

Intervention program to improve attention and working memory for schoolaged children with behavioral- and learning problems

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The aim of study I is to compare the two working memory interventions, Cogmed and the intervention developed by the Bascule, in a sample of 100 children with ADHD and working memory deficits, aged between 8 and 12 years old. Effects on working...

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Psychiatric and behavioural symptoms NEC
Study type	Interventional

Summary

ID

NL-OMON35778

Source

ToetsingOnline

Brief title

Improved attention in class

Condition

- Psychiatric and behavioural symptoms NEC

Synonym

working memory deficits

Research involving

Human

Sponsors and support

Primary sponsor: Academisch Medisch Centrum

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Source(s) of monetary or material Support: Ministerie van Onderwijs

Intervention

Keyword: AD(H)D, Cogmed, learning disorder, working memory

Outcome measures

Primary outcome

The primary outcomes of both studies are the improvements on academic achievement and neurocognitive functions. In study I the baseline score is compared with the score direct after the training and 6 months after the training. Within the Cogmed computer training it is possible to use measures from diverse tasks (raw and standardized data), next to data at the start/ending of the training and the so called improved-index.

In study II is an extra measure after 12 months, only if the child respond sufficiently to the intervention developed by the Bascule. If the child doesn't respond sufficiently to the intervention developed by the Bascule, it will get an extra measure after the Cogmed intervention.

Secondary outcome

The secondary outcomes of this study is the improvement on teacher/student relationship, behavior problems en quality of life. In study I the baseline score is being compared with the score directly after training and 6 months after training.

In study II is an extra measure after 12 months, only if the child respond sufficiently to the intervention developed by the Bascule. If the child doesn't

respond sufficiently to the intervention developed by the Bascule, it will get an extra measure after the Cogmed intervention.

Study description

Background summary

Attention- and working memory deficits are common deficits for the population of clinically referred school age children seen at the Department of Child Psychiatry and Learning disabilities of the Academic Center of Child and Adolescent Psychiatry, the Bascule in the Netherlands. These children suffer mostly from academic problems combined with child psychiatric comorbidity such as Attention Deficit Hyperactivity Disorder, Pervasive Developmental Disorder, Anxiety disorders or other common child psychiatric problems.

Studies show that children with Attention Deficit Hyperactivity Disorder (ADHD) often suffer from deficits in executive functions, such as attentional control, inhibition and working memory (Barkley, 1997; Willcutt et al., 2005). It is known that these executive functions play an important role in academic performances (Bull and Scerif, 2001). Especially working memory skills are associated with problems in learning and poor classroom behaviour (Aronen et al., 2005; Gathercole et al., 2000). Individuals with poor working memory function are at risk of poor educational progress, meaning that over 85% of children with poor working memory have problems in reading or mathematics (Gathercole & Alloway, 2008). They suggest these children often suffer from working memory overload during learning tasks.

Recently, studies have shown that the Cogmed Working memory Training not only has positive outcomes on working memory deficits, but also showed better performance on related executive function tasks such as logic reasoning and response inhibition and still continued to show effects after 3 months (Klingberg et al., 2002; 2005).

Interestingly, Holmes and colleagues (2009) showed with there study that academic achievement improved as well in children with working memory deficits that followed this training. These effects remained consistent after 6 months.

Some studies so far that paid attention to education were promoting (Holmes e.a., 2009; Mezzacappa e.a., 2010), but paid little attention to academic achievement. More research to study the effects of classroom behaviour and academic achievement is needed. So far, other studies only used teacher ratings, left out academic achievement, or had a sample size that was too small. But recent research showed that measures for effectively spent learningtime, on-task behavior and teacher-student relationship are important indicators for improving academic achievement and classroom behaviour. In this study we want to integrate all these measures. Finally, from clinical practice we know that improving working memory has positive outcomes on functioning in everyday life

and that this is scarcely investigated in past research. So this study wants to investigate the effects on everyday life.

Study objective

The aim of study I is to compare the two working memory interventions, Cogmed and the intervention developed by the Bascule, in a sample of 100 children with ADHD and working memory deficits, aged between 8 and 12 years old. Effects on working memory, effectively spent learningtime, on-task behavior and effects on everyday life are being studied.

The aim of study II is to find traits that determine the response or non-response to the intervention developed by the Bascule. This way we can get insight in the efficiency of both interventions, taking individual traits, severity of the problem and cost into consideration (stepped-care-approach). In this study, 175 children (50 included from study I) between the age of 8 and 12 who get the intervention developed by the Bascule will be followed for a year. Effects on working memory, effectively spent learningtime, on-task behavior and effects on everyday life are being studied.

Study design

Study I is a Randomised Controlled Trial (RCT) in which children will be randomly assigned to the Cogmed working memory training ($n = 50$), or the intervention developed by the Bascule ($n = 50$). Effectiveness of both interventions is being measured with primary outcomes academic achievement and neuropsychological functioning and as secondary outcomes teacher/student relationship, behavior problems and quality of life.

Study II determines the traits that predict the effectiveness of the intervention developed by the Bascule ($n = 175$), in which the non-responders get the Cogmed intervention after 6 months follow-up to investigate these effects.

Intervention

Both interventions are an individual treatment, the duration is the same and both interventions are being administered at school.

Children that follow the Cogmed working memory training, receive a training protocol of 5 weeks, 5 days, 45 minutes and getting support from a trained Cogmed-coach, in which the working memory is being trained and the coach directs the teacher.

The duration of the intervention developed by the Bascule is the same as Cogmed. This intervention is less specifically aimed on only working memory,

but also aim*s at targeted behavior and is contextual. Memory interventions based on theory(Dehn, 2008; Gathercole & Alloway, 2008)are being offered to the child, in which a assignment book helps.

Study burden and risks

Both Cogmed and the intervention developed by the Bascule are being offered as treatment within the Bascule with as goal to improve working memory deficits. We expect that children will have enough benefit from the intervention developed by the Bascule. If children do not benefit sufficiently, Cogmed can be given as well. Possible risk of the intervention: premature failure of children in the experimental groups. Careful guidance and information for the family should limit this. Weekly appointments advance motivation of the trainers and ensure that correction is possible.

Within study I, the strain for children consists of the 3 measures that are being accomplished (neuropsychological research and academic performance) that each take about 2 hours.

Within study II, the strain for children consists of the 4, and at insufficiently respond 5, measures that are being accomplished (neuropsychological research and academic performance) that each take about 2 hours.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age

Children (2-11 years)

Inclusion criteria

- clinically referred children with AD(H)D
- age between 8 and 12 years old
- working memory deficit

Exclusion criteria

- Diagnose autism spectrum disorder, depression, conduct disorder and anxiety disorder
- Total Intelligence quotient <80
- Significant problems in the use of the Dutch language
- Severe sensory disabilities

Study design

Design

Study type: Interventional

Masking: Double blinded (masking used)

Control: Uncontrolled

Primary purpose: Treatment

Recruitment

NL

Recruitment status: Recruitment stopped

Start date (anticipated): 07-02-2012

Enrollment: 225

Type: Actual

Ethics review

Approved WMO	
Date:	03-02-2012
Application type:	First submission
Review commission:	METC Amsterdam UMC
Not approved	
Date:	06-07-2012
Application type:	Amendment
Review commission:	METC Amsterdam UMC

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
CCMO	NL36821.018.11