

Comparing the Efficacy of Mindfulness to Other Interventions to Foster Children's Executive Function Skills: A Series of Meta-Analyses

Zsolia Takacs, Reka Kassai

Institute of Education, Eötvös Loránd University, Budapest, Hungary

Background and objectives

Children's executive function skills at school entry are more predictive of school achievement than intelligence (Blair & Razza, 2007) and also strongly related to social-emotional well-being (Liew, 2012). In the present meta-analysis all available evidence regarding the efficacy of different behavioral interventions, including mindfulness-based programs, for children's executive function skills were synthesized in order to compare the effectiveness of the different intervention approaches.

Methods

After a systematic search (PsycInfo, Web of Science, PsycArticles and ERIC), we included (quasi-)experimental studies aiming to enhance children's (up to 12 years of age) executive functioning with neurocognitive tests as outcome measures.

Results

The results of 128 contrasts in 96 studies including data of 9175 children confirmed that it is possible to foster these skills in childhood (Diamond & Lee, 2011). For typically developing children we found evidence for the beneficial effects with moderate effect sizes of mindfulness practices ($g+ = 0.47$, $k = 6$, $SE = 0.11$, $95\% CI = 0.26; 0.68$, $p < .001$) and strategy teaching ($g+ = 0.43$, $k = 5$, $SE = 0.19$, $95\% CI = 0.07; 0.80$, $p = .02$), while no significant effects of physical activity, executive function-specific curricula (e.g., Tools of the Mind) or art activities. Although small to moderate effects of explicitly training executive function skills in the form of computer software and non-computer games were found, these effects were consistently weaker for non-typically developing children who might actually be at need of such training.

Discussion

Thus, we propose that explicit training does not seem to be meaningful as the approaches that implicitly foster executive functions are similarly or more effective, and these activities are more enjoyable and can be more easily embedded in children's everyday activities. Mindfulness practices are one of the most promising approaches, at least for typically developing children. For atypical samples, we did not find any studies with a mindfulness intervention that fit our inclusion criteria. Thus, it is still a question whether and how mindfulness can be applied with children who show atypical development.