rae-Grant N, Thomas F, Offord D, Boyle M (1989), Risk, protective factors, and the prevalence of behavioral and emotional disorders in children and adolescents. *J Am Acad Child Adol Psychiatry* 28:262-268.
- Raine A (1993), *The Psychopathology of Crime: Criminal Behaviors as a Clinical Disorder*. San Diego, CA: Academic Press, Inc.
- Raine A (2002), Biosocial studies of antisocial and violent behavior in children and adults: a review. *J Abnorm Child Psychol* 30:311-326.
- Reddy LA, Pfeiffer SI (1997), Effectiveness of treatment foster care with children and adolescents: a review of outcome studies. *J Am Acad Child Adolesc Psychiatry* 36:581-588.
- Reich W (2000), Diagnostic Interview for Children and Adolescents (DICA). *J Am Acad Child Adolesc Psychiatry* 39:59-66.
- Rey JM (1993), Oppositional defiant disorder. *Am J Psychiatry* 150:1769-1778.
- Reyes M, Croonenberghs J, Augustyns I, Eerdekens M (2006), Long-term use of risperidone in children with disruptive behavior disorders and subaverage intelligence: efficacy, safety, and tolerability. *J Child Adolesc Psychopharmacol* 16:260-272.
- Rhee SH, Waldman ID (2002). A meta-analytic review of twin and adoption studies examining antisocial behavior. *Psychol Bull* 128:490-529.
- Richters J (1993), Mark Twain meets DSM-III-R: Conduct disorder, development, and the concept of harmful dysfunction. *Dev Psychopathol* 5:5-29.
- Rifkin A, Karajgi B, Dicker R, Perl E, Boppana V, Hasan N, Pollack S (1997), Lithium treatment of conduct disorders in adolescents. *Am J Psychiatry* 154:554-555.
- Robins L, Rutter M, Eds. (1990), *Straight and Devious Pathways from Childhood to Adulthood*, New York, NY: Cambridge University Press.
- Robins LN (1966). *Deviant children grown up: A sociological and psychiatric study of sociopathic personality*. Baltimore, MD: Williams & Wilkins.
- Robins LN (1991). Conduct disorder. *J Child Psychol Psychiatry* 32:193-212.
- Robison SD, Frick PJ, Sheffield Morris A (2005), Temperament and parenting: implications for

understanding developmental pathways to conduct disorder. *Minerva Pediatr* 57: 373-388.

- Rowe DC, Farrington DP (1997), The familial transmission of criminal convictions. *Criminol* 35:177-201.
- Rutter M (1992b), Adolescence as a transition period: Continuities and discontinuities in conduct disorder. *J Adolescent Health* 13:451-460.
- *Rutter M (1996), Introduction: concepts of antisocial behaviour, of cause, and of genetic influences. In Bock G, Good J, eds. *Genetics of Criminal and Antisocial Behaviour*. Chichester: John Wiley and Sons, pp 1-20.
- Rutter M, ed. (1988), *Studies of Psychosocial Risk: The Power of Longitudinal Data*. New York, NY: Cambridge University Press.
- Rutter M, Giller H (1983), *Juvenile Delinquency*. Middlesex, England: Penguin.
- Rutter M, Giller H, Hagell A (1999), Antisocial behavior by young people. *J Am Acad Child Adolesc Psychiatry* 38:1320-1321.
- Sanson A, Prior M (1999), Temperament and behavioral precursors to oppositional defiant disorder and conduct disorder. In: Quay HC, Hogan AE, eds. *Handbook of Disruptive Behavior Disorders*. New York: Kluwer Academic/Plenum, pp 397-417.
- Sanson A, Prior M, Smart D (1996), Reading disabilities with and without behaviour problems at 7–8 years: prediction from longitudinal data from infancy to 6 years. *J Child Psychol Psychiatry* 37:529-541.
- Sarkar AB, Kapur M, Kaliaperumal VG (1995), The prevalence and pattern of psychological in school going middle childhood children. *NIMHANS J* 13:33-41
- Sarkhel S, Sinha VK, Arora M, DeSarkar P (2006) Prevalence of conduct disorder in children of Kanke. *Ind J Psychiatry* 48:159-164
- Satterfield JH, Faller KJ, Crinella FM, Schell AM, Swanson JM, Homer LD (2007), A 30-year prospective follow-up study of hyperactive boys with conduct problems: adult criminality. *J Am Acad Child Adolesc Psychiatry* 46:601-610.
- Sheldrick, C (1999) Practitioner review of the assessment and management of risk in adolescents. *J Child Psychol Psychiatry* 40:507–518.
- Schur SB, Sikich L, Findling RL, Malone RP, Crismon ML, Derivan A, et al. (2004), Treatment Recommendations for the Use of Antipsychotics for Aggressive Youth (TRAAAY), Part I: A Review. *Focus* 2:596-607.
- Scott S, Knapp M, Henderson J, Maughan B (2001), Financial cost of social exclusion: follow-up study of antisocial children into adulthood. *BMJ* 323:1-5.
- Searight HR, Rottnek F, Abby SL. (2001), Conduct disorder diagnosis and treatment in primary care. *Am Fam Physician* 63:1579-1588.
- Seguin JR, Boulerice B, Harden PW, Tremblay RE, Pihl RO (1999), Executive functions and physical aggression after controlling for attention deficit hyperactivity disorder, general memory, and IQ. *J Child Psychol Psychiatry* 40:1197-1208.
- Shaffer D, Fisher P, Lucas CP, Dulcan MK, Schwab-Stone ME (2000), NIHM Diagnostic Interview Schedule for Children Version IV. Prescribing practices of (NIMH DISC-IV): description, differences from previous versions, and reliability of some common diagnoses. *J Am Acad Child Adolesc Psychiatry* 39, 28-38.

