School interventions and resources for ADHD: are they effective?

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What is the rationale for school-based interventions for ADHD?

- ADHD is a chronic & heterogeneous neurodevelopmental disorder
- Core behavioral symptoms: (inattention & hyperactivity/impulsivity)
  - Manifest at school
  - Typically persist across the school years
  - Context-dependent
    - Social
    - Cognitive/academic demand
What is the rationale for school-based interventions for ADHD?

- Youth with ADHD experience more school-related problems than peers:
  - Worse grades
  - Lower standardized test scores
  - Higher absenteeism
  - More likely to alienate teachers & peers
  - Higher risk of dropping out of school
  - Less likely to pursue post-secondary education
What is the rationale for school-based interventions for ADHD?

- Psychostimulant medication is typically effective in reducing the core behavioral symptoms of ADHD in the short-term, **BUT**...
  - may not be the appropriate treatment for all individuals with ADHD
  - may not be as effective in the longer-term
  - has little of no effect on academic achievement or social/peer problems associated with ADHD
What are school-based interventions for ADHD?

- Typically constitute a set of recommended ‘Strategies’ or ‘Approaches’

- Comprehensive ‘packaged programs or curricula’ are rare
## Types of school intervention

### Varies by Recipient
- Teacher-focused
- Student-focused
- Teacher & student
- Teacher, parent, & student

### Varies by Setting
- Classroom
- Withdrawal from classroom
- Home & school

### Varies by Focus
- Behavior
- Social skills
- Academic
- Cognitive
- Self-regulation
- Psychoeducation
Examples of ‘strategies’

- Daily Report Card + Contingency Management
  - Volpe & Fabiano, 2013, Guilford Press

- Accommodations
  - ‘Environmental engineering’
  - ‘Chunking’ assigned work
  - Extra-time for tests, assignments
What is a Daily Report Card (DRC)?

- **DRC**: an operationalized list of a child’s target behaviors
  - Key domains with specific criteria for…
    - Improving peer relations
    - Improving academic productivity
    - Improving classroom rule-following
  - Communication tool, involving school staff working directly with student & parents
  - Immediate feedback
  - Home-based privileges contingent on meeting DRC goals
Example of a DRC
Examples of Approaches -1

- Psychoeducation for teachers
  - **Brochure/Manual**
    - Tymms & Merrell (European J Special Need Education, 2006)
    - Martinussen, Tannnock, Chaban (TeachADHD: A manual for Teachers- with DVD & website)
  - **Workshops**
    - Aguiar et al (J Attention Disorders, 2014)
  - **Web-based**
    - [www.TeachADHD.ca](http://www.TeachADHD.ca) (Tannock, 2009)
    - Corkum et al., (J Attention Disorders, 2015)
Examples of Approaches -2

- **Skill-Building**
  - Homework/organization/study skills
Examples of Approaches-3

Co-operative Learning

- an organized and structured way to use small mixed-ability groups in a classroom to enhance student learning & interdependence. Students given a task (i.e., an assignment) on which to work together to accomplish

“What children can do together today they can do alone tomorrow”

– Lev Vygotsky, 1962

- Mikami et al., (J Consult Clin Psychol, 2013)
- Capodieci, Rivetti, Cornoldi, (J Attention Disorder, 2016)
Evidence Base
for effectiveness of school-based intervention

- Recent meta-analyses
  - Du-Paul et al; 2012
  - Evans et al., 2014
  - Hodgson et al., 2014
  - Richardson et al., 2015 [Moore et al., 2015]
    - Quantitative & qualitative

- Recent RCT’s that post-date the reviews

- Recent mixed-methods analysis of feasibility of school-based interventions for ADHD
## Integration of quantitative & qualitative findings

<table>
<thead>
<tr>
<th>Outcome</th>
<th>ES [95% CI]</th>
<th>Qualitative Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inattention - teacher</td>
<td>$d = 0.60$ [0.14-1.06]</td>
<td><em>Teachers report routines help</em></td>
</tr>
<tr>
<td>Inattention - child</td>
<td>$d = 0.44$ [0.18-0.70]</td>
<td><em>Children more concerned about emotional self-regulation than inattention</em></td>
</tr>
<tr>
<td>Hyp/Imp - teacher</td>
<td>$d = 0.23$ [-0.03-0.49]</td>
<td><em>Teachers more concerned about hyp/imp than inattention</em></td>
</tr>
<tr>
<td>Hyp/Imp - child</td>
<td>$d = 0.33$ [0.13-0.53]</td>
<td><em>Children more concerned about emotional self-regulation than hyp/imp</em></td>
</tr>
<tr>
<td>Externalizing - teacher</td>
<td>$d = 0.28$ [0.04-0.53]</td>
<td><em>Anger &amp; defiance escalate over school years</em></td>
</tr>
</tbody>
</table>
## Integration of quantitative & qualitative findings:

