

Meeting the Mental Health Needs of Students with ADHD: Recommendations to Advance and Innovate Current School-Based Approaches

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Overview

A review of the current literature was conducted to examine the co-occurring prevalence, types of mental health conditions and disorders in ADHD. Further, the review aimed at identifying risk, promotive and protective factors that moderate or mediate the development, maintenance, and worsening of mental health conditions in ADHD. The literature review findings were then assessed to formulate preliminary recommendations to modify and advance existing school-based accommodations and interventions to enhance the school functioning and well-being of students with ADHD.

What is ADHD?

Attention-deficit hyperactivity disorder (ADHD) is a neurodevelopmental disorder characterized by persistent patterns of inattention and/or hyperactivity that interfere with daily functioning and development (Belanger et al., 2018). It is a highly heterogeneous disorder with respect to its symptom presentation and severity (Read et al., 2020). The prevalence for ADHD ranges between 5 to 10% among children and adolescents (Brault & Lacourse, 2012; Kessler et al., 2006). The prevalence rates vary across geographic regions and if measured using community versus clinical samples. ADHD can cause several functional impairments and interfere with students' academic, social, familial and vocational functioning (Sasser et al., 2017). Given the heterogeneous nature of ADHD, the course and severity of functional impairments may vary considerably between students and depend on ADHD subtype, age, sex, cognitive and psychosocial and systematic factors.

ADHD and School Functioning

ADHD can cause significant interference with school functioning and make it challenging for students to adhere to classroom expectations and teacher instructions and build social connections. Students with ADHD may produce less work, miss deadlines, violate classroom rules or cause disruptions, and academically underachieve. Along with poor academic performance, students with ADHD may also have academic skill deficits and have co-morbid learning disabilities (DuPaul et al., 2013). Socially, students with ADHD may act bossy, immature, be involved in bullying interfering with their skills and scopes to develop and maintain quality friendships. These school stressors in ADHD with co-morbid mental health conditions can take a significant toll on student well-being and contributing to risks for grade retention and school dropouts (Fried et al., 2016). Research findings suggest that while medications can reduce the severity of the core ADHD symptoms, they may not always alleviate the academic and social impairments at school (Epstein et al., 2010; Karpenko et al., 2009;

O'Connor et al., 2015). Therefore, school-based intervention plans for ADHD are likely to be more effective for students when multitiered academic, behavioural, and social interventions are incorporated to address specific functional impairments.

ADHD and Mental Health

Students with ADHD are at considerably higher risks of having co-morbid mental health challenges than those who do not have ADHD (Cadman et al., 2016; Larson et al., 2011). In ADHD, Given the heterogeneity of ADHD, the mental health comorbidity profiles are dependent on several factors, including ADHD subtype and severity, age, sex, co-existing behavioural disorders (e.g., conduct disorder) and cognitive functioning (e.g., intellectual abilities, executive functioning deficits). The presence of co-morbid mental health conditions magnifies the functional impairments associated with ADHD.

Predictors for increased risks for the diagnosis of co-morbid mental health disorders of ADHD

- ADHD subtypes (combined subtype has been found to be most susceptible)
- Genetic predispositions
- Parental psychopathology
- Perinatal problems
- Early diagnosis of ADHD (associated with severity)

Anxiety.

Anxiety disorders and anxiety-related challenges have been found to be the most common co-morbid mental health conditions in ADHD (Friesen & Markowsky, 2021). The prevalence rates of clinical anxiety in ADHD ranges between 20-40% depending on sample type, age, and ADHD subtype and related cognitive and psychosocial factors (Jensen & Steinhausen, 2015; Melegari et al., 2018). For example, Melegari et al. (2018) found that generalized anxiety disorder (GAD) was most prevalent in ADHD-combined or untreated ADHD. In childhood, common anxiety challenges in ADHD may be social anxiety or specific phobia. However, in adolescence, untreated anxiety and ADHD substantially increase risks for intensifying exiting anxiety challenges (e.g., rumination, generalized worries) and the development of related mental health conditions (Katzman et al., 2017). Among other anxiety disorders, GAD has been reported to be most prevalent in ADHD in adolescence and adulthood (Friesen & Markowsky, 2021). Anxiety magnifies the cognitive inefficiencies associated with ADHD (e.g., working memory deficits, attention processing), resulting in more severe academic and social impairments for students with ADHD (D'Agati et al., 2019).

