

ADHD, Sleep Problems, & Self-Harm: Getting the Full Picture

Inattention. Hyperactivity. Impulsivity. These symptoms are a natural starting point for a typical evaluation of Attention-Deficit/Hyperactivity Disorder (ADHD). However, ADHD is commonly accompanied by a host of other symptoms and impairments. Symptoms of ADHD captured during an evaluation can be similar to, caused by, or contribute to a variety of other concerns. In addition to common co-occurring diagnoses (e.g., anxiety, depression, disruptive, and substance use disorders), there are two areas of particular concern in a comprehensive ADHD evaluation highlighted here: sleep problems and self-harm.



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What's the issue?

Sleep Problems

Impaired sleep includes difficulty falling or staying asleep, sleep disturbances (e.g., nightmare, sleep-walking), or feeling tired or fatigued during the daytime (Cortese et al., 2009; Kirov & Brand, 2014). Sleep-related impairments can certainly look like ADHD symptoms—for example, both can be associated with difficulty paying attention, restlessness, and impulsive decision-making. Because of this overlap, figuring out what is really beneath the surface can be difficult. Sleep problems can also exacerbate ADHD symptoms, amplifying their effects, and resulting in greater difficulty in daily functioning—and, ultimately, making accurate diagnosis more challenging. For instance, struggling to arrive at school or work on time could result from an ADHD-related difficulty with time management, a sleep-related issue of a late bedtime, or a combination of the two factors. Fatigue from poor sleep habits can be the source of concentration problems or difficulties regulating one's mood, resulting in anger outbursts.

Sleep problems can mimic or exacerbate symptoms of ADHD.



Disruptions to sleep can come from many sources—perhaps the stress of following the news in the past year alone is enough to make one lose sleep—but the consequences are consistent. A limited quantity or low quality of sleep affects physical health (e.g., correlated with diabetes, obesity, hypertension, and heart problems; Simon, 2020), along with cognition (e.g., focus, emotion regulation), and mental health. The impairments associated with ADHD are further complicated by a lack of sleep, such as exacerbating executive dysfunction. A disruptive event, like the COVID-19 pandemic, can interfere with sleep, or it may reveal pre-existing sleep problems. Regardless, for individuals with ADHD, sleep problems are critical to explore, given their far-reaching effects.

Self-Harm

ADHD is also associated with increased rates of **self-harm** (Septier et al., 2019; Simioni et al., 2017). These behaviors include non-suicidal self-injury (i.e., self-directed, deliberate harm of self in the absence of suicidal intent, such as cutting or burning), as well suicidal ideation, suicide attempts, and completed suicide (i.e., direct, self-injurious behavior with the intent to end one's life, such as hanging, or jumping from extreme heights; Nock, 2010). Self-injurious behaviors exist on a spectrum of severity, and numerous studies have observed that non-suicidal self-harm behavior often predicts suicide (Allely, 2014; Cooper et al., 2005).

Individuals with ADHD are at a greater risk of both non-suicidal and suicidal self-injury. An international study described the risk of a suicide event as 30% greater for ADHD patients than non-ADHD patients (Faraone, 2020; Eddy et al., 2020); and a recent study of first-year post-secondary students found that rates of suicide attempts were four times higher for students with ADHD than a matched control group (Eddy et al., 2020). Alarming high rates of self-injurious behavior and suicide attempts have been reported in studies of young women with ADHD, whereas completed suicides occur more often in men with the disorder (Hinshaw et al., 2012; Nigg, 2013; Septier et al., 2019).

The associations between ADHD, self-injurious behavior, and suicidality are believed to result from complex interactions between the impulsivity and emotional dysregulation that are central features of the disorder. High rates of depression, anxiety and substance abuse, and associated features, such as poor self-esteem and strained social relationships, are commonly co-occurring with ADHD diagnoses—and all of these factors increase the risk for self-harm behavior (Brezo et al., 2006; Hu et al; 2016; Moran et al; 2012; Sheftall et al. 2016).

