

Research in Brief: The Effectiveness of School- Based Interventions for ADHD

Background

Attention-deficit/hyperactivity disorder (ADHD) is a neurodevelopmental disorder where affected individuals exhibit impairing levels of hyperactivity, impulsivity and/or inattention for longer than 6 months. There exist three ADHD subtypes: 1) primarily inattentive; 2) primarily hyperactive/impulsive; and 3) combined, which includes symptoms from both other subtypes.

Globally, the prevalence of childhood ADHD is estimated to be between 1.5% and 7.2%. In up to 70% of cases, ADHD in children will persist into adolescence and adulthood. This is often accompanied by cognitive impairments, mental health issues, and socio-emotional difficulties. Additionally, these individuals are more likely to engage in substance abuse or criminal activity and to experience socioeconomic disadvantage as adults.

Given that ADHD is associated with poor academic achievement, there is a need for schools to better support students with ADHD, as well as a need for these students to better cope with school. Prior research has demonstrated that school-based interventions had broader benefits on behavioural outcomes compared to medication and parent training interventions.

However, while many randomized controlled trials (RCTs) examined non-medication ADHD interventions in school settings, it is unclear which interventions are optimal. It is therefore important to evaluate the effectiveness of these interventions and to identify the specific components that may sustain long-term improvements in ADHD outcomes.



Why does this matter?

- ⇒ Students with ADHD often face difficulties in the classroom, such as conduct problems and poor academic performance.
- ⇒ ADHD presents a significant challenge to society with an estimated childhood prevalence of up to 7.2%, and 70% of childhood cases persisting into adolescence and adulthood.
- ⇒ Many non-medication interventions have been developed to address these issues in schools.
- ⇒ Evaluating the effectiveness of these interventions and identifying optimal intervention components can help guide school staff and mental health practitioners in supporting youth with ADHD.

The Knowledge Network for Student Well-Being is a project of the **Knowledge Network for Applied Educational Research** (www.knaer-recrae.ca)

Communities of practice in the KNSWB include: **Ontario Healthy Schools Coalition, PREVNet, School Mental Health ASSIST, and the Social Planning Network of Ontario**

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The Effectiveness of School-Based Interventions for ADHD

What is a systematic review and meta-analysis?

A systematic review is a type of study that exhaustively summarizes the literature on a specific research question. The purpose of a systematic review is to draw a collective conclusion that provides stronger evidence than any single study.

This research method involves: 1) framing a specific research question; 2) running a comprehensive search in the literature; 3) screening the retrieved articles for relevance; 4) assessing the research quality of the relevant articles; 5) abstracting results from the relevant articles; and 6) synthesizing the results of the relevant articles to draw a conclusion. A meta-analysis then combines the statistical results of the relevant articles to provide a pooled estimate of effects.

What did the researchers do?

The researchers performed a systematic review and meta-analysis to assess school-based ADHD interventions involving students aged 4 to 18 years. Peer-reviewed studies published in English were retrieved from electronic databases, including MEDLINE, PsycINFO, Embase, ERIC, and ProQuest.

The researchers also searched several databases indexing grey literature. Eligible studies: 1) involved participants experiencing ADHD symptoms at a clinically significant level; 2) included non-medication interventions delivered in a school setting; 3) examined at least one child-focused outcome (e.g. ADHD symptoms, academic performance, classroom behaviour); and 4) employed an RCT design.

What did they learn?

From 21,532 total articles retrieved, 30 articles reporting on 28 studies fit all eligibility criteria for inclusion. In aggregate, there were 1807 participants across 35 interventions. Due to a wide variety of interventions, the researchers considered it inappropriate to pool together the results of divergent interventions. They instead conducted meta-analyses in cases where study features were comparable.

To facilitate this process, the researchers identified eight intervention categories that focused on social skills, study skills, and/or rewards:

- Combined interventions
- Daily report card
- Neurofeedback
- Relaxation
- Self-monitoring
- Cognitive training
- Study and organization skills training
- Task modifications

The results of the meta-analyses indicate that combined interventions (those that focus on at least two of the categories) show the strongest evidence of positive effects, particularly on ADHD symptoms, academic outcomes, and conduct problems.

There was also some promise of beneficial effects of daily report cards. There were mixed findings for neurofeedback (producing signals in the brain to indicate desirable or undesirable behaviour), relaxation, and self-monitoring intervention categories.

In addition, there was a lack of evidence for the effects of cognitive training, study and organization skills training, and task modifications. Results showed that supporting emotional regulation and delivering one-on-one interventions are important considerations for improving academic outcomes among youth with ADHD.

Overall, although there are some beneficial effects of combined interventions and daily report cards, further research is needed to more confidently pinpoint optimal school-based ADHD interventions.

This review was prepared from: Moore, D. A., Russell, A. E., Matthews, J., Ford, T. J., Rogers, M., Ukoumunne, O. C., & Shaw, L. (2018). *School-based interventions for attention-deficit/hyperactivity disorder: A systematic review with multiple synthesis methods*. Review of Education.

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