Research Bulletin

What is the evidence for psychosocial interventions for young people with attention deficit hyperactivity disorder (ADHD)?

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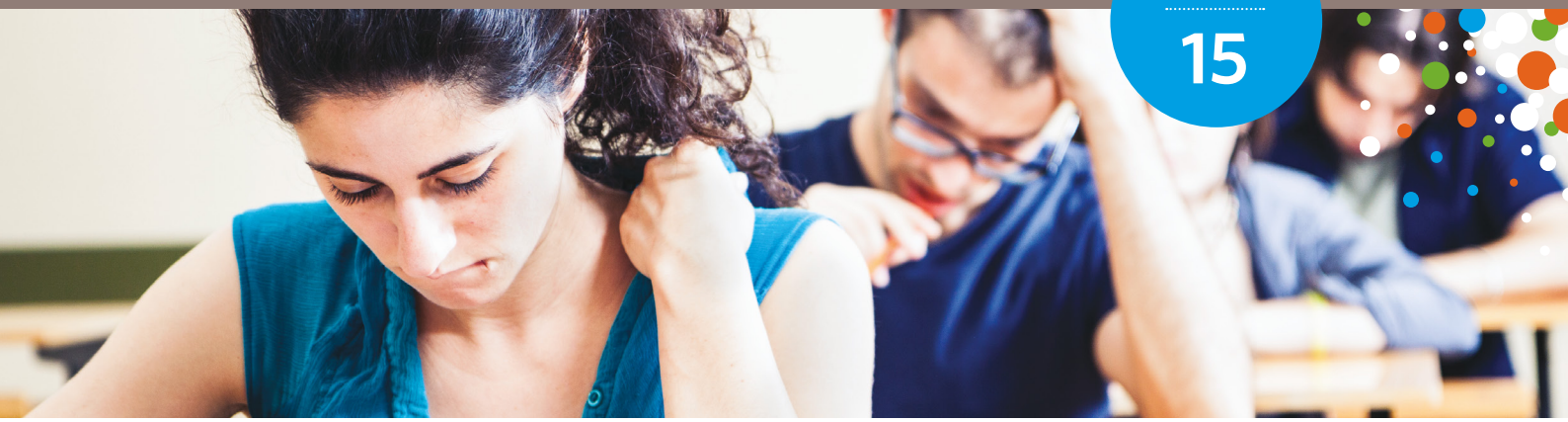

Although usually diagnosed in children, attention deficit hyperactivity disorder (ADHD) is often a chronic condition that continues throughout life. As adolescents and young adults (12–25 year olds, referred to here as 'young people') develop, they may be exposed to increasingly complex tasks and environments that are likely to affect the manifestation and treatment of their ADHD. This means that the usual treatments given to children and older adults may not meet the needs of this population. It is an ongoing challenge for clinicians and researchers to determine what types of intervention will best help young people with ADHD achieve their optimal functioning and most fulfilling lives.

Although there is a paucity of published research on psychosocial interventions for young people with ADHD, it is an emerging field. This research bulletin will examine five recent studies of psychosocial interventions for ADHD in young people. It aims to provide an overview of the current state of evidence in the area, and to highlight where further research is required. A large systematic review of both pharmacological and psychosocial treatments is presented first; this sets the scene for consideration of psychosocial interventions.

What is ADHD?

ADHD is a complex neurodevelopmental disorder characterised by persistent, pervasive patterns of inattention and/or poor impulse control and will often interfere with functioning in many aspects of life (e.g. relationships or education).[1]

Although the formal ADHD diagnostic criteria require symptoms to have been present before the age of 12, there are circumstances where a young person may have been able to compensate for their difficulties during this time, with symptoms and impairment only becoming apparent later in development.

Does ADHD only affect children?

The most heavily studied population with ADHD is children because the condition is usually diagnosed during childhood and often becomes apparent during school years. ADHD is increasingly recognised as a chronic condition that often remains with people into their adult years.[2,3] Increased demands on cognition arise during the transition from childhood into adolescence; these demands continue into early adulthood as a young person's social relationships develop and expectations change regarding independence and responsibility.[3,4]

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While medication treatments are effective across the lifespan,[5] young people with ADHD may be less likely to benefit from non-pharmacological treatments (e.g. behavioural parent training)[6] that have been shown to be effective in younger children.[7-12] Currently, quality evidence is limited on interventions targeted at young people, although this field is growing.

How is ADHD currently treated?

