

Mindfulness training for childhood ADHD: a promising and innovative treatment

Attention deficit hyperactivity disorder (ADHD) is characterised by inattentive, impulsive, and hyperactive behaviour and is one of the most common mental health problems, with 5% of children now meeting the diagnostic criteria.¹ Currently, medication is the most effective and most common treatment for ADHD.^{2–4} The last 20–30 years have seen a sharp rise in drug prescriptions for ADHD, with nearly 70% of children and adolescents diagnosed with ADHD in the US now receiving medication.⁵ However, concerns have been raised about the potential limitations of ADHD medications, including their side effects, the necessity to continue use to maintain beneficial effects, low treatment adherence, stigmatisation and uncertain long-term effectiveness and safety.^{3,6–9} The demand for non-pharmacological treatments for ADHD is, therefore, high, but the effectiveness of those currently available, such as dietary interventions, free fatty acid supplementation, cognitive training, neuro-feedback and behavioural interventions, is debatable.¹⁰ As such, the need for further interventions targeting the core symptoms of ADHD remains.

One innovative treatment for childhood ADHD that attempts to target core symptoms is mindfulness training. Mindfulness training is based on Eastern meditation techniques combined with Western knowledge of psychology, and aims to increase awareness by purposefully paying attention in the present moment, enhancing non-judgmental observation and reducing automatic responses.¹¹

Mindfulness and childhood ADHD

At first sight, mindfulness and ADHD appears to be a contradictory combination – meditating and sitting still for an extended period of time may seem like an impossible accomplishment for someone who has difficulties sustaining attention and prefers to be active. Considering some of the key aspects of mindfulness, however, it becomes clear how it can

be beneficial for those suffering from ADHD. Children with ADHD are easily distracted by internal and external stimuli, such as thoughts and environmental sounds, especially during boring or difficult tasks, and often fail to redirect their attention to what they were doing.¹ During mindfulness training, children with ADHD are taught to focus their attention on an ‘attentional anchor’, such as the body or their breath, and become aware of where and how their mind wanders; perhaps, they find themselves distracted by other children’s actions, daydreaming or listening to a noise in another room. The key to mindfulness practice is to notice when one is distracted, to be aware of the distractor and bring attention back to whatever the focus of attention was. In this way, children train their so-called ‘attention muscle’, which, like the training of physical muscles, requires practice and endurance, but is likely to enhance their ability to sustain and control attention.^{12–14} The principle of bringing attention back once distracted is the same whether the focus of attention is breathing or an everyday life situation that requires a child’s attention, such as schoolwork, play, chores or conversations.

During mindfulness training, children with ADHD are also taught to observe internal and external stimuli that enter their awareness, without automatically acting on them.¹⁵ This is another key aspect of mindfulness training and attempts to target the core symptoms of hyperactivity and impulsivity. During meditation, children may observe, for example, a tendency to be restless, open their eyes out of curiosity about how other children are doing or blurt out answers in response to the trainer’s question when it is not their turn. These tendencies may often be beyond a child’s control; however, by directing attention to the impulses that arise, and recognising automatic patterns in their thoughts and behaviour, children can develop the ability to choose how to respond, rather than automatically reacting to stimuli.¹⁶ This, in turn, may enhance their ability to regulate their impulsive and hyperactive behaviour during meditation practice, as well as during everyday situations. Although this may seem somewhat

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abstract, we explain this more concretely to children by playing games and using metaphors such as the highway (the fast route to responding impulsively) versus the walking way (the slower route to responding with more awareness and forethought).

Mindful parenting

Raising a child with ADHD can be a challenging and stressful task. Parents need to provide a structured environment and be consistent, clear and calm.¹⁷ As ADHD has a heritable component, it is likely that at least one parent also suffers from ADHD symptoms.^{18,19} This can further complicate up-bringing, as parents with ADHD may experience great difficulty in providing such care.

Parenting training programmes are often limited to teaching parents strategies to cope with their child's behavioural problems, and do not target the parents' own psychopathology. Parents who have ADHD themselves are less likely to benefit from such programmes.²⁰ During mindful parenting training, parents are taught to observe their children with unbiased and open attention in a calm, non-reactive and non-judgemental manner, which allows them to be more sensitive and responsive towards difficult behaviour and their child's needs.^{21,22} Parents are also taught to become more aware of their own stress and symptoms, pay attention to their own needs and take care of themselves, and they are invited to take a non-judgemental and accepting attitude towards their own difficulties and shortcomings. Mindful parenting targets parents' own psychopathology, which, in the case of parents of children with ADHD, may be a parent's own ADHD symptoms.