Various genetic and neurocognitive theories have been proposed to explain the common co-occurrence of ADHD and anxiety (Curatolo et al., 2009; Faraone, 2018). A detailed discussion of these etiological theories is beyond the scope of this evidence brief. Nonetheless, these theories collectively emphasize that the cognitive inefficiencies (e.g., inhibitory control) seen in ADHD could have more globalized effects.

Students with ADHD may also struggle to inhibit their feared responses and effectively regulate worries, ruminations and distressing emotions. On the other hand, ADHD-induced impairments may also manifest doubts, fears, worries, poor self-esteem about one's academic, vocational, and social competencies, consequently eliciting anxiety in students (Schatz & Rostain, 2006). Hence, research and practice experts of ADHD strongly suggest optimizing the treatment of ADHD first before exploring psychosocial or pharmacological interventions for anxiety in ADHD (D'Agati et al., 2019; Friesen & Markowsky, 2021).

Mood.

Depression is characterized by experiencing persistent and excessive sadness or irritability and a lack of interest to engage in personally pleasurable or interpersonal activities (American Psychiatric Association [APA], 2013). Scholars in the field have proposed two distinct theories to explain why students with ADHD may be susceptible to depression and mood-related conditions. The first theory posits that ADHD can cause depression. ADHD can lead to adverse outcomes related to discordant relationships (Harold et al., 2013), peer victimization (Schoeler et al., 2019), poor academic achievement (Loe & Feldman, 2007), which increases the risk for depression. In support of this theory, results of longitudinal studies indicate that having childhood ADHD increases the risk for depression in adolescence and young adulthood (Riglin et al., 2020). For example, Gundel et al. (2018) found that children diagnosed with ADHD were approximately six times as likely to have depression within one year and twice as likely within five years of diagnosis than children without ADHD.

The second theory suggests that ADHD and depression have shared genetic and psychological risk factors (Riglin et al., 2020). Specifically, emotional dysregulation (ED) received extensive attention in the literature as a shared feature between ADHD and depression (Shaw et al., 2014). Longitudinal studies indicate ED mediates the relation between depression and ADHD (Anastopoulos et al., 2011; Seymour et al., 2012). ED is a multi-faceted construct and has three main components. The first component involves the expression of emotion that is excessive in relation to the situational context. The second component of ED is the rapid and poorly controlled shifts in emotions, and thirdly, the atypical allocation of attention to certain emotional stimuli (Shaw et al., 2014). Some scholars even argued to have ED as a symptom for the diagnostic formulation of ADHD. Pharmacological and psychological interventions treating ED in students can promote resilience against the cumulative adverse effects of ADHD and depression in students.

Notably, a small positive yet significant association has also been found between suicidal behaviours and clinical depression and ADHD in adolescence (aged 12-18; Zahid et al., 2020). Furthermore, suicidal behaviours were seen in a higher proportion in the adolescent ADHD cohort than those without the disorder. Factors such as increased impulsivity, ED, and sex can moderate the association between ADHD and suicidal behaviours (Lamis et al., 2013; Van Eck et al., 2015).

Substance-related disorders.

The diagnosis of ADHD is also associated with increased substance use (e.g., cigarette smoking, cannabis use; alcohol use; Van Amsterdam et al., 2018; Vanderveen et al., 2016). Findings from a meta-analysis suggested that about 23% of youth with substance use disorder (SUD) met the DSM criteria for ADHD (van Emmerik-van Oortmerssen et al., 2012). Furthermore, researchers found that adolescents with a dual diagnosis of ADHD and SUD become addicted younger, use more substances, and are hospitalized more than those with SUD alone (Arias et al., 2008).