Psychoeducation about the nature of ADHD, additional support and training for parents and carers, and environmental modifications that reduce the effect of ADHD on everyday life (e.g. providing routine and structure, reducing visual and auditory distractions) are the first line interventions applied for all ages.[13,14]

If symptoms persist following implementation of these interventions, medication is considered for most cases of ADHD; however, medications may not be successful or acceptable to all.[15-17] There is also evidence that medications may not always improve many of the functional impairments associated with ADHD, such as academic performance, organisation and time management, and social functioning.[16,18]

This means that psychosocial interventions may have an important place in ADHD treatment, and are therefore generally used in conjunction with medications. A carefully tailored individual treatment plan is required for each person and is ideally overseen by a clinician who can remain involved long-term.[14]

What is the evidence for psychosocial interventions for young people with ADHD?

Chan E, Fogler JM, Hammerness PG.
Treatment of attention-deficit/hyperactivity disorder in adolescents: a systematic review.
JAMA. 2016 May 10;315(18):1997-2008[19]

This systematic review assessed the evidence for pharmacological and psychosocial treatments for ADHD in adolescents (12–18 years-old). The authors reviewed sixteen randomised clinical trials and one meta-analysis. Included studies met the following criteria:

- participants had an ADHD diagnosis according to the Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV) or DSM-IV-TR (text revision) criteria
- participants were randomised into treatment and control groups
- treatment efficacy was assessed using a valid measure of core ADHD symptoms or related functioning.

Studies were excluded if they involved participants with psychiatric or medical comorbidities. Of the sixteen studies included, seven were pharmacological and 10 were psychosocial. No studies were found that directly tested the combined effects of medication and psychosocial interventions in the target population.

Findings

Pharmacological studies

Six randomised controlled trials (RCTs) and one meta-analysis for pharmacological interventions were included, totalling 1,752 participants. Medications were either stimulant (e.g. methylphenidate or amphetamine) or non-stimulant (e.g. atomoxetine, a selective norepinephrine reuptake inhibitor (SNRI), or clonidine, an alpha-2 adrenergic agonist).

Overall, pharmaceutical treatments were associated with strong effects on core ADHD symptoms. The strongest evidence was for extended-release methylphenidate and amphetamine formulations (stimulants), and for atomoxetine (non-stimulant).

Insufficient evidence has been published to draw conclusions about the effects of other non-stimulants—such as extended release guanfacine or clonidine—in an adolescent population. It is worth noting that more recent RCTs have since shown promising results of extended release guanfacine in this population.[20,21] In addition, a recent comprehensive meta-analysis supports methylphenidate as the preferred first choice for short-term pharmacological treatment of ADHD in adolescents and children.[5]

Psychosocial studies

Ten RCTs for psychosocial interventions were included, totalling 916 participants, most of who were also taking ADHD medications. Psychosocial

treatment components included behaviour therapy, skills training and cognitive behavioural therapy (CBT). Many of these components were modular and did not necessarily trial one type of psychosocial intervention exclusively. Nine studies involved skills training and two involved CBT.

Overall, the authors found inconsistent, medium to large effects on parent (but not teacher) ratings of ADHD symptoms in seven of the 10 studies. Four of these demonstrated medium effects on inattention symptoms but not hyperactive symptoms; of these four, three were after-school programs, and one a skills-based intervention incorporating teacher and parent training.

One after-school program yielded large effects on hyperactive but not inattentive symptoms. The remaining three studies yielded medium to large effects on ADHD symptoms as a composite measure. Two of these were CBT-based interventions and the other was the Supporting Teens' Academic Needs Daily-Group (STAND-G) study, which is discussed separately in a section below.[22] A further study demonstrated a significant improvement in parent-rated inattention but not hyperactivity symptoms, and the two remaining studies did not measure ADHD core symptoms. Six of the 10 studies reported medium to large improvements on organisational and academic skills. These outcomes were highly heterogeneous but included things like homework turn-in and task-planning.

Limitations

This review was limited by a paucity of high-quality studies in the adolescent ADHD population and its use of the DSM-IV and DSM-IV-TR ADHD criteria for study inclusion. The more recent DSM-5 (2013) made changes to the ADHD description and diagnostic criteria. These changes included more age-varied descriptors and an increased maximum age of symptom onset. This is relevant given that this review assesses age-specific (adolescent) presentations of ADHD. The pooled sample was, therefore, not necessarily representative of the current-day adolescent ADHD population.