Balázs et al. (2018) found that, among adolescents, ADHD symptoms were associated with an increased risk of non-suicidal self-injury and this increased risk was found to be especially true for youth with co-occurring externalizing and internalizing disorders. When looking at girls specifically, those diagnosed with ADHD were found to be three to four times more likely to attempt suicide, and two to three times more likely to report self-injurious behaviors than girls without a clinical diagnosis (Hinshaw, 2012). In particular, girls with ADHD and a depressive disorder (e.g., Major Depressive Episode) had more suicidal ideation than those with depression only (Allely, 2014).

Although the specific pathways are likely complex and multifactorial, it is clear that there is a link between ADHD symptoms, especially impulsivity, and both suicidal and non-suicidal self-harm, strengthened or mediated by certain factors such as additional diagnoses (Hinshaw, 2012). Impulsivity can predict suicide events even more strongly than other clinical diagnoses (Eddy et al., 2020). A growing body of research has called for clinicians to recognize the increased risk of self-harm (both non-suicidal and suicidal) for individuals with ADHD in particular (see Septier et al., 2019). The risk may rise and fall in certain age groups (e.g., higher for young adults), but it is a concern across the lifespan, with reported rates of two to three times more lifetime risk for suicide than those without ADHD (Eddy et al., 2020).

Screening for suicidal spectrum behaviors, including self-harm, should be standard for all ADHD evaluations.



Given the complex interplay between these two areas of possible concern and ADHD, it is critical to investigate sleep problems and self-harm when evaluating ADHD. If left unexamined, treatments may not properly target the root cause, or a client who is in danger may not get the help that they need.

How pervasive are these problems?

As the developer of leading tools for the assessment of ADHD in youth, adolescents, and adults, MHS conducted research to better understand the relationships between ADHD and both sleep problems and self-harm. Large, nationally representative samples from the general population were collected, along with targeted clinical samples of youth and adults with an ADHD diagnosis. These data were collected in 2019, prior to the pandemic and for the purposes of revising two widely used ADHD tools, the **Conners 4th Edition** (*Conners 4*; Conners, in press) and the **Conners Adult ADHD Rating Scale 2nd Edition** (*CAARS 2*; Conners, Erhardt, & Sparrow; in press). The *Conners 4* is designed for parent, teacher, and self-reported ratings of youth (ages 6 to 18 years for parent and teacher; ages 8 to 18 years for self-report). The *CAARS 2* captures self-reported and observer ratings of adults (ages 18 years and older).

The *Conners 4* and *CAARS 2* focus on symptoms of ADHD and related impairments, as well as content regarding commonly co-occurring disorders that could serve as screeners and indicators for differential diagnosis. Additionally, items are included to screen for self-harm (e.g., deliberate self-harm and suicide ideation, plans, or attempts) and sleep problems (e.g., difficulties sleeping, appearing tired).

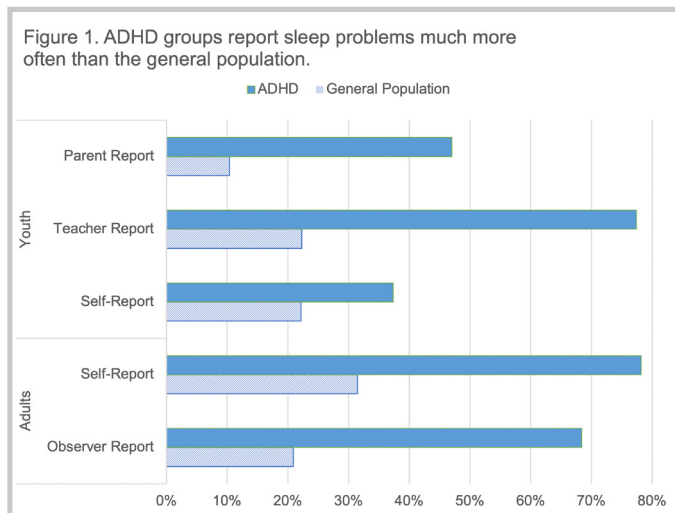
Sleep Problems

Results of our studies confirmed that, among both youth and adults, those with ADHD report more problems with sleep than individuals in the general population (see Figure 1).