Like anxiety and depression, there are two explanations for the co-occurrence of ADHD and substance-related problems. ADHD and substance-related problems share both genetic and environmental risk factors. Environmentally, trauma exposure and adverse life events in childhood increase the risk for ADHD and SUD (Green et al., 2010). Moreover, ADHD and SUDs also share similar cognitive deficiencies like response inhibition and working memory deficits, and these deficiencies are important features for both disorders (Rubia, 2018; Sampedro-Piquero et al., 2019). On the other hand, ADHD can also be the causal pathway for SUD development in adolescence and adulthood. Particularly, severity in impulsivity, hyperactivity, inattention increases risks for SUDs (Treur et al., 2021). Furthermore, common co-morbid behavioural disorders in ADHD, like conduct disorder, predict earlier onset and progression of certain substances (Van Amsterdam et al., 2018).

Eating disorders.

Published literature also indicates an association between ADHD and eating disorders, most likely beginning in early adolescence. Using data from a population-based birth cohort, Yoshimasu et al. (2012) found that children with ADHD were 5.7 times more likely than their counterparts without ADHD to have an eating disorder diagnosis by late adolescence. The association between ADHD symptoms is stronger for binge-and-purge eating behaviours (Bleck et al., 2015).

Specifically, adolescent girls with ADHD are assumed to have an increased risk of eating disorders or eating disturbances. Biederman et al. (2007) found that girls being treated for ADHD in childhood and adolescence were 3.5 times (95% CI: 1.6–7.3) more likely to develop an ED by young adulthood compared to girls without ADHD. Furthermore, impulsivity traits associated with ADHD, along with a history of mood and anxiety challenges, can elevate risks for eating disorders.

Risk Factors Predicting Mental Health Conditions in ADHD

A review of the current literature to explore the mental health needs of ADHD made it clear that the presence of ADHD on its own is a substantial risk factor for students to have co-occurring mental health conditions. Many of the identified mental health conditions like anxiety and depression may have shared genetic and neurocognitive features explaining why co-occurrence of mental health conditions in ADHD is more of a rule than an exception. Furthermore, students with ADHD experience functional impairments in many domains of their lives, eliciting significant stress, poor self-esteem,

feelings of worthlessness, and distressing emotions, making them more susceptible to developing mental health challenges (Barkley et al., 2006; Sasser et al., 2017).

Bullying involvement.

One ADHD functional impairment that has been studied more extensively as a risk factor for mental health conditions is bullying involvement. Bullying involvement describes both victimization and perpetrator roles. Children and adolescents with elevated ADHD severity have been proposed to be at increased risks for both bullying perpetration and victimization (Fite et al., 2014). As mentioned in the above sections, a number of ADHD-related vulnerabilities can compound the risks for peer victimization: ED, social skills deficits, reactive or impulsive aggression, and other disruptive behaviours eliciting negative reactions from peers and diminishing peer support (Roy et al., 2015; Stenseng et al., 2016). On the other hand, reactive or impulsive aggression directed towards less powerful peers can be classified as a form of bullying perpetration (Murray et al., 2016). Plus, due to an increased likelihood of peer rejection, students with ADHD may affiliate with other peers engaging in deviant behaviours (Bennett et al., 2004; Staikova et al., 2013). Bullying may also be a compensatory behaviour for students with ADHD to acquire social status because they may struggle to use more adaptive strategies to make and keep friends (Wehmeier et al., 2010). Research findings suggest that bullying involvement in ADHD is not a childhood phenomenon and can progress to adolescence, but roles, forms, and outcomes may change or vary. A systematic review of 13 peer-reviewed studies found that bullying involvement could both be a moderator and mediator for depression and ADHD (Simmons & Antshell, 2020). That is, bullying involvement may increase the risk for depression in adolescents with ADHD. At the same time, bullying involvement is one mechanism that may lead students with ADHD to develop depression. Hence, individualized anti-bullying interventions specifically targeting ADHD-related skill development: emotional regulation, managing reactive and impulsive reactions, and improving social competencies can reduce bullying involvement and promote mental well-being in students with ADHD.

