Context and Implications Document for: School-based interventions for attention-deficit/hyperactivity disorder: a systematic review with multiple synthesis methods

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Introduction

Attention deficit/hyperactivity disorder (ADHD), which comprises impairing levels hyperactivity, impulsivity and/or inattention has a major impact on education. Symptom levels predict attainment and exclusion, while the difficulties associated with ADHD can cause problems in the classroom, for the child themselves, as well as for their teachers and peers. Medication has some impact on academic outcomes, but tolerance appears to develop after a couple of years and evidence suggests that there are few long-term improvements. There is evidence that non-pharmacological treatments for ADHD are helpful and may have broader benefits than medication. In the school setting, these psychosocial and behavioural treatments for ADHD can tackle a range of important educational outcomes, although it is a challenge to know which particular aspects of these interventions lead to improvement.

The current study updates the evidence base on the effectiveness of non-pharmacological treatments for ADHD in the school setting and develops a deeper understanding of the components of effective interventions. We undertook a systematic review where we carefully searched for all relevant previous research and assessed its quality. Aside from providing an up-to-date review of school-based interventions for ADHD, this study analysed previous research using a combination of meta-analysis, meta-regression and comparative analysis to answer the following questions:

- How effective are different types of school-based interventions?
- Which type of intervention might be most effective?
- What components of interventions lead to beneficial outcomes for children and young people with ADHD

Twenty-eight randomised controlled trials were included in the review. The included studies tended to be of low quality according to criteria typically used to assess health research; for instance, they tended not to use raters blinded to treatment group and only a small number of studies assessed intervention effects beyond treatment. Meta-analyses demonstrated that combined interventions, those that include more than one main intervention part, showed beneficial effects for outcomes including symptoms and academic outcomes. There was also some indication of large beneficial effects for daily report card interventions, but we can be

less confident in these findings given the small number of relevant studies and differences between their findings. Meta-regression did not find clear evidence that one type of intervention was more effective than others across different outcomes. Qualitative comparative analysis (QCA) suggested that when an intervention aimed to improve self-regulation that was delivered one-to-one and personalised to the child receiving it was more likely to result in improved academic outcomes.

Implications for Policy and Practice

Given that the prevalence of ADHD is approximately 5%, most teachers will have at least one child in their class who struggle with these difficulties. However, the very nature of the school setting is often at odds with the challenges these children face. It is therefore important to consider the implications of this review for policy and practice.

We found evidence that school-based interventions for children and young people with ADHD can be of benefit for a range of symptoms, school outcomes and associated difficulties. This suggests that both class teachers and other educators who support the learning of students with ADHD should consider how to offer support to children with ADHD in schools. Our findings suggest that a combination of approaches may improve ADHD combined symptoms, academic outcomes and conduct problems.

One promising intervention that helps children with ADHD with their school outcomes and ADHD symptom is the use of daily report cards. Although only two studies meeting our inclusion criteria used this intervention, previous research that included broader study designs suggests that this intervention can reduce the severity of ADHD symptoms. When we also consider that a daily report card is relatively cheap and easy to implement by practitioners, it can encourage home-school collaboration and offers the flexibility to respond to a child's needs.

QCA suggests that an important component of successful interventions for improving the academic outcomes of children with ADHD is one-to-one support for ~~emotional~~ self-regulation.

The 2018 National Institute for Health and Care Excellence (NICE) guideline for ADHD diagnosis and management suggests that clinicians advise on interventions and share a child's treatment plan with their school. The treatment guideline may be underestimating the potential for ADHD interventions delivered in school settings. While clinicians could also play a part in monitoring the impact of interventions in school, training about ADHD and interventions could equip more school staff to play an active role in the treatment of symptoms, as well as school outcomes that are also critical for these children. This may be beneficial, not only for those children and young people diagnosed with ADHD, but also the range of children who may have milder or less frequent difficulties with attention, restlessness and impulsivity.

Resources for Teaching & Learning in Higher Education

Useful Links

The following sources will provide more information for those who are interested in the different synthesis methods used in the study:

Borenstein, M., Hedges, L. V., Higgins, J., & Rothstein, H. R. (2009). *Introduction to meta-analysis*. Chichester, UK: John Wiley & Sons, Ltd.

MetaLight (Free software for teaching and learning meta-analysis): https://eppi.ioe.ac.uk/free-tools/meta-analysis/

Ragin, C. C. Department of Sociology and Department of Political Science, University of Arizona, (n.d.). What is qualitative comparative analysis (QCA)? http://eprints.ncrm.ac.uk/250/1/What_is_QCA.pdf

Sutcliffe K. & Kneale, D. (2018). How to Determine Which Interventions Work Best. http://ktdrr.org/training/webcasts/webcast51-60/index.html#wc58 (A webisode where the authors talk through the background to QCA and how it can be useful in reviews of complex interventions).

Sutcliffe K., Melendez-Torres G.J., Burchett H.E.D., Richardson M., Rees R., Thomas J. (2018). The importance of service-users' perspectives: A systematic review of qualitative evidence reveals overlooked critical features of weight management programmes. *Health Expectations, 21*(3), 563-73.

Thomas, J., O'Mara-Eves, A., & Brunton, G. (2014). Using qualitative comparative analysis (QCA) in systematic reviews of complex interventions: a worked example. *Systematic reviews, 3*(1), 67.

Thompson, S. G., & Higgins, J. P. (2002). How should meta-regression analyses be undertaken and interpreted? *Statistics in medicine, 21*(11), 1559-1573.