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Suicidality in Attention Deficit Hyperactivity Disorder

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Abstract:

The association between Attention-deficit hyperactivity disorder (ADHD) and suicidality has been subject of growing interest for research in the latest years. Suicidality was generally assessed categorically and without the use of validated instruments, leading to heterogeneous or even conflicting evidence. The prevalence of both suicidal ideation and attempts varies considerably, and the associated risk factors remain unclear.

Keywords: Suicidality, ADHD, Behavior.

Introduction:

High levels of risk-taking and sensation-seeking behaviors mark the critical periods of adolescence and young adulthood. In particular, self-harm and suicide are public health concerns that affect adolescents and young adults disproportionately, with suicide rates quickly rising (1).

Recent data from the World Health Organization reveal that suicide is the leading cause of death for girls between the ages of 15 and 19 worldwide—outrageous accidents, illnesses, and complications from pregnancy. Estimates are that 13–45 percent of adolescents engage in some form of self-harming behavior. Self-injurious behaviors peak in adolescence and young adulthood and are particularly common among young women (2).

Researchers have not fully agreed on a classification of such behaviors, but clearer distinctions are emerging. Direct self-harm includes behaviors that are suicidal, in which there is intent to die (suicidal ideation and suicide attempts); versus those that are nonsuicidal, in which there is no intent to die (nonsuicidal self-injury, or NSSI), including cutting, picking of the skin, or burning oneself (3).

It's important to note that suicide attempts and NSSI often co-occur within individuals. It has been reported that 70 percent of adolescents who engaged in NSSI made a lifetime suicide attempt and 55 percent reported multiple attempts. Self-harming behaviors have severe and direct consequences for adolescent health (4).

The term "SUICIDALITY" captures many thoughts and behaviors, but primarily includes three facets: thoughts about suicide, self-harm without intent to die, and suicide attempts. On one end of the spectrum, this could be thinking about wanting to die or not wanting to live compared to the other end of thinking about a suicide plan or method (5).

Causes

While the majority of individuals with suicidal thoughts do not die by suicide, suicidal ideation is a cause to seek mental health treatment. Even though individuals with borderline personality disorder, anorexia nervosa, and bipolar disorder have the highest rates of suicide, one should not count out a diagnosis of ADHD, especially when there are comorbid diagnoses. The relationship between ADHD and suicidality is of concern throughout the lifespan (6).

Adults with ADHD have a higher risk compared to other adults. These risks increase if an individual has a comorbid diagnosis of depression and conduct disorder. While there is less research on children and adolescents with ADHD, the research indicates that early adolescents aged 11–14 years old are at greater risk than those in late adolescence, and males with ADHD are at greater risk of death by suicide (7).

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It is also crucial to note that children with ADHD are at a higher risk of developing psychiatric disorders such as substance use disorders, depressive disorders, and antisocial behavior. When they coexist with ADHD, these disorders are risk factors for suicidality(8).

Likewise, impulsivity and aggression are traits seen in individuals with ADHD that are also common among those experiencing suicidality. This may suggest that if someone is presenting with such traits and is diagnosed with ADHD, it is necessary to assess for suicidality (9).

ADHD-Specific Risk Factors

- Impulsivity: Heightened impulsive behavior contributing to poor decision-making.
- Comorbid depression: Increased vulnerability to depressive symptoms.
- Comorbid mental health conditions: Higher likelihood of anxiety disorders, personality disorders with impulsiveness, and substance dependency.
- Disordered social behavior: Difficulty in maintaining relationships, leading to feelings of isolation.
- Performan e problems at school: Difficulty concentrating or meeting academic expectations, which may lower self-esteem (10).

Mechanism

One possible mechanism for the link between ADHD and suicidal behavior is impulsivity. Impulsivity, poor frustration tolerance, and emotional dysregulation are core symptoms of ADHD, impulsive person might attempt suicide on the spur of the moment in response to anger, disappointment, loss, or whim. In a study investigating the presence of intent in survivors of suicide, it was found that 55% of the attempts were impulsive, 28% had an intermediate level of impulsivity, and only 17% were thoroughly planned. Often, the decision to die by suicide is made within minutes to hours of the attempt (11).

What to look for in vulnerable ADHD patients?