Mindfulness research

To date, eight studies have evaluated the feasibility and effectiveness of mindfulness training for children and adolescents with ADHD in a clinical setting (see Table 1), and have shown promising results in this burgeoning field.²³⁻³⁰

In six studies, parents were offered mindful parenting training in parallel to mindfulness training for children.^{23,25-29} Combining mindfulness training for children with ADHD with parallel mindful parenting training seems a logical and holistic approach that targets ADHD on a family, as well as individual, level. This has the additional advantage that parents and children practice mindfulness at the same time, allowing parents to fully understand what the child is learning and support them during the development of mindfulness skills.

One of the larger studies that offered this combination was carried out by van der Oord *et al.*²⁹ The

mindfulness protocol used was an early version of MYmind (Mindfulness training for Youth) training, originally developed by Bögels *et al* at an academic mental health centre for children and their parents.^{28,29} The training consisted of eight weekly 1.5-hour sessions and was conducted in small groups of four to six children with separate groups for their parents. In total, 22 children with ADHD, aged between eight and 12 years, and their parents participated. Assessments were taken one week before the mindfulness training, directly after the training and again eight weeks later. Eleven families had to wait at least six weeks before the training started and completed a waiting-list assessment to control for time effects. Results showed no changes during the waiting-list period, except that teachers rated their pupils significantly higher for oppositional defiant disorder by the end of the waiting-list period. Following the training, parents reported a significant decline in both their own and their child's ADHD symptoms; these effects were maintained at the eight-week follow-up assessment. Teachers reported a significant reduction in their pupils' inattentive behaviour directly after training. Furthermore, parents thought of themselves as more mindful directly after the training and less stressed and overreactive as a parent eight weeks after the training.

The MYmind protocol was also used in a recent study of eighteen adolescents with ADHD (aged 13 to 18) and their parents.²⁵ Both adolescents and parents filled out questionnaires four weeks before the training, on the first and last days of training and six weeks after completion. In the period before the training, no significant changes occurred. According to parents' ratings, adolescents' inattention, conduct problems and peer relation problems significantly improved directly after training. Furthermore, parents thought of themselves as less stressed and more mindful in their parenting. These results were maintained at the six-week follow-up, with parental stress further reduced. Adolescents did not report any changes directly after training, but reported significantly fewer internalising problems at the six-week follow-up.

ADHD: Meditation or Medication?

We are currently conducting a multicentre, randomised controlled trial – ADHD: Meditation or Medication? – which will evaluate the effects of MYmind mindfulness training versus methylphenidate. Participants are children and adolescents with ADHD, and their parents, referred to urban and rural (academic) mental health centres.³¹ For children and adolescents receiving medication, short-

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Table 1. Overview of studies conducted on mindfulness training for children and adolescents with ADHD