Social disadvantages.

In addition to personal characteristics or disadvantages, systematic disadvantages can be a risk factor for mental health conditions in ADHD. Slobodin and Masalha (2020) found that racialized children and adolescents with ADHD, especially those with lower socio-economic status and living in marginalized communities, have more negative functional outcomes than their non-minority counterparts. Delay or ineffective approaches to problem recognition and developing intervention plans are few factors contributing to ADHD symptoms severity in ethnic minority children with ADHD leading to more negative outcomes. Hence, improved access to higher quality and culturally responsive mental health care is essential for developing equity care for ADHD.

Protective and Promotive Factors Enhancing Mental Well-Being in ADHD

A growing body of literature highlights factors across multi-systems protecting ADHD children and youth from experiencing adverse outcomes and develop resilience. Specifically, most of these studies on this topic focused on measuring and identifying

protective and promotive factors to improve academic outcomes, reduce the risk for anxiety and mood challenges, and enhance the overall quality of life for students with ADHD.

Social acceptance.

Recent research suggests that social acceptance can be a promotive and protective factor for mental well-being in ADHD. Specifically, social acceptance as measured through parent-and-self-reports has been found to be promoting academic performance and decreased peer victimization, which can consequently reduce the risk for subsequent increases in depression (Cardoos & Hinshaw, 2011; McQuade et al., 2014). Moreover, social acceptance may also protect against increases in aggression (Dvorsky et al., 2016), anxiety (Monopoli et al., 2019). Social acceptance likely strengthens friendships and reduces risks for peer victimization for students with ADHD and can be an important target for school-level intervention to enhance well-being. Notably, the relationship between social acceptance and mental well-being in ADHD is stronger for the inattention subtype and those who endorse moderate to high peer preference.

Social and personal competence.

Considering that severity of functional impairments associated with ADHD is a risk factor for mental health conditions, it is not surprising that a higher perceived sense of social and personal competence can be a protective factor for students with ADHD. Schei et al. (2015) found that adolescents with ADHD with higher self-perceived social and personal competence were more likely to have less severe emotional problems contributing to a better quality of life. Social competence in ADHD can be strengthened through social coaching and lower bullying involvement. Mitchell et al. (2016) found that social coaching on how to safely and appropriately initiate and engage in physical activities may limit physical bullying occurrences.

Implications and Recommendations for School Mental Health Approaches

Given the increasing prevalence of ADHD in childhood and adolescence, students with ADHD encompass one of the most common groups needing special education and mental health supports in schools (Fabiano & Pyle, 2019). It is critical to continue to take an evidence-based stance and consult several stakeholders, including evidence-based literature, to advance and optimize school-based interventions, accommodations, and policies for ADHD to promote student well-being. Upon reviewing and analyzing the literature mentioned above on ADHD and mental health, we formulated the recommendations below for consideration.

1. Consider the heterogeneity of ADHD

ADHD is highly heterogeneous, and its heterogeneity ranges from subtype, symptom presentation to co-morbid emotional, cognitive, and mental health challenges. Hence, it is not effective or practical to take a *standardized* approach in creating or implementing interventions and accommodations for students with ADHD (i.e., “all students with ADHD will receive...”). Along with considering ADHD subtype, severity, age of onset, teachers and school mental health practitioners are recommended to

assess the student's internal strengths and existing supports (e.g., student-teacher relationships) to create integrative and holistic supports. In addition to an assessment of student's intellectual and academic functioning to identify appropriate educational supports, taking a student-centred data-based approach and evaluating ADHD-related risk and promotive and protective of particular relevance to school functioning may also be beneficial:

Executive Functioning Strengths and Weaknesses	Poor Academic Performance (i.e., need for study and test taking skills) vs. Academic Skills Deficits	Quality of peer relationships, emotion regulation and social skills competencies
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School-based assessment of ADHD-related needs should also comprise screenings for mental health conditions to gain further insights into students' functional impairments. Furthermore, it may be beneficial to incorporate progress monitoring protocols to identify the emergence or worsening of existing mental health conditions and modify and supplement interventions accordingly.

2. Optimize ADHD interventions first

It is well understood from the published literature that co-morbid mental health conditions in ADHD develop due to shared risk factors or symptomatology or as a result of exacerbating functional impairments linked to ADHD. Therefore, special education and mental health supports are recommended to prioritize individualized interventions first to develop personal, academic, and social competencies. ADHD interventions in schools should aim to raise capacity towards normative functioning rather than only having accommodations that lower expectations for student performance (Fabiano & Pyle, 2019). It should be noted there is little empirical support for commonly prescribed accommodations such as preferential seating and extended time on tests (Harrison et al., 2013; Lewandoski et al., 2007). There is some evidence that these accommodations may reduce academic productivity in students with ADHD (Pariseau et al., 2010).

ADHD interventions for consideration (depending on students' needs and identified functional impairments):

- Academic interventions (reading, writing, math)
- Academic skill development (for underachievement)
- Executive functioning coaching to develop organizational, time management and planning skills and task initiation
- Social skills and interpersonal coaching (social conversations, conflict resolutions, taking turns and perspective-taking, incorporating others' interests in games and activities)
- Emotion regulation and reactive/impulsive aggression management

Special considerations for anti-bullying interventions.

In efforts to reduce bullying perpetration in ADHD, anti-bullying interventions should acknowledge perpetrator behaviours in ADHD may be impulsive, reactive rather than planned or instrumental (Murray et al., 2020). Therefore, the curriculum for anti-bullying interventions should include skill training and coaching for emotional regulation, social information processing, and management for disruptive behaviours and impulsive reactions. Moreover, it is important to implement anti-bullying interventions in the classroom in accessible ways for students with ADHD. Students with ADHD may not have the attentional capacity to attend a curriculum with lengthy and dense verbal instructions. Incorporating dynamic and interactive activities (e.g., use of role-plays, gamification of learning components) may be more effective in engaging students with ADHD (Murray et al., 2020). In contrast, integrating interactive communication skill training with role-plays and games (e.g., assertive communication) may help strengthen personal competencies for students with ADHD at risk of getting bullied.

3. Innovate accommodations

Research is clear that students with ADHD struggle to generalize and transfer learned skills from one setting to another (Fabiano & Pyle, 2019). Universal or small-group interventions on executive functioning, social skills, or emotion regulation may not be sufficient to support students with ADHD to fluently apply those skills in real-life settings and situations. Students with ADHD will benefit from individualized accommodations to practice and apply learned skills in repeated, step-by-step approaches. For example:

- Modelling, breaking down and scaffolding each executive functioning coaching skill (focus on one skill at a time, depending on student's age and development) for different settings and tasks
- Real-life social skills coaching:
 - Identify scenarios in the classroom or at the playground (elementary levels) where specific social skills can be applied and practice
 - Modelling the target social skills; may need additional support with verbal scripts and social cueing and processing social information
 - Step-by-step coaching of conflict resolution during group work: use of verbal scripts, communication strategies, generating and applying solutions
 - Emotion regulation coaching: Coaching with emotional awareness, management, and generating and applying regulating solutions

Citation

Syeda, M. (2021). Meeting the Mental Health Needs of Students with ADHD: Recommendations to Advance and Innovate Current School-Based Approaches. *Centre for School Mental Health, Western University.*

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