An increase in these factors, called "warning signs," may occur within hours or days of a suicide attempt, and therefore may be indicative of someone who is at acute risk of suicide, according to the American Association of Suicidology (12).

These signs include:

- Thoughts about suicide (especially expressing or communicating threatening or wanting to hurt himself or herself).
- Substance use/abuse.
- Purposelessness (seeing no reason for living).
- Anxiety/agitation.
- Feeling trapped.
- Feeling hopeless.
- Withdrawal.
- Anger.
- Recklessness.
- Mood changes.
- Guilt or shame.
- Not sleeping, sleeping all the time, and/or nightmares.
- Giving away prized possessions (especially for youths)(13).

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The relation between ADHD and the Risk of Suicide

To gain a better understanding of the relationship between ADHD and suicide, researchers have been paying more attention to this question in recent years. While the mechanisms through which ADHD increases the risk of suicide are not yet fully understood, here is what is known about how ADHD may increase the risk of children's suicide (14).

Youth with ADHD are at an increased risk of developing depression and anxiety symptoms during adolescent years which may increase the likelihood of having suicidal thoughts, suicidal behaviors, and self-harm. Girls with ADHD are disproportionately affected by internalizing disorders, such as depression and anxiety, which significantly elevate their risk for self-harm and suicidality (7).

Research indicates that children and adolescents with ADHD are at significantly increased risk of suicide and self-harm. A study found that 25.1% of ADHD patients had suicidal ideation compared to 10.3% of non-ADHD patients, with ADHD being a strong predictor (odds ratio 2.18) of suicidal ideation/attempt (15). Another study revealed that ADHD diagnosis by age 10 is associated with elevated risks of self-harm and suicidal behaviors by age 14, with males being more susceptible (16). A systematic review of longitudinal studies consistently found a significant positive association between ADHD diagnosis and future suicidal behavior (17). Despite this evidence, primary care pediatricians are unlikely to recognize ADHD as a suicide risk factor, potentially missing opportunities for prevention (18). These findings underscore the importance of screening for suicidality in ADHD patients and implementing early intervention strategies.

Children with ADHD often have difficulties paying attention to social cues and following instructions which can contribute to academic and social struggles. Many of the core symptoms of ADHD, when untreated, can increase stress and conflict with others. Children may experience increased feelings of failure, rejection, loneliness, and hopelessness about the future which can increase the risk for depression and thoughts of suicide (19).

Impulsivity, a core ADHD trait, accelerates the transition from suicidal ideation to attempt. Emotional dysregulation and poor problem-solving skills further increase vulnerability during times of distress (20).

Adolescents with untreated ADHD face an increased risk of substance abuse. Studies show that ADHD and substance use disorders share underlying vulnerabilities, leading to higher rates of co-occurrence (21). Girls with ADHD exhibit significantly higher rates of alcohol (70% vs. 50.1%), tobacco (54.3% vs. 28%), and cannabis (28.6% vs. 13.9%) use compared to their non-ADHD peers (22). ADHD also moderates the association between deviant peer affiliation and marijuana use, making adolescents with ADHD more susceptible to peer influences (23). During the COVID-19 pandemic, adolescents with ADHD were at greater risk for increased mental health symptoms and substance use compared to those without ADHD (24). However, the use of positive coping strategies and maintaining routines can buffer against these negative outcomes for adolescents with ADHD (23).

A study published in Brain Sciences (2022) explored gender differences in ADHD and their association with suicidal behavior. The findings revealed that females with ADHD have 3.5 times higher odds of experiencing suicidal ideation compared to males with ADHD. This increased risk is linked to the higher prevalence of internalizing disorders, such as anxiety and depression, among females, which are 1.5–2 times more common than in males with ADHD. In contrast, males with ADHD are more likely to exhibit externalizing behaviors, such as aggression, which are associated with fewer reports of suicidal ideation but still pose significant risks, including impulsive suicide attempts. These statistics emphasize the importance of gender-sensitive screening and intervention strategies to effectively address the distinct vulnerabilities of individuals with ADHD (25).

Nearly twenty years ago, the Berkeley Girls with ADHD Study was initiated to follow females with ADHD over time, from childhood to adulthood. The researchers found that girls with the combined form of ADHD had a markedly elevated risk for both NSSI and suicide attempts by the end of adolescence, compared to girls with the inattentive form of ADHD and typically developing girls. The girls who continued to have ADHD into young adulthood were at the highest risk for suicide attempts and NSSI (26).

