School interventions and resources for ADHD: are they effective?

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What is the rationale for school-based interventions for ADHD -1?

- 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 -2 ?

- 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 -3 ?

- 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
- Academic
- Self-regulation
- Social skills
- Cognitive
- 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   (Tannock, 2009)
    - Corkum et al.,(*J Attention Disorders*, 2015)

Examples of Approaches -2

- Skill-Building
  - Homework/organization/study skills
    - Abikoff et *al., J Consult Clin Psychol*, 2013; Langberg et al., *School Psychol Rev*, 2012

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

Outcome	ES [95% CI]	Qualitative Review
Inattention - teacher	**d = 0.60** [0.14-1.06]	*Teachers report routines help*
Inattention - child	**d = 0.44** [0.18-0.70]	*Children more concerned about emotional self-regulation than inattention*
Hyp/Imp - teacher	**d = 0.23** [-0.03-0.49]	*Teachers more concerned about hyp/imp than inattention*
Hyp/Imp - child	**d = 0.33** [0.13-0.53]	*Children more concerned about emotional self-regulation than hyp/imp*
Externalizing - teacher	**d = 0.28** [0.04-0.53]	*Anger & defiance escalate over school years*

Integration of quantitative & qualitative findings:

(Richardson et al, 2015)

Outcome	ES [95% CI]	Qualitative Review
Perception of school adjustment - teacher	d = 0.26 [0.05-0.47]	*Teachers reported primary responsibility was to the learning of whole class, which may affect school adjustment*
Curriculum achievement - child	d = 0.50 [-0.06_ 1.05]	*Teachers & pupils with ADHD report greater interest in achievement than other outcomes*
Standardized achievement - child	d = 0.19 [0.04-0.35]	*Some interventions were seen to be effective for specific targeted skills but not to affect achievement*
Other	Not applicable	*Other concerns: mood, attitude, motivation, organizational skills, pupil's emotional self-regulation, pupil & teacher attributional beliefs, pupil self-perception (agency, self-efficacy)*

+ Effectiveness of some recent RCTs: UK

- **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 symptomsfor 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]
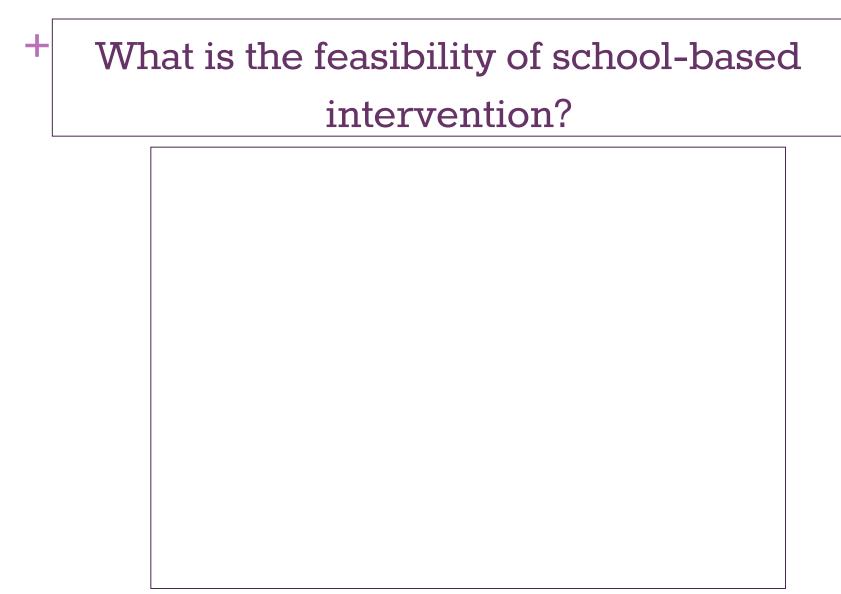
Effectiveness of some recent RCTs: USA

- **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, shild skills 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'.

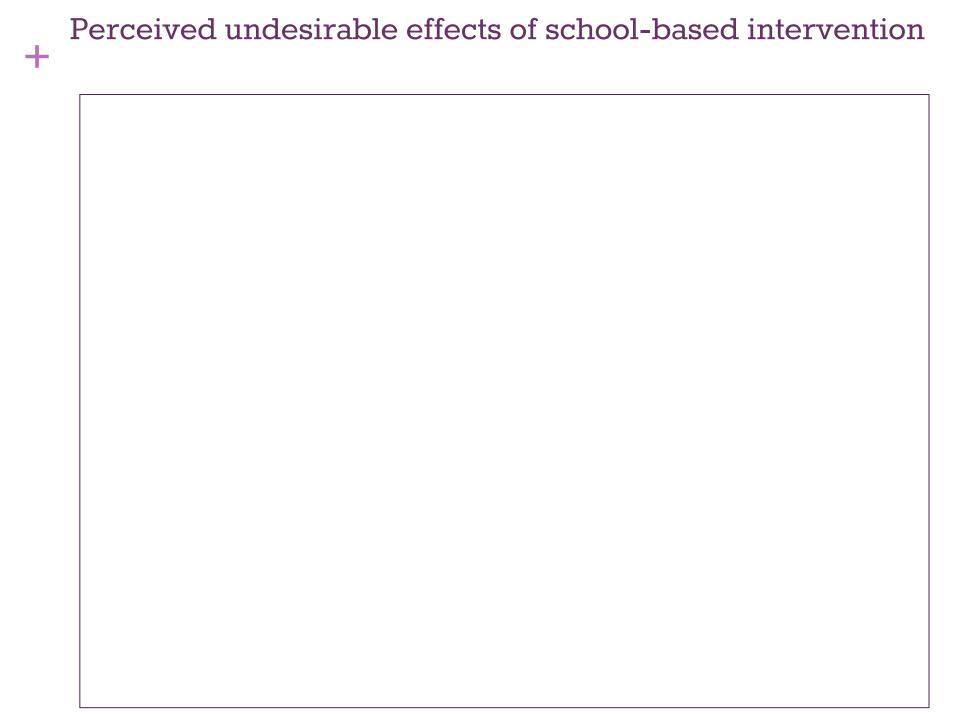# What is the feasibility of school-based intervention?

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…o ll not fit all!

- Multimodal does not necessarily mean different interventions for different individuals

- A variety of interventions will be required any one individual…

- Optimal approaches are likely to change, 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