Case Study 1: An Evidence-Based Practice Review Report

Theme: Interventions implemented by parents

How effective are behavioural parent training programmes combined with organisational skills training for improving the academic functioning of adolescents with ADHD?

1. SUMMARY

The aim of this study was to review the evidence for parent interventions that support the improvement of academic functioning for adolescents with Attention Deficit Hyperactivity Disorder (ADHD). Behavioural parent training (BPT) combined with organisational skills training amalgamates evidence-based research on behavioural interventions that support elementary school children (Barkley et al., 2001; Fabiano et al., 2009), with school-based organisational skills interventions for adolescents (Evans et al., 2011). The current review aimed to provide analysis of whether programmes that support adolescents at home by improving parent understanding and reinforcement of positive habits, would lead to improved academic functioning.

A systematic review of the literature found seven studies which met the inclusion criteria. Gough's (2007) 'Weight of Evidence' framework was used to critically appraise each study for methodological quality and relevance. The report concluded that BPT combined with organisational skills

training is a promising intervention for improving parental report of adolescent academic functioning. However, more research needs to be done to understand if these findings can be replicated in the UK and whether elements of the programmes can be tailored to individual parents and adolescents to improve wider academic outcomes. The paper finishes with a discussion around limitations and recommendations for practice.

2. INTRODUCTION

2.1 Attention Deficit Hyperactivity Disorder and adolescents

Attention-deficit/hyperactivity disorder (ADHD) is a neurodevelopmental disorder that manifests early in childhood. According to The Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM–5; American Psychiatric Association [APA], 2013), it is characterised by symptoms of inattention, hyperactivity and poor impulse control and associated with impairment across multiple domains of functioning (APA, 2000). Global estimates suggest that between 5% and 10% of children are diagnosed with ADHD (National Institute for Health and Care Excellence [NICE], 2018) with some studies putting it as high as 13% of 12-17 year-olds (Bitsko et al., 2022). Amongst adolescents, ADHD is considered the most common behavioural disorder.

In school, failure to complete homework, poor study skills, poor organisation, low grades, and arguing with peers and teachers are typically reported for teenagers with ADHD, as well as higher rates of school exclusion relative to their peers (Barkley et al., 1990). In line with this,

parents report school functioning problems to be their main concern (Robin, 1998). However, positive treatment in childhood has failed to produce successful long-term effects (Molina et al., 2009).

All teenagers face challenges such as managing more complex academic environments (Eccles, 2004), building increasingly complex relationships (Steinberg & Morris, 2001) and impulsivity to choose activities which incur serious negative consequences (Flory et al., 2006). Adolescents with ADHD possess difficulties that intensify these. Executive functioning difficulties i.e. organisation, time management and planning; and motivation deficits i.e. dislike for difficult tasks; are common in young people with ADHD. These may prevent teens from engaging positively with the demands of secondary school (Langberg et al., 2013). Executive functioning and motivation deficits can also exacerbate irresponsible adolescent decision-making (Casey et al., 2008). This combination makes academic functioning harder and significantly hinders the achievement of educational milestones in teenagers with ADHD (Chan et al., 2016).

2.2 Behavioural parent training (BPT) combined with organisational skills training

Historically, medication has been the main treatment in dealing with ADHD symptoms and functioning, particularly in the U.S.A, with up to 69% of 6-11-year-olds estimated to be taking medication there (Bitsko et al., 2022). However, research shows caregivers prefer behavioural interventions over medication as the main treatment option (Daley et al., 2018), and with increased sensitivity to medication stigma and less daily parental influence

on them (Smith, 2007), most teenagers eventually refuse the use of ADHD medication (McCarthy et al., 2009). Therefore, there is a need to find alternative treatment options.

Behaviour parent training (BPT) is an evidence-based psychosocial treatment for ADHD in children (Fabiano et al., 2009). At school age, BPT interventions often occur between parents and teachers (Pelham & Fabiano, 2008). However, by secondary school, teachers regularly expect students to be independent and the implementation of behavioural treatment decreases (DuPaul & Weyandt, 2006). This has led to the development of a small number of programmes, specifically aimed at adolescents and the complex skills that they need to utilise to be successful (organisational skills training), that can be supported and monitored by parents. Creating an active role for teenagers with ADHD in their treatment is also important to promote autonomy (Weiss et al., 2008). However, interventions still require adult involvement as positive parental involvement in home and school work predicts higher grades and academic achievement (Cooper et al., 2000). Therefore, parent-teen collaboration and alliance are emphasised.

Within this review, combined BPT with organisational skills training is defined as programmes which combine components that 1) develop strategies for positive behaviour reinforcement and structured home environments that reward skill use, 2) target academic and organisational skills, 3) engage parents and adolescents in collaboration and 4) build family-school collaboration.

2.3 Psychological theory

BPT interventions are based on behaviour management principles from social-learning theory e.g. modelling theory by (Bandura, 1977). These assert that behaviour can be influenced by antecedents and consequences and therefore if parents model positive behaviours and routines, children will learn from observing them and they will be reinforced. The hypothesised deficits in executive functioning skills in people with ADHD, might lead to excessive impulsivity and poor motivation (Sonuga-Barke, 2003). Through cognitive strategies of self-regulation and motivational interventions to improve delay acceptance, it is hypothesised that ADHD symptoms might improve, and in turn this will positively impact on completing academic work (Evans et al., 2011). The skills training targets specific ADHD-related difficulties, such as organisation, time management, study skills and homework skills. Through BPT training, parents learn to spot, model and reinforce positive academic behaviours.

The other component of this intervention is in building alliance with parents, adolescents and schools. It is hypothesised that verbal impulsivity and emotional regulation difficulties may increase the intensity of negative interactions and parent-teen conflict which leads to lower engagement in support (Edwards et al., 2001). BPT programmes aim to counteract this, by utilising research-based family therapy models of delivery that promote a client-centred approach (Rogers, 1956) to working, building relationships and reframing problems, alongside emphasising the self-determination theory approach (Ryan & Deci, 2000) with parents understanding that autonomy for the adolescent needs to be at the heart of behavioural change.

2.4 Rationale and Relevance for Educational Psychology

Long term studies reveal that ADHD treatments delivered in childhood do not prevent negative outcomes in adolescence and adulthood (Mannuzza et al., 2008). In fact, the persistence of ADHD symptoms in teenagers is the strongest predictor of young adult educational outcomes (Hechtman et al., 2016). Despite serious academic impairments, the lack of support in secondary schools to implement behavioural interventions, and the research that shows parental involvement in schooling can improve academic achievement and motivation (Dearing et al., 2006), there has been no review of research into the effectiveness of BPT combined with organisational skills training, specifically for adolescents with ADHD. With the high prevalence of ADHD in adolescents, it is important that parents, schools and Educational Psychologists understand evidence-based interventions which can support teenagers with these difficulties.

2.5 Review question

How effective are behavioural parent training programmes combined with organisational skills training for improving the academic functioning of adolescents with ADHD?

3. CRITICAL REVIEW OF THE EVIDENCE

3.1 Literature Review

The databases PsycInfo, Medline and ERIC (EBSCO) were searched due to the review topic spanning psychology, medicine and education. They were searched on 13th January 2023. The search terms outlined in Table 1 were used. An ancestral search also generated two new articles for inclusion.