Study (year)	Sample size	Age, years	Design	Intervention	Number of sessions	Primary diagnosis	Attention measure(s)	Significant findings
Bögels <i>et al</i> (2008) ²³	14	11–18	Group format; waiting list, pre-/post-treatment and follow-up assessment	Early version of MYmind for adolescents and their parents	8 plus 1 follow-up	Externalising disorders, including ADHD (n=2) and comorbid ADHD (n=2)	D2 Test of Attention; CBCL Attention Problems subscale; YSR Attention Problems subscale	<ul style="list-style-type: none"> • Reductions in adolescents' externalising complaints, attention problems and withdrawal behaviour • Improvements in adolescents' self-control, attunement with others, personal goals, happiness, mindful awareness and performance on attention tasks
Haydicky <i>et al</i> (2012) ²⁴	60	12–18	Randomised trial with waiting list control group	MMA training for adolescents without their parents	20	Learning disabilities, including comorbid ADHD (n=28)	CBCL; YSR	<ul style="list-style-type: none"> • Reductions in adolescents' externalising behaviour, oppositional defiant problems and conduct problems
Haydicky <i>et al</i> (2015) ²⁵	18	13–18	Group format; pre-/post-treatment and follow-up assessment	MYmind for adolescents and their parents	8 plus 1 follow-up	ADHD	Conners 3–P; Conners 3–SR	<ul style="list-style-type: none"> • Reductions in adolescents' inattention, conduct problems and peer relationship problems, and in parental parenting stress • Improvement in mindful parenting
Shecter (2013) ²⁶	9	13–18	Time series design	MYmind for adolescents and their parents	8 plus 1 follow-up	ADHD	Daily symptom questionnaire	<ul style="list-style-type: none"> • Reductions in parental and adolescents' stress and adolescents' ADHD symptoms
Singh <i>et al</i> (2010) ²⁷	2	10–12	Single case	Mindfulness for children and their parents (name of protocol not specified)	12	ADHD	None	<ul style="list-style-type: none"> • Improvements in child compliance, parental happiness and mother–child interaction
van de Weijer-Bergsma <i>et al</i> (2012) ²⁸	10	11–15	Group format; pre-/post-treatment and follow-up assessment	Early version of MYmind for adolescents and their parents	8 plus 1 follow-up	ADHD	CBCL Attention Problems subscale; YSR Attention Problems subscale; TRF Attention Problems subscale; Amsterdam Neuropsychological Tasks	<ul style="list-style-type: none"> • Reductions in adolescents' attention and behaviour problems, paternal parenting stress and maternal overreactivity • Improvements in adolescents' executive functioning and performance on an attention task
van der Oord <i>et al</i> (2012) ²⁹	22	8–12	Pre-/post-treatment and follow-up assessment; within-group waiting list control without randomisation	Early version of MYmind for children and their parents	8 plus 1 follow-up	ADHD	Disruptive Behavior Disorders Rating Scale; ADHD Rating Scale	<ul style="list-style-type: none"> • Reductions in parental and child ADHD symptoms and parental stress and overreactivity • Improvement in parents' mindful awareness
Zylowska <i>et al</i> (2008) ³⁰	32	15 to adulthood	Feasibility study with pre- and post-treatment measurements	MAPs for adolescents (without parents) and adults	8	ADHD	ADHD Rating Scale IV; SNAP-IV scale; Attention Network Test; Stroop task; Trail Making Test	<ul style="list-style-type: none"> • Reductions in ADHD symptoms • Improvement in performance on neurocognitive tasks

CBCL = Child Behaviour Checklist; MAPs = Mindful Awareness Practice; MMA = Mindfulness Marital Arts; MYmind = Mindfulness training for Youth; P = parent; SNAP = Swanson, Nolan and Pelham; SR = Self-Report; TRF = Teacher's Report Form; YSR = Youth Self Report

acting methylphenidate is dosed individually and monitored by a child psychiatrist. Assessments of hyperactivity, impulsivity, attention and parental stress (questionnaires and objective neuropsycho-

logical measures) take place at pre-test, post-test and eight- and 24-week follow-up assessments. Informants are parents, children, teachers and researchers. This study will inform both mental health profes-

sionals and health insurance companies on the clinical- and cost-effectiveness of mindfulness training for children and adolescents with ADHD and their parents compared with methylphenidate.

Conclusion

Mindfulness training for children with ADHD aims to make them aware of the subject of their attention and teaches them to return their attention to a particular focus when distracted. This may enhance a child's ability to sustain attention over longer periods of time. Children are also taught to create an awareness of their automatic responses, which may give them more control over their impulsive and hyperactive actions. In addition, mindfulness training for children with ADHD can be combined with parallel mindful parenting training, in which parents learn to pay attention in the present moment, observe their child in a non-judgmental manner and respond calmly, rather than react, to their child's difficult behaviour.

The effectiveness of mindfulness training for children and adolescents with ADHD has been demonstrated by a number of studies; however, research in this field is limited by a lack of randomised controlled clinical trials with large samples, standardised formats of mindfulness training and objective measures.^{12,32} Further assessment of mindfulness training for childhood ADHD is, therefore, needed. A randomised controlled trial, which compares mindfulness training for ADHD with methylphenidate, is currently being conducted in the Netherlands ■

Declaration of interest

The authors declare that there is no conflict of interest.

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Key points

- ▶ Childhood ADHD is a common mental health problem that is most often treated with medication. However, treatments are not effective for all children and can have side effects. Other treatment options are, therefore, needed.
- ▶ Mindfulness training is an innovative treatment for children with ADHD that targets the core symptoms of the disorder, whereas most psychosocial interventions focus on behavioural consequences of ADHD.
- ▶ Mindful parenting training, in combination with mindfulness training for children, is a holistic approach that targets the whole family context as well as parental ADHD.
- ▶ To date, studies evaluating the feasibility and effectiveness of mindfulness training for children with ADHD and their parents show promising results.
- ▶ A large randomised controlled trial is ongoing, which will compare the effectiveness of mindfulness training with methylphenidate.