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Adolescent internalizing behaviors, like anxiety and depression, may explain the childhood ADHD-late adolescent suicide attempt link, whereas adolescent externalizing behaviors (such as aggression) explain the childhood ADHD-late adolescent NSSI association. Relationships with peers also enter the mix—girls who are rejected by peers are more prone to suicidal behavior, whereas those who are victimized by peers are more prone to NSSI (27).

Another factor includes parenting stress, which helps explain the strong link between childhood ADHD and young adult NSSI. Thus, biological and heritable factors (such as early impulsivity), plus environmental factors (such as maltreatment or parenting stress), appear to operate in tandem to elevate the risk for self-harm in women with ADHD (28).

Recommendations for parents

Parents should monitor changes in behavior, such as sudden withdrawal or giving away prized possessions, and seek immediate mental health support if warning signs arise(29).

Teens and young adults who engage in self-harm often do so "in the dark" and don't seek help. A key reason is the stigma, shame, and guilt related to engaging in self-harmful behaviors. Because most young adults who engage in self-harm struggle with interpersonal relationships and with expressing, understanding, and identifying their emotions, they have trouble confiding in others and sharing their feelings (30).

Parents must try not to react with anger, guilt, or fear or to think that the youth is just being "manipulative" or "seeking attention." Such counterproductive thoughts only discourage the young adult from feeling understood and supported. A more effective approach would involve parents reframing the situation and acknowledging that treatment can help (31).

Additionally, parents need to provide a supportive environment, while making an effort to understand the behaviors. Lastly, parents can reinforce adaptive coping strategies and seek formal assessment and treatment options with mental health professionals. It is important to realize that self-harm is a serious concern that should not be ignored and that it can be treated (32).

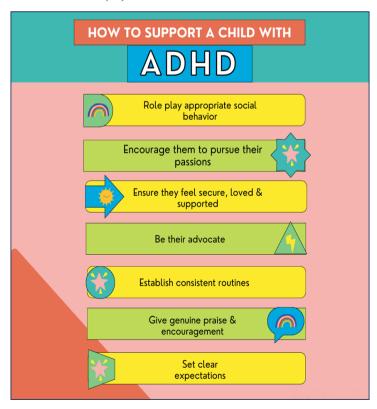


Figure 1: ADHD support (33)

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Management

There are very limited outpatient treatments that are targeted to treat suicidality. The following outpatient treatments have empirical evidence to support the effective reduction in suicidality (34).

Dialectical Behavior Therapy:

DBT is the most notable and heavily researched treatment that has been shown to reduce suicidality with sufficient power. The main goal is to teach the patient skills to regulate emotions and improve relationships with others. This is done through validation and acceptance with a sincere focus on change (35).

DBT was one of the first evidence-based treatments to show effective results for a reduction in ideation, repetitive self-harm behaviors, and attempts. However, while DBT has shown impressive results in managing suicidality, it is not a treatment solely devoted to treating suicidality (36).

Cognitive Therapy for Suicide Prevention:

CT-SP is another promising treatment that is more suicide-specific. Its use has shown a reduction in future suicide attempts, depression, and hopelessness by targeting the thoughts and experiences of the suicidal client in three phases (37).

First, the patient tells his or her story of the most recent suicide attempt to guide treatment planning. In phase two, the patient is taught skills associated with the triggers that lead to a suicidal crisis. Finally, in the last phase, the patient is guided through a relapse prevention task to highlight what he or she has learned and the practice of problem-solving if he or she were to enter a suicidal crisis again (37).

Collaborative Assessment and Management of Suicidality:

CAMS is a therapeutic framework that targets suicidality distinctively with research spanning over 25 years. CAMS is focused on collaboration between the client and therapist, highly interactive risk assessment and management, and treatment planning including developing a stabilization plan as well as identifying and treating what is driving the client to want to die by suicide (38).