After duplicates were removed, 280 studies were screened against the inclusion and exclusion criteria outlined in Table 2, initially by title screening, followed by abstract screening. Finally, the full text of fifteen studies was screened. Eight of these studies did not meet the criteria, as detailed in Appendix A. Seven studies met the criteria for inclusion (Table 3). The full screening process is shown in Figure 1. Further information on each study included in this review is outlined in Appendix B.

Table 1

Database Search Terms

INTERVENTION		**PARTICIPANT**		**ADHD**
Behavio* parent* training OR BPT OR skill* training OR organi* skill* training OR academic training OR parent* intervention	A N D	Adolescen* OR Teen* OR "Secondary school" OR "Middle school" OR "High school"	A N D	ADHD OR "Attention Deficit Hyperactivity Disorder" OR "attention-deficit/hyperactivity disorder" OR "ADD" OR "Attention Deficit Disorder" OR "Attention deficit with hyperactivity disorder"

Note. The asterisk (*) is used to search for different word endings. For example: behaviour, behavior, behavioural etc.

Table 2

Inclusion and exclusion criteria of studies for current review

Study Feature	Inclusion Criteria	Exclusion Criteria	Rationale
1) Types of publications	Peer-reviewed journal articles.	Non-peer reviewed journal articles.	Peer-reviewed journal articles have been quality assured and are therefore of a higher quality and credibility.
2) Language	Studies published in the English language.	Studies published in a language other than English.	The author of this review does not have resources for translation.
3) Country of study	Study conducted in an Organisation for Economic Cooperation and Development (OECD) country.	Studies conducted in non-OECD countries.	OECD countries are considered more comparable to a UK context because they have similar educational contexts. Non-OECD countries are not as similar as they have differing educational systems and policies.

Study Feature	Inclusion Criteria	Exclusion Criteria	Rationale
4) Research design	Empirical studies including: Randomised Control Trials (RCTs), quasi-experimental studies, single case experimental designs, cohort studies, systematic reviews	Qualitative studies, surveys and descriptive studies.	This review looks at the effectiveness of an intervention. These criteria are based on Petticrew and Roberts (2003) typology of suitable studies for this review question and previous systematic reviews of this topic. No time span was specified, due to there being very few research studies in this topic area.
5) Target of Intervention	Adolescents aged 11-17	Study includes children under the age of 11 and adolescents over the age of 17.	This review aims to focus on children from the start of secondary or middle school. This is 11 years of age. The symptom criteria for ADHD in the DSM-5 changes from age 17 (six) to 18 (five) suggesting a potential difference between the two ages. This difference in symptoms may affect intervention selection and response.

Study Feature	Inclusion Criteria	Exclusion Criteria	Rationale
6) Diagnosis	All study participants who met the criteria for ADHD in DSM-5.	Adolescents who did not meet the criteria for ADHD.	This study is looking at the target population of those with ADHD.
7) Outcome measures	a) Studies that include at least one quantitative measure of academic functioning, such as Grade Point Average (GPA), including baseline measurements. b) A quantitative measure of a behavioural or organisational aspect of academic work including baseline measurements, such as the parent rated Homework Problems Checklist (Anesko, Schoiock, Ramirez & Levine, 1987) or teacher reported percentage of homework turned in.	Studies which do not include a measure of academic outcome, do not report the change over time, or only provide qualitative descriptions of change.	This review question is focused on the improvement of academic functioning outcomes. Exam, quiz and homework grades are a measure of this. As the intervention also aims to improve the organisational skills of adolescents, the author wanted to find studies that looked at the effect of the intervention on these skills and behaviours as well as the effect on academic grades.

Study Feature	Inclusion Criteria	Exclusion Criteria	Rationale
8) Intervention	a) Parent training involves sessions combining behavioural parent training (BPT) with organisational skills training focused on academic development. b) Intervention must have more than 75% of its training content delivered to the parent directly and include the parent practicing the technique at home.	a) Studies which do not contain elements of BPT and organisational skills training. b) Interventions that are predominantly targeted towards the adolescent. c) Interventions that had less than 50% attendance of parents across the course of the intervention.	This review is looking at the specific interactions between these two evidence-based elements of intervention delivered by parents and the academic functioning of adolescents.

Figure 1

PRISMA flowchart illustrating the study identification, screening and selection process (Moher et al., 2009).

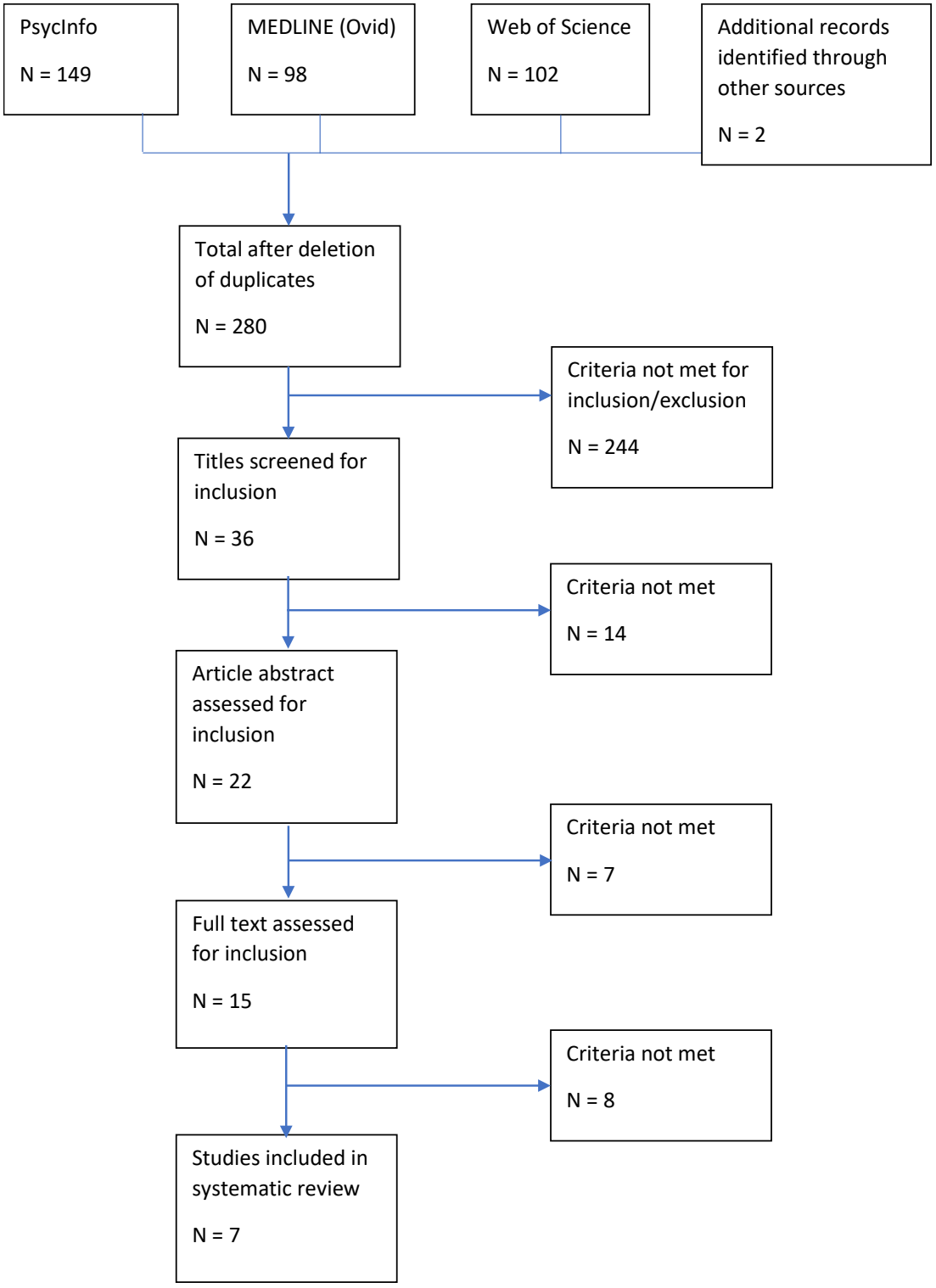

Table 3

Reference list of the seven studies included in this review

Studies included in the review

Hogue, A., Fisher, J. H., Dauber, S., Bobek, M., Porter, N., Henderson, C. E., & Evans, S. W. (2021). Randomized trial of academic training and medication decision-making for adolescents with ADHD in usual care. *Journal of Clinical Child and Adolescent Psychology*, *50*(6), 874–887. https://doi.org/10.1080/15374416.2020.1716362