(Richardson et al, 2015)

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<th>Outcome</th>
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<tr>
<td>Perception of school adjustment - teacher</td>
<td>d = 0.26 [0.05-0.47]</td>
<td><em>Teachers reported primary responsibility was to the learning of whole class, which may affect school adjustment</em></td>
</tr>
<tr>
<td>Curriculum achievement - child</td>
<td>d = 0.50 [-0.06– 1.05]</td>
<td><em>Teachers &amp; pupils with ADHD report greater interest in achievement than other outcomes</em></td>
</tr>
<tr>
<td>Standardized achievement - child</td>
<td>d = 0.19 [0.04-0.35]</td>
<td><em>Some interventions were seen to be effective for specific targeted skills but not to affect achievement</em></td>
</tr>
<tr>
<td>Other</td>
<td>Not applicable</td>
<td><em>Other concerns: mood, attitude, motivation, organizational skills, pupil’s emotional self-regulation, pupil &amp; teacher attributional beliefs, pupil self-perception (agency, self-efficacy)</em></td>
</tr>
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</table>
Brief school-based parent-teacher training program

(Sayal et al. *Child Care Health Development*, 2016)

- Intervention was based on 1-2-3 Magic program that targets non-compliant behavior
- 12 primary schools randomly assigned to school-based parent-only, combined parent-teacher, or BAU programs
- No evidence of improvements in ADHD symptoms for children at risk of ADHD, in either parent-only or combined programs
- Possible effects on parent mental health
Effectiveness of some recent RCTs: CANADA

- **Teacher Help for ADHD: Web-based Intervention**
  
  (Corkum et al., *J Attention Disorders*, 2015)

- 58 teacher-student dyads randomized to Teacher Help for ADHD or BAU:

- Web-based program released every Monday for 6 weeks; teacher knowledge questionnaires, monitored Discussion Board, on-line coach for teachers

- Teachers but not parents reported improvements in child’s ADHD symptoms & impairment & high level of acceptability & satisfaction [large-scale study ongoing]
Collaborative Life Skills program for primary-school students with ADHD (Pfiffner et al., JAACAP, 2016)

- Total of 23 schools (135 students with ADHD) randomized to CLS or BAU
- Multicomponent program (classroom interventions, parent training groups, skill development groups), delivered by school mental health professionals
- CLS: decreased ADHD symptoms; improved organizational, academic, social skills reported; moderate to large effect sizes
Effectiveness of some recent RCTs:

ITALY

- **Cooperative Learning Classroom**
  (Capodieci, Rivetti, Cornoldi. *J Attention Disorders*, 2016)

- 12 classes at 9 schools (with 30 children with ADHD) assigned to 6 sessions CL or BAU:

  - Teachers reported improvement in children’s cooperative skills in CL group (not BAU)

  - Peers rated improved sociometric status for children with ADHD in CL classrooms (more likely to gain higher ratings of ‘preferred play-mate’ & ‘preferred team-mate’).
What is the feasibility of school-based intervention?

Feasibility: the willingness of stakeholders (teachers, parents, adolescents, clinicians) to use, participate in, or support school-based interventions, while considering pros & cons.
Feasibility of school-based ADHD interventions: A mixed-methods study of perceptions of adolescents and adults.


- Quantitative findings revealed adolescents’ low receptivity toward school-based interventions for ADHD overall
  - & less willingness than parents, teachers, health care providers

- Qualitative findings revealed concerns about the potential for the interventions to:
  - disrupt the academic environment;
  - cause stigma for recipients;
  - create intervention dependence; &
  - foster views of inequitable treatment of students.
Perceived undesirable effects of school-based intervention
Contextual levels & key categories identified through synthesis of reviews 3 & 4, categorised at pupil, classroom, school, sociopolitical levels of context.
So...are school-based interventions effective for ADHD?

The answer is not simple; it depends on...

- Who & what you ask

- What type of intervention, for what domain of functioning, & any perceived negative side effects

- & whether it is feasible, given the...
  - sociopolitical context
  - school situation
  - classroom context
  - Individual student with ADHD...
ADHD is a heterogeneous condition
Therefore... one size does not fit all!

- Multimodal does not necessarily mean different interventions for different individuals.

- A variety of interventions will be required for any one individual...

- Optimal approaches are likely to change, given different manifestations of ADHD and impairments with development and ageing, and changes in demands & responsibilities across the lifespan.
Synopsis

- Meta-analyses indicate some beneficial effects of school-based interventions – of small to moderate effect size.

- Qualitative analyses highlight the importance of the intervention context & the need to consider the students’ & teachers’ understanding of ADHD, & perceived barriers & perceived adverse effects of school-based intervention.