This review did not include any studies directly assessing the effects of combined treatment—i.e. concurrent pharmacological and psychosocial treatment—due to the paucity of available research. Given the apparent complimentary effect of combined treatment—that medications improved core ADHD symptoms and psychosocial studies tended to improve functional outcomes—it would be of interest to see whether combined therapies would provide greater overall improvements that were either equal to, or greater than, the sum of those parts.

Lastly, the sample in this review was limited to ADHD without comorbidities. Psychiatric comorbidities are complicating factors in ADHD diagnosis and treatment. More than half of young people with ADHD have psychiatric comorbidities, and up to a third may have two or more.[4] Again, this means that the pooled sample was not representative of the general adolescent ADHD population.

Take-home message

The lack of good quality research on ADHD in the adolescent population and out-of-date inclusion criteria limits the inferences that can be made about treatments in this review. However, there is good evidence to support the use of stimulants and atomoxetine to reduce core ADHD symptoms in young people with ADHD. There is also moderate evidence for the use of multimodal psychotherapies incorporating skills training to reduce functional impairment in adolescents with ADHD.

Sibley MH, Altszuler AR, Ross JM, Sanchez F, Pelham WE, Gnagy EM. **A parent–teen collaborative treatment model for academically impaired high school students with ADHD.** *Cognitive and Behavioral Practice. 2014;21:32-42*[22]

In this small, uncontrolled US study, a sample of 23 high school (years 9–12) students with ADHD (mean age = 15; 69.6% male) and their parents underwent an eight-week intervention called Supporting Teens' Academic Needs Daily-Group (STAND-G).

The STAND-G intervention is a behavioural intervention for high school students with ADHD that incorporates parent–teen collaboration and comprises eight weekly, 90-minute group sessions. Parents and adolescents spend approximately a third of each session in mixed groups and the remaining two-thirds of the session is spent in separate parent or adolescent groups. In these separate groups, parents attend a parenting skills group while adolescents attend an academic, organisational and communication skills group. Post-intervention improvements were assessed by parent-rated improvements in various aspects of home and academic functioning, and by assessing changes in the adolescents' assignment and test grades at school.

Findings

No clinically meaningful, long-term changes were demonstrated in objective measures of academic performance. Post-intervention, however, most parents (60–83%) reported that their adolescent had either 'improved' or 'much improved' in most domains, including:

- following through on responsibilities
- problem-solving skills
- arguing with adults (although 17% of parents reported this worsened)
- accepting limits
- morning routine
- evening routine
- homework completion
- tests/quizzes
- work quality
- time management.

Less than 50% of parents reported improvements in note-taking and planning ahead. Overall, the intervention was found to be highly acceptable for parents and moderately so for adolescents.

Limitations

As this was a pilot study the sample was small, which may have limited the ability to detect meaningful changes over the eight weeks. It was also uncontrolled—i.e. there was no comparison group—and therefore the results can only be considered as suggestive until a robust RCT is conducted.

Take-home message

The STAND-G intervention includes principles and components that are deemed important for interventions targeting ADHD in a population transitioning from adolescence to adulthood.[17] A large, high-quality study is needed to establish the efficacy of this intervention. This preliminary evidence suggests that this skills-based intervention seems to result in parent-rated improvements in certain spheres of home and academic functioning in a high school population.

Sprich SE, Safren SA, Finkelstein D, Remmert JE, Hammerness P. **A randomized controlled trial of cognitive–behavioral therapy for ADHD in medication-treated adolescents.** *Journal of Child Psychology and Psychiatry. 2016;57(11):1218-1226*[23]

In this US study, 46 adolescents (aged 14–18 years old) with medication-treated moderate to severe ADHD (mean age = 15; 78% male) were randomly assigned to either receive a CBT-based intervention or be placed on a four-month waitlist followed by CBT. Exclusion criteria were severe comorbid disorders that would interfere with participation, suicidality, conduct disorder, active substance abuse or dependence, organic mental disorder, intellectual disability, pervasive developmental disorder and a history of undergoing CBT for ADHD.

The CBT-based intervention was 12 sessions (10 individual, two with parents), which took an average of 17.3 weeks to complete. Participants were considered to have completed treatment if they attended nine or more sessions. The intervention modules included:

- psychoeducation
- organisation and planning
- distractibility delay
- cognitive restructuring
- overcoming procrastination (making goals attainable)
- relapse prevention
- parent education.

Participants were considered treatment responders if they achieved a 30% or greater reduction in symptoms. Participants were assessed at zero, four and eight months.