Raggi, V. L., Chronis-Tuscano, A., Fishbein, H., & Groomes, A. (2009). Development of a brief, behavioral homework intervention for middle school students with attention-deficit/hyperactivity disorder. *School Mental Health: A Multidisciplinary Research and Practice Journal*, *1*(2), 61–77. https://doi.org/10.1007/s12310-009-9008-7

Sibley, M., Altszuler, A., Ross, J., Sanchez, F., Pelham, W., & Gnagy, E. (2014). A Parent-Teen Collaborative Treatment Model for Academically Impaired High School Students With ADHD. *Cognitive and Behavioral Practice*, *21*(1), 32–42. https://doi.org/10.1016/j.cbpra.2013.06.003

Sibley, M. H., Graziano, P. A., Coxe, S., Bickman, L., & Martin, P. (2021). Effectiveness of Motivational Interviewing-Enhanced Behavior Therapy for Adolescents With Attention-Deficit/Hyperactivity Disorder: A Randomized Community-Based Trial. *Journal of the American Academy of Child and Adolescent Psychiatry*, *60*(6), 745–756. https://doi.org/10.1016/j.jaac.2020.07.907

Sibley, M. H., Graziano, P. A., Kuriyan, A. B., Coxe, S., Pelham, W. E., Rodriguez, L., Sanchez, F., Derefinko, K., Helseth, S., & Ward, A. (2016). Parent–teen behavior therapy + motivational interviewing for adolescents with ADHD. *Journal of Consulting and Clinical Psychology*, *84*, 699–712. https://doi.org/10.1037/ccp0000106

Sibley, M. H., Pelham, W. E., Derefinko, K. J., Kuriyan, A. B., Sanchez, F., & Graziano, P. A. (2013). A Pilot Trial of Supporting teens' Academic Needs Daily (STAND): A Parent-Adolescent Collaborative Intervention for ADHD. *Journal of Psychopathology and Behavioral Assessment*, *35*(4), 436–449. https://doi.org/10.1007/s10862-013-9353-6

Sibley, M. H., Rodriguez, L., Coxe, S., Page, T., & Espinal, K. (2020). Parent–Teen Group versus Dyadic Treatment for Adolescent ADHD: What Works for Whom? *Journal of Clinical*

Child & Adolescent Psychology, *49*(4), 476–492.

https://doi.org/10.1080/15374416.2019.1585257

3.2 Weight Of Evidence

Gough's (2007) Weight of Evidence (WoE) Framework was used to assess the selected studies. The research was systematically evaluated, based on three dimensions: methodological quality, methodological relevance and topic relevance.

WoE A considered the methodological quality of each piece of research. For six of the studies an adapted version of Kratochwill's (2003) group intervention protocol was used. This coding protocol was considered to be the most relevant for the six RCT studies because it is very detailed in its analysis of the methodology. Five out of six of the reviewed studies were carried out by the researcher who developed the Supporting Teens' Autonomy Daily (STAND) intervention and therefore this review needed to be able to pick out detailed differences between each study. See Appendix C for details of adaptations to this protocol, criteria used to score methodological quality and results. For one study, the single-subject research design coding protocol by Horner et al. (2005) was used because this was considered to be the most relevant and detailed for this type of design. See Appendix D for criteria and results. WoE B considered the methodological relevance of the research and how appropriate it was to the review question. This is based on the recommendations of Petticrew and Roberts (2003) typologies of evidence (Appendix E). WoE C considered the topic relevance of each study for the current review question and calculated an average rating for the criteria (Appendix F).

The ratings for WoE A, B and C were averaged to give an overall WoE D rating (Table 4). These scores were categorised into low (1.4 and below), medium (1.5 – 2.4) and high (above 2.4). WoE D calculates the overall strength of each study in answering the current review question. Appendices G and H detail the coding for each study.

Table 4

Summary of Weight of Evidence

Study	WoE A	WoE B	WoE C	WoE D
Hogue et al., 2021	0.8	1	1.5	1.1 (Low)
Raggi et al., 2009	1.7	1	1.25	1.3 (Low)
Sibley et al., 2013	1.8	2	1.5	1.8 (Medium)
Sibley et al., 2014	1.3	2	1.25	1.5 (Medium)
Sibley et al., 2016	2.5	3	1.25	2.3 (Medium)
Sibley et al., 2020	2.0	1	1.75	1.6 (Medium)
Sibley et al., 2021	2.0	3	1.5	2.2 (Medium)

Note. <1.4 is low; 1.5-2.4 is medium; >2.4 is high

3.3 Participants

Across all seven studies, 744 parents (accounted for by the number of adolescents) were involved in trials to look into the effectiveness of combined behaviour and organisational skills training. The ages of the adolescents ranged from 11 – 17, with the mean age being 13.8 years old. Across all studies the gender balance for adolescents was predominantly male (70.5%).

All seven studies planned for a parent and teacher corroborated diagnosis of ADHD as specified by the DSM-5 (or most recent version at time of research). All parents were interviewed using a diagnostic screening tool and were backed up by teacher ratings of symptoms as is recommended practice (Pelham Jr. et al., 2005). In six of the studies, these ratings were assessed by clinicians to include or exclude participants. In the Raggi et al. (2009) study, only 8 out of 11 met The DSM-IV-TR (4th ed., text rev.; APA, 2000) ADHD criteria, but were still included in the study findings. This was reflected in a lower score in WoE C.

There was a notable difference in participant numbers across the studies with Sibley et al. (2021) having 278 participants, whereas Raggi et al. (2009) included 11 children and parents. Three studies (Raggi et al., 2009; Sibley et al., 2013; Sibley et al., 2014) were pilot studies with small sample numbers. This was reflected in the WoE B criteria.

All studies identified the percentage of participants that were currently using ADHD medication. Overall, the rate was 36.2% although the difference between studies ranged from 27% - 73%. Six studies asked participants to control for medication use during the study by keeping levels the same

throughout. Hogue et al. (2021) allowed for changes in medication use because it was looking at the impact of training on changes in uptake. This led to a lower score for relevance in WoE C.

All studies tested for group equivalence. Where sample groups were comparative in terms of characteristics such as medication, this contributed to a strong WoE A rating.