- Shannon KE, Beauchaine TP, Brenner SL, Neuhaus E, Gatzke-Kopp L (2007). Familial and temperamental predictors of resilience in children at risk for conduct disorder and depression. *Dev Psychopathol* 19:701-27.
- Shaw DS, Gilliom M, Ingoldsby EM., *et al* (2003) Trajectories leading to school-age conduct problems. *Dev Psychol* 39,189–200.
- Shepherd M, Oppenheim B, Mitchell S (eds) (1971), *Childhood Behavior and Mental Health*. London, University of London Press.
- Silverthorn P, Frick PJ (1999), Developmental pathways to antisocial behavior: the delayed-onset pathway in girls. In: Cicchetti D, ed. *Development and Psychopathology*. New York: Cambridge University Press, pp 101-126.
- Simonoff E, Elander J, Holmshaw J, Pickles A, Murray R, Rutter M (2004), Predictors of antisocial personality. Continuities from childhood to adult life. *Br J Psychiatry* 184:118-127.
- Sirpal SK (2002), Familial criminality, familial drug use and gang membership: youth criminality, drug use and gang membership - what are the connections. *J Gang Res* 50:11-22.
- Smetana JG (1990), Morality and conduct disorders. In: Lewis M, Miller SM, eds. *Handbook of Developmental Psychopathology*. New York: Plenum, pp 157-179.
- Snyder R, Turgay A, Aman M, Binder C, Fisman S, Carroll A (2002) Effects of risperidone on conduct and disruptive behavior disorders in children with subaverage IQs. *J Am Acad Child Adolesc Psychiatry* 41:1026-1036.
- Speltz ML, DeKlyen M, Calderon R, Greenberg MT, Fisher PA (1999), Neuropsychological characteristics and test behaviors of boys with early onset conduct problems. *J Abnorm Psychol* 108:315-325.
- Srinath S, Janardhan Reddy YC, Girimaji SR, Seshadri SP, Subbakrishna DK (1998), A prospective study of bipolar disorder in children and adolescents from India. *Acta Psychiatr Scand* 98:437-442.
- Steadman HJ, Cocozza JJ (1993), *Mental Illness in America's Prisons*. Seattle, WA: National Coalition for the Mentally Ill in the Criminal Justice System.
- *Steiner H (1997), Practice parameters for the assessment and treatment of children and adolescents with conduct disorder. *J Am Acad Child Adolesc Psychiatry* 36 (Suppl): 122S-139S.
- *Steiner H (1999), Disruptive behavior disorders. In: Kaplan HI, Sadock BJ, eds. *Comprehensive Textbook of Psychiatry*, 7th Edition. New York: Williams & Wilkins, pp 2693-2703.
- Steiner H, Cauffman E, Duxbury E (1999), Personality traits in juvenile delinquents: relation to criminal behavior and recidivism. *J Am Acad Child Adolesc Psychiatry* 38:256-262
- Steiner H, Remsing L, and the Workgroup on Quality Issues (2007), Practice Parameter for the Assessment and Treatment of Children and Adolescents with Oppositional Defiant Disorder. *J Am Acad Child Adolesc Psychiatry* 46:126-141.
- Steiner H, Stone LA (1999), Violence and related psychopathology. *J Am Acad Child Adolesc Psychiatry* 38:232-234.
- Talwar P (1998), The family and peer group influences in aggression. *Ind J Psychiatry* 40:346-349.
- Tasse MJ, Aman MG, Hammer D, Rojahn J (1996), The Nisonger Child Behavior Rating Form: age and gender effects and norms. *Res Dev Disabil* 17:59-75.