Parents of youth diagnosed with ADHD ($N = 348$) reported considerably higher rates of sleep problems than the parents of youth without any diagnoses (demographically matched general population sample of the same size). Difficulties staying or falling asleep were reported by parents for 10.37% of the general

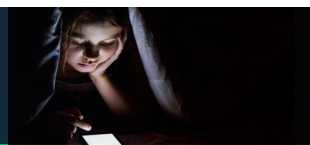
population sample, while 47.00% of parents of youth diagnosed with ADHD indicated these difficulties. This dramatic difference means that youth with ADHD are more than 4 times as likely as youth without ADHD to experience sleep problems. Similarly, teachers were 3 times more likely to indicate that students with ADHD ($N = 310$) appeared tired during the school day than those from the general population. Youth with ADHD were twice as likely as youth from the general population to report sleep problems.

A staggering 78.22% of adults with ADHD Combined Presentation ($N = 101$) self-reported sleep problems, a rate that is 2.48 times greater than that found in a demographically matched general population sample. Ratings from observers (e.g., spouses, relatives, close friends) were similar; 68.42% of observers rated that individuals with ADHD had sleep problems, a rate that is more than 3.27 times greater than ratings of individuals in the general population.



4x

Youth with ADHD were 4x more likely to be rated as having sleep problems than youth in the general population, according to parent ratings.



3x

Adults with ADHD were 3x more likely to be rated as having sleep problems by people who knew them well, compared to adults in the general population.



Self-Harm

Results from the *Conners 4* revealed that parents of youth diagnosed with ADHD ($N = 348$) were three times more likely to endorse items about their child having thoughts and behaviors related to self-harm than parents from a demographically matched sample of youth from the general population. While typically fewer than 4% of the *Conners 4* normative samples endorsed the self-harm items, the endorsement from parents ($N = 560$) and teachers ($N = 321$) of youth with ADHD was considerably higher, ranging up to 13.21%. High self-reported rates (24.70%) of suicidal thoughts and behaviors were found in a sample of 158 youth diagnosed with ADHD. Echoing past research on gender differences in self-harm behavior for individuals with ADHD, results from the *Conners 4* Self-Report form showed that adolescent girls (ages 13 to 18 years) who had been diagnosed with ADHD ($N = 40$) were nearly twice as likely as teenage boys with ADHD ($N = 71$) to have tried to, planned to, or deliberately hurt themselves on purpose.

An even more dramatic trend was observed for adults. For the *CAARS 2*, data from a sample of 101 adults diagnosed with ADHD (Combined Presentation) revealed that 48.50% of the sample endorsed suicidal thoughts, compared to 13.10% of a demographically matched general population sample. In addition, 16.75% of the ADHD sample had deliberately engaged in self-harming behavior, compared to 7.76% of the general population sample. Observations from those close to the individual with ADHD revealed elevated rates of these self-harm behaviors; data gathered from spouses, family members, and friends, revealed similar results, with endorsement up to four times greater than observers rating adults with ADHD Combined Presentation ($N = 76$) as compared with observers' ratings of adults from the general population. Suicidal thoughts were reported five times as often for individuals with ADHD as compared to individuals without any diagnosis, according to data from observer ratings.

24.7%

of youth diagnosed with ADHD in our study had thought about hurting themselves.



48.5%

of the ADHD Combined Presentation sample of adults in our study had thought about killing themselves.



Do parents and teachers know when a youth is having suicidal thoughts? In another study by MHS to develop the *Conners 4*, 47 youth diagnosed with ADHD were rated by parents, teachers, and themselves, obtaining ratings from three perspectives of the same youth. The purpose of the study was to examine the correspondence between different rater types. Youth with ADHD were up to 8 times more likely to endorse self-harm items than teachers, and up to 6 times more likely than parents. The item concerning deliberate self-harm was endorsed more than twice as often in Self-Report ratings (17.0% of sample) relative to Parent ratings (6.4%), while this item was very rarely endorsed in the Teacher ratings (2.1%). Many parents and teachers don't know to ask these sensitive and personal questions, or they don't know how to start the conversation, and youth often struggle with how to tell, or whether to tell, adults. These results underscore the importance of asking the youth about these issues directly, rather than solely relying on parent and teacher reports.