Finally, all seven studies were conducted in the USA which is an OECD country and therefore has some educational similarities to the UK. Five of the studies were carried out in Florida, U.S.A., where there is a large Latino and Caribbean influence. Therefore, the majority of parents and students across all the studies were Hispanic (71%). Due to possible differences in cultural influence, a lower score of cultural relevance was given in WoE C. Other characteristics that were considered to make up an unrepresentative sample group and therefore low WoE C rating included a mean average income of $152,000 and 73% level of private school attendance (Raggi et al., 2009).

3.4 Setting

The Hogue et al. (2021) study was conducted in outpatient behavioural care clinics and the specific additional factors influencing those participants in that setting, such as substance abuse, were considered to be less generalisable to the wider population. This was reflected in the low WoE C score. Five studies were conducted at a university clinic. Four of these had close supervision from the research director and received lower scores on WoE C because they are harder to replicate. One study (Sibley et al., 2021)

was conducted in the community and trainers were community clinicians. This was reflected in a higher score in WoE C.

3.5 Study Design

Six studies used a randomised control trial (RCT) to ensure comparable characteristics across conditions. One study (Raggi et al., 2009) used a single-subject case design. Petticrew and Roberts (2003) identified RCTs as the most appropriate research design for answering effectiveness questions. Therefore, this was reflected in the WoE B ratings. All six RCTs stated that participants were randomly allocated to groups, which helps to reduce the likelihood of selection bias. The Hogue et al. (2021) study and the Sibley et al. (2021) study were both based across multiple clinics. This meant participant allocation to treatment was nested within sites. The analysis of both of these studies took account of possible effects of site, but no significant differences were found.

Three of the six RCT studies (Sibley et al., 2013; 2016; 2021) used a 'treatment as usual' control group where participants were either offered a different treatment within the same clinic or sought alternative treatment elsewhere. This received higher WoE A ratings. Two RCT studies, (Hogue et al., 2021; Sibley et al., 2020) compared different versions of the same interventions. Effect size of the different groups had to be calculated from within group. This received a lower WoE A score. One study (Sibley et al., 2014) used a 'wait-list' control group and therefore received a lower WoE B rating. Having an active control group helps to determine if any beneficial

effects are because of the active components of the specific intervention, rather than receiving attention and expecting treatment.

3.6 Academic Functioning Measures

All seven studies used a variety of measures to assess adolescent academic functioning. Studies scored higher on WoE A for the wider range of measures and the wider source of the report e.g. school, parent and adolescent reports.

All studies provided curriculum-based measures of academic achievement. Hogue et al. (2021) used adolescent reported school grades. The researchers stated that teen self-report is reasonably valid (Crockett et al., 1987). However, other research has shown that adolescents with ADHD are notoriously bad at reporting their own functioning (Fischer et al., 1993). This was therefore considered to be a weak measure in WoE A. Sibley et al. (2014) used one-month average assignments and quiz grades whereas the other four Sibley et al. studies used teacher rated core subject GPA scores averaged across 3 months. The main issue with using average scores across multiple subjects is that the measure is unlikely to be sensitive to changes in performance over a short period of time and therefore less relevant for this review question. These measures were therefore given lower scores in WoE A. For pragmatic reasons of teacher workload, Raggi et al. (2009) only used one data point at each stage of baseline, post-treatment and follow-up. As a single-subject case design, this measure was given a lower rating in WoE A.

All seven studies measured wider academic functioning skills which are included in this review. Two studies, Hogue et al. (2021) and Raggi et al.

(2009), used the parent reported Homework Problems Checklist, (Anesko et al., 1987). This has good levels of internal reliability (α=0.91) and has been shown to be sensitive to treatment effects. However, it has not been validated specifically with the target population. Additionally, Raggi et al. (2009) used the Academic Performance Rating Scale (APRS; DuPaul et al., 1991). As a teacher rated assessment of academic performance, this psychometric test has good reliability and scored higher on WoE A.

The parent and teacher rated Adolescent Academic Problems Checklist (AAPC; (Sibley et al., 2014) was also used. This tool was designed by the researcher and given a low WoE A score as there was little reliability or validity information provided (Sibley et al., 2013; 2016). In the later studies (Sibley et al., 2020; 2021) researchers stated that it had been refined and had strong internal reliability (α=0.91) and concurrent validity and so scored higher. Finally, Sibley et al. (2013; 2016) used a measure of recorded homework and Sibley et al. (2014) used a measure of % assignment turn-in. These two measures are used to assess academic organisation as an outcome of the intervention. There is no indication of reliability or validity with this and they were considered weak measures in WoE A.

3.7 Intervention

These seven studies evaluated three different BPT and organisational skills training programmes. Two studies contained separate training sessions for parents and adolescents (Sibley et al., 2014; 2020) but all studies were included because more than 75% of sessions involved parents. The amount of programme detail was reflected in WoE A ratings.

All training was carried out weekly for between 5 weeks (Raggi et al., 2009) and 20 weeks (Hogue et al., 2021) and sessions with specific training elements ranged from an average of 12.4 minutes per session (Hogue et al., 2021) to 90 minutes (Raggi et al., 2009, Sibley et al., 2014; 2020).

Adherence data was collected for five studies. This showed parental rated adherence to implementing strategies varied between 53% - 93%. Similarly, therapist fidelity to training varied significantly. Raggi et al. (2009) stated therapist procedural fidelity to intervention was 100%, whereas Sibley et al. (2021) ranged from 85% in skills sessions to 24% in planning sessions. And Hogue et al. (2021) had a flexible model of delivery which meant fidelity varied across all participants. The strength of training and intervention fidelity where provided, was included in WoE A ratings.

3.8 Findings and Effect Sizes

Each study's academic functioning findings were collated and effect sizes calculated to compare results. Cohen's d effect size could not be calculated for GPA scores in two studies (Hogue et al., 2021; Sibley et al., 2021) due to missing data (standard deviations or means). These studies received lower WoE A ratings. Table 5 reports the effect size descriptors to support the interpretation of these values. A summary of each of the study's academic functioning findings and effect sizes can be seen in Table 6.

Table 5

Effect size descriptors for Cohen's d, (1988)

Cohen's d	Descriptor

0.8	Large
0.5	Medium
0.2	Small

Table 6

Effect sizes and WoE D ratings and descriptors

			Baseline to follow up			
Study	Sample Size	Relevant Outcome Measure	Cohen's d	Effect size descriptor	Significance value	Overall WoE D
Hogue et al., 2021 (CASH-AA)	N=145	1. GPA	N/A[a]	N/A[a]	N/A[a]	1.1 (Low)
		2. Homework problems checklist (parent)	0.57	Medium	p<0.001[c] *	
Raggi et al., 2009 (HIP)	N=11	1.Grades report				1.3 (Low)
		2.Homework problems checklist (parent)		N/A[b]		
		3.Academic performance rating scale (teacher)				

Study	Sample Size	Relevant Outcome Measure	Cohen's d	Effect size descriptor	Significance value	Overall WoE D
Sibley et al., 2013 (STAND)	N=36	1.GPA	0.25	Small	p<0.05*	1.8 (Medium)
		2.Academic problems (parent report)	1.30	Large	p<0.05*	
		3. Academic problems (teacher report)	0.00	None	Non-sig	
		4.Planner use	5.15	Large	p<0.05*	
Sibley et al., 2014 (STAND-G)	N=23	1.Average assignment grade	Gp 1 = -0.21 Gp 2 = -0.06	None None	0.84 0.72	1.5 (Medium)
		2.Average quiz grade	Gp 1 = -0.10 Gp 2 = 0.00	None None	0.72 0.14	
		3.% assignments turned in	Gp 1 = 0.50 Gp 2 = 0.15	Medium None	0.77 0.82	