- Tremblay R, McCord J, Boileau H, Charlebois P (1991), Can disruptive boys be helped to become competent? *Psychiatry* 54:148-161.
- Tremblay RE, LeMarquand D, Vitaro F (1999), The prevention of oppositional defiant disorder and conduct disorder. In: Quay HC, Hogan AE, eds. *Handbook of Disruptive Behavior Disorders*. New York: Kluwer Academic/Plenum, pp 525–555.
- Tremblay RE, Nagin DS, Séguin JR, Zoccolillo M, Zelazo PD, Boivin M, et al. (2004), Physical aggression during early childhood: trajectories and predictors. *Pediatrics* 114:e43-e50
- Tremblay RE, Pihl RO, Vitaro F, Dobkin PL. (1994) Predicting early onset of male antisocial behavior from preschool behavior. *Arch General Psychiatry* 51:732–739.
- Trickett PK, Putnam FW (1998), Developmental consequences of child sexual abuse. In: Trickett PK, Schellenbach CJ, eds. *Violence Against Children in the Family and the Community*. Washington, DC: American Psychological Association, pp 39–56.
- Unis AS, Cook EH, Vincent JG, Gjerde DK, Perry BD, Mason C, Mitchell J (1997), Platelet serotonin measures in adolescents with conduct disorder. *Biol Psychiatry* 42:553–559.
- Van Goozen SHM, Matthys W, Cohen-Kettenis PT, Gispens-de Wied C, Wiegant VM, Engeland HV (1998), Salivary cortisol and cardiovascular activity during stress in oppositional-defiant disorder boys and normal controls. *Biol Psychiatry* 43:531–539.
- Van Lier PA, van der Ende J, Koot HM, Verhulst FC (2007), Which better predicts conduct problems? The relationship of trajectories of conduct problems with ODD and ADHD symptoms from childhood into adolescence. *J Child Psychol Psychiatry* 48:601-608.
- Vidyasagar P, Mishra H (1993), Effect of modeling on aggression. *Ind J Clin Psychol* 20:50-52.
- Wakschlag LS, Lahey BB, Loeber R, Green SM, Gordon RA, Leventhal BL (1997), Maternal smoking during pregnancy and the risk of conduct disorder in boys. *Arch Gen Psychiatry* 54:670-676
- Walker JL, Lahey BB, Russo MF, Frick PJ, Christ MA, McBurnett K, Loeber R, Stouthamer-Loeber M, Green SM. (1991), Anxiety, inhibition, and conduct disorder in children, I: relations to social impairment and sensation seeking. *J Am Acad Child Adolesc Psychiatry* 30:187-191.
- Webster-Stratton C (1992), *The Incredible Years: a trouble-shooting guide for parents of children aged 3-8*. Toronto, Ontario: Umbrella Press.
- Webster-Stratton C, Hammond M (1997), Treating children with early-onset conduct problems: a comparison of child and parent training interventions. *J Consult Clin Psychol* 65:93-109.
- Webster-Stratton C, Hancock L (1997), Training parents of young children with conduct problems: content, methods, and therapeutic processes. In: Briesmeister JM, Schaefer C, eds. *Handbook of Parent Training: Parents as Co-Therapists for Children's Behavior Problems*. 2nd Edition. New York: Wiley, pp 98-152.
- Wehby J, Dodge K, Valente E (1993), School behavior of first grade children identified as at-risk for development of conduct problems. *Behav Disord* 19:67-78.
- Weinberger D (1990), The construct validity of the repressive coping style. In: Singer JL, ed. *Repression and Dissociation*. Chicago, University of Chicago Press, pp 337-386.
- Weissman MM, Warner V, Wickramaratne P, Moreau D, Olfson M (1997), Offspring of depressed parents. *Arch Gen Psychiatry* 54:932-940.

- Weissman MM, Warner V, Wickramaratne P, Kandel DB (1999), Maternal smoking during pregnancy and psychopathology in offspring followed to adulthood. *J Am Acad Child Adolesc Psychiatry* 38:892–899.
- Welsh BC (2001), Economic costs and benefits of early developmental prevention. In: Loeber R, Farrington DP, eds. *Child Delinquents*. Thousands Oaks, CA: Sage, pp 339-355.
- White JL, Moffitt TE, Caspi A, Bartusch DJ, Needles DJ, Stouthamer-Loeber M (1994), Measuring impulsivity and examining its relationship to delinquency. *J Abnorm Psychol* 103:192-205.
- Whittinger NS, Langley K, Fowler TA, Thomas HV, Thapar A (2007), Clinical precursors of adolescent conduct disorder in children with attention-deficit/hyperactivity disorder. *J Am Acad Child Adolesc Psychiatry* 46:179-187
- Wikstrom PO, Loeber R (2000), Do disadvantaged neighborhoods cause well-adjusted children to become adolescent delinquents? A study of male juvenile serious offending, risk and protective factors, and neighborhood context. *Criminol* 38:1109-1141.
- Williams JM, Dunlop LC (1999), Pubertal timing and self-reported delinquency among male adolescents. *J Adolesc* 22:157-171.
- Woolfenden SR, Williams K, Peat JK (2002), Family and parenting interventions for conduct disorder and delinquency: a meta-analysis of randomized controlled trials. *Arch Dis Child* 86:251-256.
- Zahner G, Jacobs J, Freeman D, Trainon KF (1993), Rural-urban child psychopathology in a northeastern US state: 1986-1989. *J Am Acad Child Adolesc Psychiatry* 32:378-387.
- Zoccolillo M, Pickles A, Quinton D, Rutter M (1992), The outcome of conduct disorder. *Psychol Med* 22:971-986.
- Zeman J, Shipman K (1996), Children's expression of negative affect: reasons and methods. *Dev Psychol* 32: 842-850.

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