Findings

The intervention was found to be associated with significant improvements on parent-, adolescent- and clinician-rated ADHD symptom severity compared to the waitlist control condition. Approximately half of participants receiving CBT were considered treatment responders.

Limitations

This study compared an 'active intervention' (the CBT group) against a group that received

no psychological intervention at all, rather than an attention-control or other, different intervention. This means that the potential effects of contact and attention during the intervention and the participants' expectations were not controlled for, which limits the interpretation of these results.

The study also only included medication-compliant adolescents, which limits how well these results represent the broader population of adolescents with ADHD, of who up to 60% are noncompliant with medication.[24-26] The use of a relatively small, highly homogeneous sample (e.g. race, socio-economic status) and the exclusion of participants with common ADHD comorbidities (e.g. conduct disorder, substance use disorder, intellectual disability) limits how these results can be generalised.

Take-home message

Although larger and more diverse and representative RCTs would increase confidence in these conclusions, this research suggests that the use of structured, modularised CBT may assist in improving ADHD symptoms in stably medicated adolescents.

Anastopoulos AD, King KA. **A cognitive–behavior therapy and mentoring program for college students with ADHD.** *Cognitive and Behavioral Practice. 2015;22(2):141-151*[27]

In this small, uncontrolled trial at a US university, 43 students (mean age = 20.3), who met the DSM-IV criteria for ADHD, took part in the Accessing Campus Connections and Empowering Student Success (ACCESS) program. ACCESS is an eight-week program comprising weekly 90-minute group CBT sessions and 30-minute individual mentoring sessions.

Each group CBT session involves three concurrent components:

1. psychoeducation about ADHD and the resources available to students
2. behavioural skill building (e.g. organisation and time management)
3. cognitive therapy (e.g. recognising and/or replacing maladaptive thinking).

This was followed by a maintenance phase, consisting of two group CBT booster sessions plus five to six individual mentoring sessions every two to three weeks.

The concurrent delivery of all three components in each of the CBT sessions was a specific adaptation for young people that was reported to differ from adult CBT interventions. The authors asserted that concurrent delivery would be more likely to maintain youth engagement by reducing boredom and increasing the likelihood of each session having at least one component of personal relevance to an individual participant.

Participants were not excluded for having comorbid depression and/or anxiety but were excluded for having other comorbid psychiatric conditions.

Findings

Overall, the program had high acceptability among participants. Eighty-five percent completed the intervention but only 54% completed the maintenance phase.

Post-intervention there were large improvements in:

- ADHD symptom total scores
- ADHD inattentive symptoms
- executive functioning
- knowledge of ADHD
- use of behavioural strategies
- maladaptive thinking.

No improvements were found in: hyperactivity/impulsivity symptoms, ADHD-related cognitions, or depression or anxiety scores. No improvements were seen in academic performance, however, there was a reduction in the number of participants on academic probation.

A follow-up study of ACCESS enrolees found that improvements in symptom severity, executive functioning and educational functioning were maintained five to seven months post-intervention.[28]

Limitations

This study did not include a control group for comparison, which makes it difficult to draw definitive conclusions about the ACCESS program. This means that the effects of participant expectations and incidental characteristics of the program (e.g. simple contact/attention from the therapists, natural cognitive maturing over the intervention timeframe) have not been controlled for, and it is difficult to tell how much of the results are due solely to the intervention.

Participants were also able to receive outside therapy and/or concurrent medication during the course of the intervention, which makes it difficult to distinguish exactly what proportion of the positive results were due to the ACCESS program itself rather than support outside the program.

Take-home message

Conclusions regarding the effectiveness of this program must be made cautiously until a larger, RCT is conducted.

The study does, however, suggest that a multicomponent intervention encompassing group sessions, individual mentoring, CBT, psychoeducation, organisational and time management skills, and academic, lifestyle and relationship skills is likely to be acceptable to young people with ADHD. This warrants further investigation.

LaCount PA, Hartung CM, Canu WH, Knouse LE. **Interventions for transitioning adolescents with ADHD to emerging adulthood: developmental context and empirically supported treatment principles.** *Evidence-Based Practice and Child and Adolescent Mental Health. 2018 Oct 2;DOI:10.1080/23794925.2018.1518120*[4]

This article notes that there are no studies of interventions to help young people aged 13–25 years with ADHD transition to adulthood. The authors reviewed the literature on the impairments associated with ADHD in adolescents and adults, the developmental tasks of this life period and the empirically supported interventions that are likely to help with the challenges faced by people with ADHD transitioning to adulthood.