Study	Sample Size	Relevant Outcome Measure	Cohen's d	Effect size descriptor	Significance value	Overall WoE D
Sibley et al., 2016 (STAND)	N = 128	1.GPA	0.31	Small	0.45	2.3 (Medium)
		2.Academic problems (parent)	1.01	Large	p<0.001*	
		3.Academic problems (teacher)	0.08	None	0.90	
		4. Homework recording	0.07	None	p=0.63	
Sibley et al., 2020 (STAND)	N=123	1.GPA	0.45	Small	p=0.03[c*]	1.6 (Medium)
		2.Academic problems (P)	1.23	Large	p<0.001[c*]	
		3.Academic problems (T)	0.80	Large	p=0.01[c*]	
(STAND-G)		1.GPA	0.28	Small	p=0.03[c*]	
		2.Academic problems (P)	1.25	Large	p<0.001[c*]	
		3.Academic problems (T)	0.93	Large	p=0.01[c*]	

Study	Sample Size	Relevant Outcome Measure	Cohen's d	Effect size descriptor	Significance value	Overall WoE D
Sibley et al., 2021 (STAND)	N = 278	1.GPA	N/A[a]		N/A[a]	2.2 (Medium)
		2.Academic impairment (P)	0.57	Medium	Non-sig	
		3.Academic impairment (T)	0.24	Small	Non-sig	

Notes. The acronym CASH-AA stands for Changing Academic Support in the Home for Adolescents with ADHD

The acronym HIP stands for Homework Intervention Programme

The acronym STAND stands for Supporting Teens' Autonomy Daily

The acronym STAND-G stands for Supporting Teens' Autonomy Daily - Group

*The results reached statistical significance.

[a] Insufficient data in paper to calculate effect size or p value.

[b] No statistical analyses were conducted. Qualitative analysis provided.

[c] Effect size refers to within-group effects (i.e. pre- and post- measures of same group).

[d] Post-treatment data provided rather than follow-up

Raggi et al. (2009) collected 100% of data at baseline but only 36% of data during the follow-up phase from parents. Visual analysis of the results showed that 10 out of 11 participants showed a decline in the Homework Problems Checklist (HPC) from baseline to follow-up, with 8 out of 11 being below the baseline for clinical cutoff and therefore showing good improvement. However, only 2 out of 11 participants had more than 1 data collection point for follow-up. GPA data showed 7 participants had an improvement from baseline to treatment completion. Again, data collection was weak and results must be interpreted with caution

Visual analysis of the Academic Performance Rating Scale (APRS) showed that 5 out of 11 participants demonstrated improvement from pre- to post- treatment as rated by all teacher, with 1 participant demonstrating improvement with the majority of teachers. Teacher agreement was poor for the other participants. Follow-up data demonstrated that teachers did not agree and was therefore not provided.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusion

This review evaluated the effectiveness of combined BPT with organisational skills training on the academic functioning of adolescents with ADHD. Seven studies met the inclusion criteria and were evaluated using Gough's (2007) WoE framework. Five had a 'medium' rating and two had a 'low' rating.

Results were mixed. Two studies found a significant, small effect on academic grades. Two studies did not report enough information to calculate the effect size, one study found a non-significant small effect, and the single subject case study reported an effect the difference between a C+ and a B-.

Although a good marker of academic functioning, GPA is considered to lack sensitivity in responding quickly to changes in study habits and therefore these mixed but small results are possibly not surprising considering the short duration of training and follow-up in the majority of studies.

Four studies showed a significant effect on parental rated scores of academic and homework problems. These ranged from medium to large effect sizes. Although parents were not blinded to experimental conditions, this finding was replicated across studies and therefore is of note (Hogue et al., 2021; Sibley et al., 2013; 2016; 2020). However, this finding was not replicated by teacher rated scores. Only one study showed significant results for teachers (Sibley et al., 2020).

Two studies (Sibley et al., 2013; 2016) looked at specific organisational skills to support academic functioning. These both showed large effect sizes between baseline and post-treatment but this effect was not maintained 6 months later in the 2016 study. These skills were explicitly taught and so the short-term result is good. However, producing a durable outcome needs further research.

Studies analysing the factors that impact on results showed the complex nature of ADHD and working with parents and adolescents. Future studies need to look into the effects of family risk factors, as this has been highlighted as having an impact on outcomes of success (Sibley et al., 2020). Training dosages, follow-up support and therapist training level have also been highlighted (Sibley et al., 2021). ADHD presents itself in different ways and statistics suggest that between 15% and 40% (Starck et al., 2016) of parents of children with ADHD are likely to have it themselves. More research on specific elements of the programmes and how to match parent and adolescent impairment to the most appropriate intervention and support could improve results.

Overall, these study results suggest that BPT combined with organisational skills training programmes provide some benefit on the parent rating of their child's academic impairments. However, how this can be translated into an objective, durable academic impact for the adolescent, needs more research. These findings are in line with Zwi et al. (2011) who conducted a literature review on parent training interventions for children aged 5 – 18 years of age. They found mixed results between studies, with

positive results for parent training when ADHD was not comorbid with oppositional defiant disorder as well as outcomes being better for girls and for those on medication. The current studies on adolescents did not break down the results in this way, and therefore this reiterates the need for further research into who would benefit most from specific elements of this intervention.

4.2 Limitations and recommendations

A key limitation of this research was that due to the lack of studies in this area, five studies were carried out by one group of scientists, one of whom designed the treatment programme and receives royalties for publishing treatment research. This has an impact on the validity of the findings as there is a possibility of bias and conflict of interest.

Secondly, the results are difficult to generalise because the sampling of participants is very limited. All studies were carried out in the U.S.A. where the use of medication for ADHD is 10 times higher than in the U.K (Beau-Lejdstrom et al., 2016), and had unrepresentative samples. More studies need to be undertaken with larger samples, across a wider cross-section of the population and from a wider research base.

Thirdly, study conditions were highly controlled and the one study (Sibley et al., 2021) that tried to replicate community-based intervention produced poor results. More research therefore needs to be carried out in community and school settings to look at which factors best support larger numbers of parents to have a positive impact.

Finally, parents and adolescents were not blinded to conditions. This knowledge in treatment groups and control groups could have led to a change in attitude and therefore affected the self-reported levels. Future studies need to look more specifically at which elements of the programmes create positive results.

4.3 Implications for EP practice

The statistics on outcomes for adolescents with ADHD show that there is a need to support this group of students to be successful in school and go on to be successful adults. BPT combined with organisational skills training has a limited effect on the academic functioning of adolescents. Previous literature reviews on children of all ages has shown evidence of differences in effectiveness depending on factors such as gender and diagnosis of other disorders. Therefore, the author recommends further exploration of this approach by EPs with careful monitoring of specific elements of the intervention to see which groups of individuals perform best.

The review showed that this combined intervention may have a stronger effect on the attitudes of parents towards their child's academic functioning than other measures. Better parent-teen relationships and engagement in support is part of the theory to bring about improvement. The study that produced the biggest effect in this area also had the highest WoE D rating (Sibley et al., 2016). This study was unique in offering Motivational Interviewing (MI) as an element of the intervention. This review therefore recommends that more research be done to look into how parent training alongside MI can be used most effectively. MI is the fourth most popular

therapeutic approach to be used by EPs in secondary schools (Atkinson et al., 2011). Therefore, combining parent training with MI and organisational skills may provide a common framework for parents to work more closely with schools as well as adolescents, and in turn support not only parents, but adolescents and teachers to see improvement in their academic functioning.