Education of parents:

What the psychiatrists can tell Parents to do to increase safety and support includes the following:

- Help your child label their emotions and check in regularly with them about how they are feeling. Let them know all of their feelings are valid and that they have a choice over how they express them. If mood changes occur, consult with a primary care physician or mental health provider.
- Make sure all things that could be deemed unsafe (e.g., firearms, medications/poisons, sharp objects) are locked appropriately at all times and out of reach of children. This also includes the proper storage of medication, checking the home environment regularly for poisons and objects that can cause suffocation or hanging, and being more watchful when a crisis does occur.
- When a youth with ADHD is displaying warning signs of suicide, take it seriously, make sure a safety plan that is easily understandable to the child is in place, and consider being more watchful of children during the crisis.
- ❖ Make sure you, as a parent, are taking care of yourself and building a support team. Raising a child with ADHD and managing a suicidal crisis is quite challenging. It can be a draining experience and requires a team of support.
- ❖ Use local and national crisis support whenever needed. It is never a sign of weakness or limitation as a parent to use crisis resources (39).

Treatment

The treatment of ADHD with medications such as atomoxetine and methylphenidate has raised concerns regarding the risk of suicidal ideation and behavior. Research indicates varying levels of risk associated with these drugs, which is crucial for clinicians when prescribing treatment.

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Atomoxetine, a norepinephrine reuptake inhibitor, has been associated with both increased and decreased risks of suicidal ideation. A study found no suicidal ideation in children treated with atomoxetine, suggesting it may be safer than methylphenidate in this regard (40).

However, other analyses indicate that atomoxetine carries a black-box warning due to potential suicidal ideation, highlighting the need for careful monitoring(41).

Methylphenidate, a stimulant, has shown a higher incidence of suicidal ideation, with over 51% of patients in one study scoring above the cutoff for suicidal thoughts (40).

A systematic review found no significant difference in suicidal behavior between patients treated with methylphenidate and those treated with atomoxetine, suggesting both medications carry risks (40).

Prevention Strategies

Preventing suicide among individuals with Attention-Deficit/Hyperactivity Disorder (ADHD) requires a comprehensive approach addressing both core ADHD symptoms and associated risks. ADHD, characterized by impulsivity, hyperactivity, and inattention, often coexists with other mental health conditions that can significantly increase suicide risk. Strategies such as screening for comorbidities, parental education, and early interventions are pivotal for reducing these risks (42).

Screening for Comorbidities

Individuals with ADHD frequently experience co-occurring conditions such as depression, anxiety disorders, and substance use disorders, all of which are linked to increased suicidal ideation and behaviors. Impulsivity and emotional dysregulation inherent in ADHD can exacerbate these risks. Regular mental health screenings using evidence-based tools, such as the Beck Depression Inventory (BDI) or Generalized Anxiety Disorder Scale (GAD-7) (43), are critical for identifying these comorbidities. Periodic reassessment, particularly during high-risk periods like adolescence or significant life transitions, allows for timely intervention (44).

Parental Education

Parental involvement and understanding are central to managing ADHD and reducing suicide risk. Parents who are educated about ADHD symptoms, challenges, and potential risks can better support their children (45). Training programs often focus on recognizing early warning signs of suicidality, such as withdrawal or self-harming behaviors, and emphasize the importance of creating an open, supportive environment (46). Additionally, parents are taught when and how to seek professional help. Organizations like CHADD (Children and Adults with Attention-Deficit/Hyperactivity Disorder) offer workshops and resources to equip parents with the necessary skills and knowledge. Research shows that informed and proactive parenting can significantly reduce the likelihood of crises escalating into suicidal behaviors (46).

Early Interventions

Early diagnosis and intervention are critical for addressing ADHD symptoms and reducing associated suicide risks. Behavioral therapies such as Cognitive Behavioral Therapy (CBT) and Dialectical Behavior Therapy (DBT) help individuals manage emotional dysregulation and impulsivity (47), both of which are protective against suicidal behaviors. Additionally, appropriate medication management, including stimulants like methylphenidate or non-stimulants like atomoxetine, improves emotional stability and reduces impulsive tendencies (48). School-based interventions, such as Individualized Education Plans (IEPs), further support children with ADHD by addressing their academic and social challenges. These strategies are most effective when implemented early in childhood and continued consistently. The American Academy of Pediatrics emphasizes that comprehensive ADHD treatment leads to better long-term mental health outcomes (45).

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