Conduct Disorder in Relation to Trauma and Sleep
A Review for Criminal Justice Professionals

Conduct disorder (CD) is characterized by a pattern of persistent behaviors in which age-appropriate societal norms and rules are broken (American Psychiatrist Association, 2013; Buitelaar, Smeets, Herpers, Scheepers, Glennon, & Rommelse 2012). CD consists of a pervasive pattern of behaviors that infringe on the rights of others and/or violate both age and culturally appropriate norms (American Psychiatrist Association, 2013). According to the American Psychiatrist Association (APA), a CD diagnosis is appropriate for individuals typically under the age of 18, who engage in at least three of 15 behavioral criteria within the four categories of aggression directed to people or animals, property destruction, deceitfulness or theft, and serious rule violations (2013). In accordance with the diagnostic criteria outlined in the DSM-5, additional specifications indicate the onset of the problematic behavior, the severity of the behavior, and whether the youth’s presentation is further characterized by callous or unemotional traits (American Psychiatric Association, 2013; Rivera-Hudson & Frick, 2013).

For professionals working with children and adolescents, conduct disorder and other disruptive behaviors serve as the most frequently observed mental health concerns (Baker, 2012). According to Murray and Farrington (2010), the prevalence rate of CD is between 6% and 16% in adolescent boys and 2% to 9% in adolescent girls. A key feature of CD is a pervasive pattern of delinquency and actions prohibited by law (e.g., burglary, violence, drug use, and vandalism) (Barry, Golmaryami, Rivera-Hudson, & Frick, 2013; Murray, & Farrington, 2010). As youth engage in behaviors that violate laws, the resulting legal consequences may include placement in juvenile detention centers.

Conduct Disorder and Trauma

Youth diagnosed with CD often have a history of exposure to trauma (Greenwald, 2002; Reebye, Moretti, Wiebe, & Lessard, 2000). Trauma, in this context, refers to any event in which the child or adolescent experienced helplessness, fear, pain, and/or horror (Greenwald, 2002). Traumatic experiences often have significant negative long-term effects and are shown to gravely impact all areas of a child’s development (e.g., physical development, cognitive development, and social development). The high rate of comorbidity between diagnoses of CD and post-traumatic stress disorder (PTSD) suggests a link between unprocessed trauma and CD (Reebye et al., 2000). Greenwald (2000) proposed that a history of trauma is universal to adolescents exhibiting behavior consistent with a CD diagnosis. This claim is supported by research that demonstrates that the externalization of anger and aggression can be considered a symptom of trauma exposure (American Psychological Association, 2013). The experience of unresolved trauma can lead to a host of serious behavioral concerns and psychological symptoms (e.g., high-risk behaviors, hostility, impaired social competence, substance misuse, and engagement in
violent or aggressive behavior) (Ariga, Uehara, Takeuchi, Ishige, Nakano, & Mikuni, 2008; Dixon-Gordon, Tull, & Gratz, 2014; Flood et al., 2010; Forbes, Elhai, Miller, & Creamer, 2010; Khoury, Tang, Bradley, Cubells, & Ressler, 2010; Wood, Foy, Goguen, Pynoos, & James, 2002).

Furthermore, individuals diagnosed with CD may experience increased susceptibility to a re-occurrence of trauma exposure due to the severity of the behaviors commonly associated with CD and the accompanying traumatic consequences (Koenen et al., 2005). Persons with CD, especially those with childhood-onset type, are at an increased risk of subsequent development of PTSD later in life (American Psychological Association, 2013). There is also recent evidence that behavior consistent with a diagnosis of CD may be an intergenerational problem that can be passed from parents to offspring through social learning in the form of parental modeling (Raudino, Fergusson, Woodward, & Horwood, 2012). If left untreated, these symptoms can become chronic (Greenwald, 2002). Due to the extensive body of literature examining the relationship between trauma and behaviors meeting the diagnostic criteria for CD, it is recommended that routine assessments for trauma be administered when children present with issues pertaining to conduct (Reebye et al., 2000).

**Conduct Disorder and Sleep Problems**

Sleep studies demonstrate that many of the behaviors associated with CD (e.g., delinquency, cognitive functioning, impulse control, irritability, and emotion deregulation) are also associated with sleep problems. Adequate sleep is a crucial contributing factor in the healthy development of children and adolescents. Numerous studies have demonstrated that improving sleep results in increased engagement in adaptive behaviors, daily functioning, concentration, and overall physical well-being (Ancoli-Israel et al., 2010; Mulvaney et al., 2006; Pakyurek, Gutkovich, & Weintraub, 2002; Stathis, Martin, & McKenna, 2005).