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Zwi, M., Jones, H., Thorgaard, C., York, A., Dennis, J.A. (2011). Parent training interventions for Attention Deficit Hyperactivity Disorder (ADHD) in children aged 5 to 18 years. *Cochrane Database of Systematic Reviews, (12).* https://doi.org/10.1002/14651858.CD003018.pub3.

6. APPENDICES

Appendix A: Table of excluded studies

Table A1

Studies that were excluded after a full text reading, with rationale

Study	Reason for exclusion (criteria number and rationale)
Evans, S. W., Schultz, B. K., Demars, C. E., & Davis, H. (2011). Effectiveness of the Challenging Horizons After-School Program for young adolescents with ADHD. *Behavior therapy*, *42*(3), 462–474. https://doi.org/10.1016/j.beth.2010.11.008	4 – This study was predominantly focused on the adolescent with a limited number of parent calls to check satisfaction levels.
McCleary, L., & Ridley, T. (1999). Parenting adolescents with ADHD: evaluation of a psychoeducation group. *Patient education and counseling*, *38*(1), 3–10. https://doi.org/10.1016/s0738-3991(98)00110-4	8 – This intervention did not include behavioural parent training or organisational skills training.

Molina, B. S. G., Flory, K., Bukstein, O. G., Greiner, A. R., Baker, J. L., Krug, V., & Evans, S. W. (2008). Feasibility and preliminary efficacy of an after-school program for middle schoolers with ADHD: A randomized trial in a large public middle school. *Journal of Attention Disorders, 12*(3), 207–217. https://doi.org/10.1177/1087054707311666	4 – This study was focused on the adolescent with a limited number of parent sessions aimed at supporting the child.
Padilla, R., & Parsons, M. H. (2019). Attention Deficit Hyperactivity Disorder Outcomes Following Remotely Administered Self-Help Training for Parents. *Journal of the American Psychiatric Nurses Association*, *25*(5), 350–359. https://doi.org/10.1177/1078390318814616	5 – Children were aged 9 – 15 years old.
Sibley, M. H., Pelham, W. E., Evans, S. W., Gnagy, E. M., Ross, J. M., & Greiner, A. R. (2011). An evaluation of a summer treatment program for adolescents with ADHD. *Cognitive and Behavioral Practice, 18*(4), 530–544. https://doi.org/10.1016/j.cbpra.2010.09.002	4 – Parents were involved in a limited capacity.

Sibley, M. H., Coxe, S. J., Campez, M., Morley, C., Olson, S., Hidalgo-Gato, N., Gnagy, E., Greiner, A., Coles, E. K., Page, T., & Pelham, W. E. (2018). High versus Low Intensity Summer Treatment for ADHD Delivered at Secondary School Transitions. *Journal of clinical child and adolescent psychology: the official journal for the Society of Clinical Child and Adolescent Psychology, American Psychological Association, Division 53*, *47*(2), 248–265. https://doi.org/10.1080/15374416.2018.1426005	4 – Parents were not involved in both groups and only in a limited capacity.
Sibley, M. H., Coxe, S. J., Zulauf-McCurdy, C., & Zhao, X. (2022). Mediators of psychosocial treatment for adolescent ADHD. *Journal of consulting and clinical psychology*, *90*(7), 545–558. https://doi.org/10.1037/ccp0000743	This used participant data from a combination of studies already included in this review.
Steeger, C. M., Gondoli, D. M., Gibson, B. S., & Morrissey, R. A. (2016). Combined cognitive and parent training interventions for adolescents with ADHD and their mothers: A randomized controlled trial. *Child neuropsychology : a journal on*	8 – This study combined behavioural parent training with a computerized working memory

normal and abnormal development in childhood and adolescence, *22*(4), 394–419. https://doi.org/10.1080/09297049.2014.994485

training program which is outside the remit of included interventions.

Appendix B: Mapping the field

After conducting a systematic literature search, seven studies were identified that researched the effects of behavioural parent training combined with organisational training on the academic functioning of adolescents with ADHD. The key features and differences for each of these studies are detailed in Table B1.

Table B1

Mapping the field

Authors	Location	Study Type & Control Group	Intervention Outline	Number Of Participants	Gender % And age (years)	Primary Recruit-ment criteria	Participant Characteristics	Primary Outcome Variables
Hogue, Fisher, Dauber et al. (2021)	U.S.A	Randomised control trial Comparison of two interventions	Changing Academic Support in the Home for Adolescents with ADHD (CASH-AA) vs CASH-AA + Medication Integration Protocol (MIP) Clinically flexible – average 20.5 sessions with 38% of sessions focused on CASH-AA	145 54 families CASH-AA only 91 families CASH-AA + MIP	72% males Mean age = 14.80	Age: 12-17; primary caregiver able to participate in treatment; Met DSM-5 diagnostic criteria for ADHD or therapist reported clinical assessment of ADHD symptoms	42% White, 37% Hispanic, 15% Black or African American 24% Substance use disorder 42% ADHD medication at baseline Preferred language 81% English, 19% Spanish 51% Single parent 74% household income greater the $30K	Adolescent reported school grades Parent reported Homework Problems Checklist (Anesko, Schoiock, Ramirez & Levine, 1987)

Authors	Location	Study Type & Control Group	Intervention Outline	Number Of Participants	Gender % And age (years)	Primary Recruit-ment criteria	Participant Characteristics	Primary Outcome Variables
Raggi, Tuscano, Fishbein and Groomes (2009)	U.S.A.	Multiple baseline across participant Single-subject case design	Homework intervention programme (HIP) for middle school students with ADHD 5 x sessions lasting 90mins each	11 participants All assessed for intervention effects	Limited information Majority male No info on mean age	Aged 11-14; estimated IQ > 80 (WISC-IV; Wechsler, 2003) Diagnosis of ADHD from parent interview of the Schedule for Affective Disorders for School-Aged Children DSM-IV-TR Parent interview (K-SADs; Orvaschel et al., 1982) Corroborated by parent & teacher Disruptive Behaviour Disorders Rating Scale (DBD; Pelham et al., 1992)	45% African American, 36% Caucasian, 9% Bi-racial, 9% Hispanic 73% attended private school 73% current stimulant medication 27% met criteria for a learning disability 82% parents married Mean household income = $152,000	Parent reported grades Parent rated Homework Problems Checklist Teacher rated Academic Performance Rating Scale (APRS; Du-Paul, Rapport & Parriello, 1991)

Authors	Location	Study Type & Control Group	Intervention Outline	Number Of Participants	Gender % And age (years)	Primary Recruit-ment criteria	Participant Characteristics	Primary Outcome Variables
Sibley, Pelham, Derefinko, Kuriyan, Sanchez, Grazuabi (2013)	U.S.A.	Randomised control trial Treatment group assigned to STAND or a Treatment as Usual (TAU) control group.	Supporting Teens' Autonomy Daily (STAND) 8 x 60mins weekly family sessions plus optional follow up 3 x family problem solving sessions plus 1 x parent coaching session to support with teacher meeting	36 18 = STAND 18 = TAU	72.3% male Mean age = 12.39	Aged 11-15 Met DSM-IV-TR criteria for ADHD using parent interview of Computerized-Diagnostic Interview Schedule for Children (Shaffer et al., 2000). Estimated IQ of 80 or higher (WIAT-II; Wechsler, 2002; WASI; Wechsler 1999) No history of an autism spectrum or psychotic disorder	5.6% Black non-Hispanic, 66.7% Hispanic, 27.8% White non-Hispanic School attendance: 69.4% public, 13.9% charter, 16.7% private 38.9% current medication 22.2% Single parent household	Parent and teacher rated Adolescent Academic Problems Checklist (AAPC; Sibley, 2014) School provided Grade Point Average Score (GPA) Student planner use Parent and teacher rated Impairment Rating Scale (IRS; Fabiano et al., 2006)

