

Research in Brief:
Effectiveness of Self-Regulation Interventions in Children and Adolescents

Background

Self-regulation is a psychological concept that includes a range of key skills related to emotional control, positive social interaction, and self-directed learning. Self-regulation can be thought of as an individual's ability to use particular skills or "executive functions" towards goal-related behaviour. These executive functions include: 1) cognitive flexibility (ability to direct/focus attention, shift perspective, and adapt to changes); 2) working memory (ability to retain information); and 3) impulse control (ability to inhibit automatic, rash behaviours).

Past research has demonstrated that self-regulation is essential for the development and maintenance of health and well-being in childhood and across the lifespan. For example, greater self-regulation has been associated with positive outcomes, including higher levels of school readiness, academic achievement, and physical and mental health. And poorer self-regulation has been associated with adverse outcomes, including higher levels of risky behavior, crime, and psychiatric and substance disorders.

Given the growing evidence of its benefits, there have been many interventions developed to improve self-regulation skills in youth. These interventions have ranged from playgroup games to martial arts and yoga. It remains unclear which type of intervention is most effective. No prior research has comprehensively evaluated the effectiveness of self-regulation interventions for child and adolescent populations. As such, a systematic review and meta-analysis were conducted to assess the effectiveness of interventions that promote self-regulation among 0-19 year olds, in addition to the effects of such interventions on health and social outcomes.



Why does this matter?

- ⇒ Self-regulation is essential for the development and maintenance of health and well-being in childhood and throughout life
- ⇒ Greater self-regulation has been linked to improvements in mental health and academic achievement
- ⇒ Growing evidence regarding its benefits have led to the development of interventions aimed at improving self-regulation among youth
- ⇒ Comprehensively evaluating the effectiveness of self-regulation interventions is necessary for any potential policy and practice implications

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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KNAER and the Knowledge Network for Student Well Being are funded by the **Ontario Ministry of Education**

Effectiveness of Universal Self-Regulation-Based Interventions in Children and Adolescents

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 of 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 on the effectiveness of interventions designed to improve self-regulation in children and adolescents. Peer-reviewed studies published in English from 1977-2017 were retrieved from electronic databases, including MEDLINE, Embase, and PsycINFO. Eligible study designs were cluster randomized trials or randomized clinical trials with participants aged 0-19 years. Self-regulation interventions fell into one of five categories: 1) curriculum-based; 2) physical activity/exercise-based; 3) mindfulness/yoga; 4) family-based; and 5) social and personal skills interventions. Primary outcomes of interest were self-regulation skills, in addition to related health and social outcomes.

What did they learn?

From 2,197 studies retrieved, 49 were included in the systematic review. Of the 49 included studies, 41 had sufficient data for the quantitative meta-analysis portion. These final studies reported on 50 different interventions and reflected a combined total of 23,098 participants. It was found that:

- 16 of 21 (76%) curriculum-based interventions produced consistent self-regulation improvements, including better academic achievement and social skills, and fewer behavioural problems

- 4 of 6 (67%) physical activity/exercise-based interventions produced statistically significant elevations in self-regulation scores
- 4 of 8 (50%) mindfulness/yoga interventions produced statistically significant elevations in self-regulation scores, and were particularly effective for pre-adolescent and adolescent age groups
- 5 of 9 (56%) family-based interventions produced consistent self-regulation improvements, as well as enhanced academic achievement, mental health, and social skills
- 4 of 6 (67%) social/personal skills interventions produced statistically significant improvements in self-regulation, especially for the delay of gratification, attention, and effortful control

In conclusion, two-thirds of assessed interventions produced significant enhancements in self-regulation skills among those who received self-regulation interventions compared to those who did not. Each of the five intervention types were found to be effective in the majority of the studies evaluating them, across all youth age groups, and in both school and community settings. The results also suggest that improvements in mental health and academic achievement may be potential benefits of self-regulation training.

Considerable variation existed between study methodologies; therefore, it is difficult to compare the individual studies to draw definitive conclusions. Results should be interpreted with caution, and future research is needed to examine standard methods of reporting self-regulation outcomes.

This review was prepared from: Pandey, A., Hale, D., Das, S., Goddings, A. L., Blakemore, S. J., & Viner, R. M. (2018). Effectiveness of universal self-regulation-based interventions in children and adolescents: a systematic review and meta-analysis. *JAMA Pediatrics*.

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