A recent study by Clinkinbeard, Simi, Evans, and Anderson (2011) found that healthy children who received an average of 7 hours of sleep or less per night experienced higher rates of delinquent acts in comparison to healthy children who slept 8 to 10 hours per night. Furthermore, Clinkinbeard et al. (2011) suggested that sleep deprivation has an immediate effect on cognitive functioning, increasing the risk for delinquent behavior. Moreover, when examining the influential role of sleep, Gruber, Cassoff, Frenette, Wiebe, and Carrier (2012) found that increasing sleep duration by just under 30 minutes or reducing sleep resulted in observable differences in impulse control, irritability, and emotion as measured by Connors’ Global Index. Juveniles experiencing increased sleep time demonstrate improved ability in regard to behavioral and emotional management while those experiencing less sleep time demonstrate more disruptive behaviors and increased difficulties pertaining to emotion regulation (Gruber et al., 2012). Disruptive behavior and diminished impulse control are also commonly observed among sleep-deprived individuals (Anderson & Platten, 2011). In addition, sleep deprivation can be compounded by impulsivity, specifically since impulsive individuals are at a higher risk for developing insomnia (Granö et al., 2007; Preer, Tkachenko, Gogel, Bark, & Killgore, 2014). Increased irritability, caused by sleep deprivation, is generally the result of diminished emotional regulation as it pertains to type and intensity of emotional reactions (Dahl & Lewin, 2002). The impact of sleep quality and duration on delinquent behavior is especially relevant to the discourse surrounding CD in light of research linking engagement in delinquent behavior and increased sleep disturbances (Chervin, Dillon, Archbold, & Ruzicka, 2003; Morrison, McGee, & Stanton, 1992).

The relationship between other sleep problems, such as restless legs syndrome (RLS) and sleep-disordered breathing (SDB), and CD-related behavior has also been identified (Chervin, Dillon, Archbold, & Ruzicka, 2003). Youth who exhibit symptoms of RLS, or periodic leg movements during sleep, tend to experience higher levels of conduct problems compared to youth without sleep complaints (Chervin, Dillon, Archbold, & Ruzicka, 2003). A similar phenomenon has been reported in adolescents suffering from SDB or irregular breathing during sleep (Chervin, Dillon, Archbold, & Ruzicka, 2003). In multiple studies, the poor sleep quality associated with SDB has been demonstrated to lead to disruptive behaviors with a recent study identifying a link between SDB and diminished adaptive functioning (Beebe,
Children with a diagnosis of CD are also commonly diagnosed with other comorbid disorders, such as attention deficit/hyperactivity disorder (ADHD), depression, anxiety, and substance use disorders (Cunningham & Ollendick, 2010; Loeber, & Keenan, 1994; Stahl & Clarizio, 1999; Wolff & Ollendick, 2006), all of which can exacerbate sleep-related problems.

Greater understanding of the relationship between sleep disorders and specific cognitive functioning deficits may provide additional insight into youth conduct problems. Assessment for sleep-related problems is recommended for all children and adolescents who exhibit symptoms consistent with CD. Additional information about sleep problems, through both assessment of sleep disturbances and additional training pertaining to the treatment of sleep-related problems, may allow professionals to increase their effectiveness in identification and treatment of early problematic behaviors that could progress into more serious forms of conduct disorders in youth (Chervin, Dillon, Archbold, & Ruzicka, 2003).

Conduct Disorder, Trauma, and Sleep Problems

The intersections between conduct disorder, trauma, and sleep problems suggest a connection between all three. Trauma can have a significant impact on sleep and can lead to a variety of sleep problems and disorders among children (Charuvastra & Cloitre, 2009). Early traumatic experiences usually elevate the risk for insomnia not only in youth, but also over the course of a lifetime (Bader, Schaefer, Schenkel, Nissen, & Schwander, 2007; Young, Kenardy, & Cobham, 2011). In turn, sleep problems may have an impact on development of subsequent conduct-related problems. Research has found that children or adolescents losing a total of 60 minutes of sleep per night can demonstrate increased engagement in disruptive behavior commonly found in conduct disorders (Holley, Hill, & Stevenson, 2010). The increased levels of anxiety and depression induced by trauma may also lead to restless sleep and frequent periods of wakefulness (Spoormaker & Bout, 2005). Sleep disturbances significantly impact the self-reported mental health of individuals and may uniquely influence the severity of PTSD-related symptoms (Belleville, Guay, & Marchand, 2009). For those suffering from a dual diagnosis of PTSD and CD, improving sleep quality is shown to significantly decrease frequency and severity of CD symptoms (Germain, 2013; Nakamura, Lipschitz, Landward, Kuhn, & West, 2011). Sleep deprivation, including that resulting from trauma, can lead to ineffective management of emotions and may increase the propensity for acting-out behaviors.