Authors	Location	Study Type & Control Group	Specific Intervention Outline	Number Of Participants	Gender % And age (years)	Recruit-ment criteria	Participant Characteristics	Primary Outcome Variables
Sibley, Altszuler, Ross, Sanchez, Pelham Jr., Gnagy (2014)	U.S.A	Randomised control trial of treatment vs wait group that acted as control	Supporting Teens' Academic Needs Daily-Group (STAND-G). 8 x weekly 90mins treatment sessions. 75mins parents only training with separate adolescent only session. 15mins adolescents and parents together	23	69.6% male Mean age = 15.00	Met DSM-IV-TR criteria for ADHD from parent rated Disruptive Behaviour Disorders Rating Scale (DBD; Pelham et al., 1992) Corroborated with teacher symptoms and impairment rating scale Estimated IQ of 80 or higher (WASI; Wechsler, 1999) No history of autism spectrum or psychotic disorder	82.6% Hispanic, 17.4% non-Hispanic Race: White = 87%, Black = 4.3%, Mixed = 8.7% School: Regular and remedial = 30.4% Regular = 47.9% Advanced = 21.7% 60.9% current medication 56.5% single parent household 26.1% parent master's degree or higher education level	Standardised online school assignment grade average Average test/quiz grade Average % assignments turned in

Authors	Location	Study Type & Control Group	Specific Intervention Outline	Number Of Participants	Gender % And age (years)	Recruit-ment criteria	Participant Characteristics	Primary Outcome Variables
Sibley, Graziano, Kuriyan, Coxe, Pelham, Rodriguez, Sanchez, Derefinko, Helseth, Ward (2016)	U.S.A.	Randomised control trial assigned to STAND (treatment group) or Treatment As Usual (control group)	STAND+ motivational interviewing 10 x 50mins family sessions Optional 4 x monthly group sessions	128 adolescents and their parents 67= STAND 61 = TAU	64.9% male Mean age 12.75	Aged 11-15 Met DSM-IV-TR criteria for ADHD using parent interview of Computerized-Diagnostic Interview Schedule for Children (Shaffer et al., 2000) Corroborated with parent and teacher ratings of symptoms and impairment (Pelham Jr. et al., 2005) Estimated IQ of 80 or higher (WASI; Wechsler, 1999) No history of autism spectrum disorder	77.6% Hispanic, 8.8% Non-Hispanic White, 8.0% Non-Hispanic black, 5.5% Other 34.4% current medication	Parent and teacher rated Adolescent Academic Problems Checklist (AAPC). School provided Grade Point Average (GPA) % Student recorded homework Student organisation checklist (Evans et al., 2009)

Authors	Location	Study Type & Control Group	Specific Intervention Outline	Number Of Participants	Gender % And age (years)	Recruit-ment criteria	Participant Characteristics	Primary Outcome Variables
Sibley, Rodriguez, Coxe, Page and Espinal (2020)	U.S.A.	Randomised control trial Comparison of two interventions: group-based parent and adolescent skills training (STAND-G) vs individual parent and adolescent skills training (STAND)	STAND-G = 8 x 90mins weekly sessions. 75mins parents only training, 15mins adolescents and parents together STAND = 10x 60mins weekly parent and adolescent sessions	123 adolescents and their parents 60 = STAND-G 63 = STAND	80.5% males Mean age = 13.61	Aged 11-17 Met DSM-5 criteria for ADHD using parent interview of Diagnostic Interview Schedule for Children (Shaffer et al., 2000) Corroborated with teacher ratings of symptoms and impairment. No history of autism spectrum disorder or intellectual disability (IQ<70; WASI-II; Wechsler, 2011)	85.7% Hispanic, 7.9% Non-Hispanic White, 4.8% Non-Hispanic black, 1.6% Other 42.2% current medication 41.3% Single parent household 26.2% University graduate 28.7% graduate professional training	School rated Grade Point Average (GPA) Parent and teacher rated AAPC

Authors	Location	Study Type & Control Group	Specific Intervention Outline	Number Of Participants	Gender % And age (years)	Recruit-ment criteria	Participant Characteristics	Primary Outcome Variables
Sibley, Graziano, Coxe, Bickman and Martin (2021)	U.S.A.	Randomised control trial STAND vs Usual Care	Community-based STAND Manualised 10 x 60mins weekly sessions delivered at a slower pace and lower intensity	N = 278 STAND = 138 (intent to treat) with 114 receiving intervention Usual care = 140 (intent to treat) with 111 receiving intervention	70.5% males Mean age = 14.03	Ages 11-17 Required to meet full DSM-5 ADHD criteria. Autism spectrum disorder was exclusionary Intellectual disability (IQ<70) was exclusionary as assessed by WASI-II (Wechsler, 2011).	13.3% Black non-Hispanic, 81.6% Hispanic, 4.3% White non-Hispanic, 0.7% other 27.4% current medication 36.0% single parent household 33.2% parent education level - university graduate, 10.8% parent education level- graduate professional training	School rated Grade Point Average Parent rated AAPC

Appendix C: Weight of Evidence A (WoE A): Methodological quality

An adapted version of the 'group-based design coding protocol' from Kratochwill (2003) was used to assess the six studies that had a group experimental design. The components of the protocol that were not considered relevant to the included studies were removed. Table C1 demonstrates the amendments made to the existing protocol.

Table C1

Modifications to Kratochwill (2003) coding protocol and rationale

MODIFIED SECTION	**RATIONALE**
I. General Characteristics **A** – General study characteristics (removed)	Study characteristics were covered elsewhere (map field) in the review; therefore, this was removed from the coding protocol.
I. **C** – C7-C9 (removed)	This section is used for qualitative data and was not required for these studies.
II. Key features for Coding Studies and Rating Level of Evidence/Support **A** – Research Methodology (removed)	This section was addressed in WoE B and therefore removed from the coding protocol.
II**. B** – B6-B7 (removed)	These questions were discussed elsewhere in the review; therefore, this was removed from the current coding protocol.
II. **D** - Primary/Secondary Outcomes Are Statistically Significant (removed)	This section was considered in detail in the current review and was therefore removed from the coding protocol.

II. **E** – Cultural Significance (removed)	This section was addressed in WoE C and was therefore removed from the current coding protocol
II. **F** – Educational/Clinical Significance (removed)	This section was considered separately and so it was removed from the coding protocol.
II **G** – G2-G4 (removed)	This section was reported elsewhere in the review and was therefore removed from the coding protocol.
II. **H** – Durability / Generalisation of Intervention and Outcome (removed)	This section was addressed in WoE C and was therefore removed from the current coding protocol
II, **J** – J4.1-J4.4 (removed)	This section was reported elsewhere in the review and was therefore removed from the coding protocol
II. **K** – Replication (removed)	This section was addressed in WoE C and was therefore removed from the current coding protocol
II. L – Site of Implementation (removed)	This section was removed from the coding protocol as it was reported elsewhere (map field) in the review.