Findings

Eight areas of functional impairment in young people with ADHD were identified from the research literature that are important to consider during the transition to adulthood. These eight areas of functional impairment were:

- academic (e.g. grades, university graduation rates)
- psychological and emotional (e.g. depression, self-esteem, anger-management)
- social (e.g. unstable friendships, social confrontations)
- occupational (e.g. underemployment, more frequent job changes)
- financial (e.g. debt, poor credit rating)
- health (e.g. poor diet, poor sleeping patterns)
- substance use (e.g. misuse of alcohol, illicit drugs)
- family (e.g. family conflict, decreased likelihood of financial, medical and emotional independence from family).

Empirically supported interventions for ADHD that were identified included:

- medications
- psychosocial interventions
  - school-based and family-based that manage symptoms using behavioural techniques (e.g. rewards and monitoring)
  - teaching adaptive and compensatory skills (e.g. use of diaries and planners).

Based on an analysis of the increasing demands for independence and self-regulation during the transition to adulthood, the impairments experienced by those with ADHD and the existing treatment outcome research (on adolescents and adults), the authors recommended further research on multicomponent interventions encompassing:

- organisational and time management skills (e.g. using timers, to-do lists, reducing tasks to smaller sub-goals to make them seem more attainable)
- emotion regulation (e.g. mindfulness, physical activity)
- daily routines (e.g. physical exercise, sleep hygiene, balanced diet).

The authors further recommended that adherence to and engagement with these interventions may be optimised by:

- providing psychoeducation about ADHD
- using techniques, such as motivational interviewing, take-home exercises with in-session feedback, and problem-solving
- using group-based interventions.

The authors cited the STAND-G program[22] as a promising intervention encompassing many of these recommended elements.

Limitations

This article provides good suggestions for the direction of further interventional research. However, as it did not systematically review the literature, its conclusions can be regarded as tentative (given there

may be a selection bias in the reviewed studies). More research is required in order to be clear about the best way to assist young people with ADHD during their transition to adulthood.

Take-home message

Based on this evidence it seems likely that psychosocial ADHD interventions that incorporate organisational and time management skills, emotion regulation, and lifestyle aspects are likely to benefit transitioning, emerging adults with ADHD, in addition to the well-established pharmacological interventions.

Where to from here?

Although the evidence is limited, there is some support for the use of multicomponent psychosocial interventions to improve functional impairment—but not necessarily core symptoms—associated with ADHD when used as an adjunct to medication or when medication is not possible or accepted.

From the evidence to date, future successful psychosocial interventions will likely incorporate:

- psychoeducation about ADHD itself and, potentially, about resources available to young people
- skills training, in particular for organisational and time management skills and emotion regulation
- CBT
- lifestyle behaviour components, such as diet, exercise and sleep.

What does this mean for clinical practice?

A young person with ADHD is likely to present with different challenges compared to children with ADHD, and is therefore likely to experience different levels and spheres of impairment and have different treatment requirements.

Holistic assessment of core symptom severity, levels of impairment and presence of psychiatric comorbidity in each individual is important in guiding treatment plans. It is likely that a young person with ADHD will benefit best from a combination of medication to treat their core ADHD symptoms and psychosocial interventions to improve their functioning.

To date, there is a marked paucity of research on interventions for emerging adults or the 'transitional age' group. Although limited, the available evidence suggests that a multicomponent intervention, incorporating psychoeducation, CBT, skills training and lifestyle interventions, may work best for this group.

Questions for further research

- How do the efficacy of medication treatment, psychosocial treatments and combined medication and psychosocial treatments for ADHD in young people compare? What is the optimal order in which to offer treatments?
- What are the most effective or important components of multicomponent psychosocial treatments for ADHD in young people? Are specific therapies indicated for specific symptom profiles?
- Which psychosocial interventions are effective in improving long-term outcomes for young people with ADHD?
- Which psychosocial interventions assist with common comorbidities in ADHD, for example, substance abuse and conduct disorder?
- What combinations of treatments for ADHD in young people are most effective in real-world settings?
- Neurofeedback and cognitive training are newer computer-based training interventions proposed to assist with improving ADHD symptoms. These interventions may be especially suitable for young adults (aged 18–25) because they can be self-directed, thus supporting developing independence and responsibility in emerging adults. These newer therapies, which have limited empirical support to date, require evaluation in high-quality studies.

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