Determining the type of trauma a youth has experienced may provide an improved understanding of the etiology of CD and could aid in the development of effective treatment planning for youth with comorbid sleep and trauma-related concerns. Interventions that may be effective in treating youth diagnosed with CD and a history of trauma include eye movement desensitization and reprocessing (EMDR), motivational interviewing (MI), and self-control training (Greenwald, 2000). Other interventions, such as play therapy, narrative therapy, music therapy, and exercise, should also be considered (Greenwald, 2000; Cloitre, & Graham, 2009).

Conduct Disorder and Sleep Problems in Detention Facilities

Considering the demonstrated relationship between sleep disturbances, psychiatric illness, and behavioral issues, the significance of quality sleep for juveniles placed in detention facilities is indisputable (Gregory & Sadeh, 2012; Shanahan, Copeland, Angold, Bondy, & Costello, 2014). Sleep disruptions can prove problematic in juvenile detention facilities, both to the individuals experiencing them and to their peers. Incarcerated youth who meet the diagnostic criteria for CD and present with a predisposed callous disregard for others may engage in more disruptive behaviors, especially if sleep disruptions go unrecognized.

According to “The Survey of Youth in Residential Placement” (SYRP), youth in custody report more sleep problems compared with high school-aged youth in the general population (34% and 11%
respectively) (Sedlak, McPherson, Westat, & United States of America, 2010). Specifically, incarcerated youth report that they often or always have a problem falling asleep at night while those juveniles enrolled in ninth to 12th grade within the general population report that they have difficulty falling asleep every night or almost every night. Gender, it appears, also contributes to sleeping problems. According to the same SYRP study, females report having more trouble falling asleep in comparison to males. Females report trouble sleeping often (23% vs. 16%) or always (20% vs. 16%), while males more commonly report no problem falling asleep (30% vs. 18%).

More generally, psychiatric patients, a category broadly encompassing many of those individuals in juvenile detention facilities, could be even more susceptible to the negative repercussions of poor sleep, including increased levels of aggression, irritability, and hostility (Kamphuis, Meerlo, Koolhaas, & Lancel, 2012). Even in a healthy adolescent population, sleep reduction has a negative impact on mood and the ability to regulate emotions (Baum et al., 2014). When sleep is disrupted among youth in juvenile detention facilities, the resulting reactive aggression, hypervigilance, and emotional numbing may hinder treatment and intervention efforts, which could in turn increase the risk of recidivism (Bailey, Smith, Huey, McDaniel, & Babeva, 2014).

Another significant concern in juvenile detention facilities is the risk of self-harm and suicidal behavior, both of which have been connected to trauma and sleep problems. In one study of juvenile detainees, many of the 12% of detainees in the study who had attempted suicide and 19% who reported suicide ideations had experienced traumatic events like sexual abuse, homelessness, running away from home, and family exposure to substance abuse (Bhatta, Jefferis, Kavadas, Alemagno, & Shaffer-King, 2014). Some studies have also demonstrated a correlation between impulsivity, drug abuse, and suicidal ideation (Albein-Urios et al., 2013; Gorlyn, 2005; Granø et al., 2007; Moshier, Ewen, & Otto, 2013; Swann et al., 2005).

Sleep problems compound problems of self-harm and suicidal behavior. A study of psychiatric patients seen in hospital emergency departments presented with severe insomnia characterized by decreased executive functioning and suicidal ideation (Chaudhary, Chakravorty, Evenden, & Sanuck, 2013). Another study involving depressed individuals identified insomnia as a possible predictive factor for suicidal ideation (McCall et al., 2010). When considering incarcerated adults, identifying those individuals with insomnia has been proposed as an effective way to determine who is at risk of having potential suicidal ideation (Carli et al., 2011). As such, screening and treating juvenile detainees for PTSD and sleep problems could decrease both disruptive and self-harming behaviors in detention centers.

**Conclusion**

CD is a serious mental health disorder that is linked to both trauma and sleep problems. It has a significant detrimental impact on youth engaging in disruptive behaviors, their caretakers, and juvenile detention populations. Therefore, training in the early detection of sleep problems and trauma as well as the development of effective behavioral interventions is recommended. This is especially relevant for detention facilities with research demonstrating that quality of sleep can be improved through offering forms of physical activity, social support, medical and psychiatric services, psychological intervention, and proactively managing overcrowding (Action, 2005; Elger, 2009).

Although the existing body of literature pertaining to CD, sleep problems, and trauma provides a brief glimpse into their interactions, future research is necessary to further explore their interconnectedness (Greenwald, 2000; Greenwald, 2002; Shapiro, 2012). Additional research may also improve the identification of symptoms and the development of effective treatment methods for trauma and sleep problems, thus indirectly reducing delinquent-related problems.
Biographies

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References


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