Summary

These results, along with the growing body of evidence in the research literature, make it clear that ADHD measures must include content related to sleep problems and self-harm. These risks and associated concerns persist across the lifespan. As such, the *Conners 4* and *CAARS 2* both feature items that capture thoughts and behaviors related to self-harm and sleep problems, aiding in this important aspect of an ADHD evaluation.

CONNERS4
4th EDITION

The *Conners 4* and *CAARS 2* both include items related to sleep problems and self-harm (including suicidal and non-suicidal thoughts and behaviors).

CAARS2
CONNERS ADULT ADHD RATING SCALES
2nd EDITION

What can you do?

Ask

Include questions about sleep and self-harm during clinical interviews, especially when speaking with the youth or adult directly. Probe as needed to follow up on responses. Other raters, such as parents, teachers, and spouses or other adult observers, may have a limited view into these sensitive and intimate topics, but their perspectives may provide additional insight or corroborating evidence. Include an investigation of risk factors during routine ADHD assessments, given the prevalence rate of self-harm behaviors and sleep problems for individuals with ADHD.

Although these conversations may feel uncomfortable, research shows that asking about suicidality and self-harm behaviors, both in research and in clinical settings, does not increase the risk of these behaviors (Dazzi et al., 2014). In fact, for both adolescents and adults, there was no significant increase in suicidal thoughts, and—perhaps most importantly—talking openly about suicide may reduce the risk. There is a much larger risk associated with not asking and following up about these potentially lethal behaviors.

Measure

It is recommended practice that ADHD evaluations include screening for sleep and self-harm, initially and over the course of treatment (Weiss & McBride, 2018). Standardized behavior rating scales, such as the **Conners 4** and **CAARS 2**, provide a great option for screening for sleep problems and self-harm behaviors. These tests can gather information from youth self-report, along with corresponding parent- and teacher-rated forms; or, for adults, self-reported ratings and observer ratings (such as a spouse, friend, or co-worker). Ratings from multiple perspectives can help shed more light on concerning behaviors or associated impairments.

By using norm-referenced standardized tools, an individual's behaviors, actions, symptoms, thoughts, and feelings can be compared to others like them (e.g., same age and gender). This comparison can help inform what is typical or concerning, relative to one's peers or expected developmental trends. These measures quantify the reported problems, which can also help steer treatment planning to focus on the area(s) of greatest concern by examining the most extreme scores, as well as capturing when presentations change over time (such as new risky behaviors or progress in treatment).

The *Conners 4* and *CAARS 2* offer a convenient feature to select a reference sample when interpreting scores. There may be scenarios in which a normative sample (i.e., a large, nationally representative sample of the general population) is most useful, but there also may be instances in which a clinician is interested in understanding an individual's scores as compared to other people diagnosed with ADHD. By choosing the ADHD Reference Sample, scores on the *Conners 4* and *CAARS 2* are compared against same-age (and gender, if desired) peers who have been diagnosed with ADHD. This comparison can help clinicians evaluate whether the profile of scores is similar to the ADHD Reference Sample, and inform diagnostic and treatment decisions.

The *Conners 4* and *CAARS 2* are focused measures pertaining to ADHD symptoms and impairments, but screening items are included in both tools that can help highlight risks related to self-harm and sleep problems, because the data so clearly indicate the importance of screening for these concerns.

Additionally, targeted measures are available. The **PROMIS® (Patient-Reported Outcomes Measurement Information System) Sleep Disturbance and Sleep-Related Impairment** tools are freely available at <https://www.healthmeasures.net/>. These brief rating scales are available in English and Spanish, and offer forms for youth and adults, as well as a parent-rated form for youth. The measures are brief and developed based on years of research (Yu et al., 2011), with a grant from the National Institutes of Health (NIH). The PROMIS Sleep measures include content about the quality, timing, and amount of sleep, along with associated impairments.

As an added convenience to *Conners 4* and *CAARS 2* users, the 8-item short-form versions of the PROMIS Sleep measures are available free of charge in our MHS Online Assessment Center+ (<https://assess.mhs.com/>). Because the PROMIS Sleep measures have been integrated into the MHS systems, clinicians can email a link to youth, adults, and parents to complete these scales, and a digital report is available to display results. While the *Conners 4* and *CAARS 2* provide high-level screeners for sleep problems, these scales dig deeper into the nature of the disturbance or impairments related to sleep. The PROMIS Sleep measures are an excellent companion to the *Conners 4* or *CAARS 2*, as they may highlight critical concerns and areas where further exploration is necessary to determine whether difficulties are related to sleep, ADHD, or a mixture of both. An ADHD evaluation can be strengthened by including a thorough screening of sleep problems, conveniently available when using the PROMIS Sleep measures alongside the *Conners 4* or *CAARS 2*.

The PROMIS Sleep measures are brief tools for assessing sleep disturbance and impairment, freely available to customers of the *Conners 4* and *CAARS 2* through the MHS Online Assessment Center+ (<https://assess.mhs.com/>).

Observe

In addition to formal clinical interviews and standardized measures, one can educate parents, teachers, peers, and spouses to identify early warning signs or indicators of struggle. For example, an adolescent who begins to take naps after school, or falls asleep during class, may be trying to cope with sleep problems during the night. Encouraging the client to keep a sleep log may help them observe their own patterns, as well (Weiss & McBride, 2018).

For self-harm and suicide risk detection, it is important for parents and other people close to the individual to make note of behavior changes, such as moodiness, withdrawing from friends or favorite activities, appearing agitated or unsettled, or expressing that they feel hopeless. Other potential signs could be unexplained scratches and bruises, or avoidance of situations that may reveal such injuries (e.g., swimming).

Early intervention is only possible with early detection. Raising awareness of these warning signs can help identify at-risk youth and adults, which in turn can trigger an evaluation or triage. Additional tips and warning signs can be found here: <https://suicidology.org/resources/warning-signs/>.

Work Together to Build Better Habits

For those struggling with sleep, often the best place to start is establishing healthy routines around sleep hygiene. Experts recommend keeping a consistent schedule or rhythm, even if it looks different than it has in the past—perhaps remote work or school offer the chance to go to bed later and wake later; and if that suits an adolescent's natural rhythm, it may make all the difference. Sticking with the same schedule, rather than initiating dramatic timing swings from weekdays to weekends, will help promote sufficient sleep. Getting some sunlight every day (usually 30 minutes is recommended) and incorporating some physical activity also often help improve sleep quality. For further reading and more sleep-related tips, see <https://health.ucdavis.edu/health-news/newsroom/covid-19-is-wrecking-our-sleep-with-corona-somnia--tips-to-fight-back-/2020/09>.



Addressing sleep hygiene as a first step can alleviate some impairments and difficulties related to sleep problems and is recommended before advancing to more involved or invasive intervention strategies. Sleep problems may need to be re-evaluated and re-screened if they persist following concerted efforts to improve sleep hygiene.

Learn More

You may wish to consult experts, academic literature, and additional resources to learn more about recent findings and recommendations related to these topics.

CONNERS4™
4th EDITION

The **Conners 4** will be available in Fall 2021 and the **CAARS 2** will be available in 2022. For more information or to sign up for the latest updates, please visit: mhs.com/info/conners2021.

CAARS2™
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To read more about sleep problems and ADHD, please visit:

<https://www.sleepfoundation.org/mental-health/adhd-and-sleep>
<https://www.psychiatrytimes.com/view/adhd-24-hour-disorder>
<https://childmind.org/article/adhd-sleep-disorders-misdiagnosed/>

To read more about self-harm behaviors and ADHD, please visit:

<https://chadd.org/attention-article/adhd-self-harm-and-suicide/>
<https://childmind.org/blog/6433/>
<https://www.apa.org/news/press/releases/2012/08/girls-adhd>

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