Kratochwill's 2003 coding manual provided criteria for each assessed feature, and a score ranging from 0-3 was applied. The manual also provided further specific examples to help guide scoring. Table C2 provides information about the measurement criteria. Table C3 details the Comparison Group Criteria. Table C4 outlines the Appropriate Statistical Analysis. Table C5 includes the External Validity Criteria. Table C6 defines the Identifiable Intervention Component. Table C7 outlines the Implementation Fidelity Criteria. Each score for the six methodological features was added together and divided by 6 to provide an overall mean average WoE A rating. This is shown in Table C8. An example of the full coding for one study is shown in Appendix G.

Table C2

Measurement criteria

Weighting	Criteria
Strong evidence (3)	• A reliability coefficient of ≥.85 • Collected data using multiple methods • Collected data from multiple sources
Promising evidence (2)	• A reliability coefficient ≥.70 for at least 75% of primary measures • Collected data using multiple methods and/or multiple sources
Weak evidence (1)	• A reliability coefficient of ≥.50 for at least 50% of the primary outcome measures • Collected data uses single method and source
No evidence (0)	• A reliability coefficient of ≤.50 • Collected date from single source and/or data collected using single method.

Table C3

Comparison Group criteria

Weighting	Criteria
Strong evidence (3)	• At least one type of “active” comparison group must be used • Initial group equivalency must be established (preferably through random assignment of participants) • Evidence that change agents were counterbalanced • Less than 20% attrition.
Promising evidence (2)	• Presence of at least a “no intervention group” Evidence of at least two: • counterbalancing of change agents • group equivalence established • equivalent mortality with low attrition

Weak evidence (1)	Presence of a comparison group and at least one: • counterbalancing of change agents • group equivalence established • equivalent mortality with low attrition
No evidence (0)	• No efforts made to ensure group equivalence.

Table C4

Appropriate Statistical Analysis

Weighting	Criteria
Strong evidence (3)	• Appropriate statistical analysis must have been conducted, including appropriate units of analysis family-wise/experiment-wise error rate controlled • A sufficiently large N • Must show significant primary outcomes for at least 75% of the total primary outcome measures for each key construct.
Promising evidence (2)	• Appropriate statistical analysis must have been conducted, including appropriate units of analysis family-wise/experiment-wise error rate controlled • Must show significant primary outcomes for at least 50% to 74% of the total primary outcome measures for each key construct.
Weak evidence (1)	• Appropriate statistical analysis must have been conducted, including appropriate units of analysis family-wise/experiment-wise error rate controlled • Must show significant primary outcomes for at least 25% to 49% of the total primary outcome measures for each key construct.
No evidence (0)	• None of the above criteria met

Table C5

External Validity Criteria

Weighting	Criteria
Strong evidence (3)	• Complete and detailed description of the context within which the intervention occurs; • Provided evidence of perceived benefits from the intervention for all participant groups.
Promising evidence (2)	• Detailed description of some but not all contextual components; • Provided evidence of perceived benefits from the intervention for some participant groups.
Weak evidence (1)	• Provides overview of contextual components but lack details; • Provided evidence that participants did not perceive benefits from the intervention.
No evidence (0)	• No description of context; • Did not investigate participants' perceptions of benefits.

Table C6

Identifiable Intervention components

Weighting	Criteria
Strong evidence (3)	• Study demonstrates strong evidence for significant primary outcomes, • Study uses a design that allows for an analysis that identifies specific components, and • The analysis must provide evidence that all identified intervention components were necessary to produce change in the primary outcomes.
Promising evidence (2)	• Study demonstrates promising evidence for significant primary outcomes, • Study uses a design that allows for an analysis which identifies specific components, and

	• The analysis must provide evidence that at least 50% of the identified intervention components were necessary to produce change in the primary outcomes.
Weak evidence (1)	• Study demonstrates weak evidence for significant primary outcomes, • Study uses a design that allows for an analysis which identifies specific components, and • The analysis must provide evidence that at least 25% of the identified intervention components were necessary to produce change in the primary outcomes.
No evidence (0)	• There was no evidence of which components were necessary to produce change.

Table C7

Implementation Fidelity Criteria

Weighting	Criteria
Strong evidence (3)	• Study demonstrates strong evidence of acceptable adherence; • Evidence should be measured through at least two of the following: ongoing supervision/ consultation, coding sessions, or audio/video tapes; • Use of a manual. To be considered a manual for a rating of 3, information must have been provided to the implementers using either: written materials involving a detailed account of the exact procedures and the sequence in which they are to be used or a formal training session that includes a detailed account of the exact procedures and the sequence in which they are to be used.
Promising evidence (2)	• Study must demonstrate evidence of acceptable adherence; • Evidence should be measured through at least one of the above criteria and use of a manual. To be considered a —manual for a rating of 2, information must have been provided to the implementers using either: written materials

	involving an overview of broad principles and a description of the intervention phases, or a formal or informal training session involving an overview of broad principles and a description of the intervention phases.
Weak evidence (1)	• Study must demonstrate evidence of acceptable adherence measured through at least one of the above criteria or use of a manual.
No evidence (0)	• Nothing done to ensure implementation fidelity or evidence indicates unacceptable adherence.

Table C8

The calculated WoE A scores, descriptors for each category identified in the Kratochwill (2003) protocol and overall average for WoE A.

Study	Measure-ment	Comparison Group	Appropriate analysis	External validity	Intervention components	Implementation fidelity	WoE A
Hogue et al., 2021 (CASH-AA)	1	1	1	1	0	1	0.8 (Low)
Sibley et al., 2013 (STAND)	2	2	1	2	1	3	1.8 (Medium)
Sibley et al., 2014 (STAND-G)	1	1	1	1	2	2	1.3 (Low)
Sibley et al., 2016 (STAND)	3	2	2	3	2	3	2.5 (High)
Sibley et al., 2020 STAND vs STAND-G	3	2	1	2	2	2	2 (Medium)

(cont.) Study	Measure-ment	Comparison Group	Appropriate analysis	External validity	Intervention components	Implementation fidelity	WoE A
Sibley et al., 2021 (community STAND)	3	2	2	3	1	1	2.0 (Medium)

Note. <1.4 is low; 1.5-2.4 is medium; >2.4 is high

Appendix D: Weight of Evidence A (WoE A): Methodological quality

The Horner et al. (2005) coding protocol was used to evaluate the methodological quality of the single-subject study design. Ratings between 0 – 3 were assigned according to criteria defined in Mills (2019). These criteria are displayed in Table D1.

Table D1

Criteria for WoE A using Horner et al. (2005)

Section	Scoring Criteria
A	3 = all criteria are fulfilled 2 = two criteria are fulfilled 1 = one of the criteria is fulfilled 0 = no criteria are fulfilled
B	3 = all criteria are fulfilled 2 = three/four criteria are fulfilled 1 = one/two criteria are fulfilled 0 = no criteria are fulfilled
C	3 = all criteria are fulfilled 2 = two criteria are fulfilled 1 = one of the criteria is fulfilled 0 = no criteria are fulfilled
D	3 = all criteria are fulfilled 2 = two criteria are fulfilled 1 = one of the criteria is fulfilled 0 = no criteria are fulfilled
E	3 = all criteria are fulfilled 2 = two criteria are fulfilled 1 = one of the criteria is fulfilled 0 = no criteria are fulfilled
F	3 = Effects replicated across 3+ participants and in a unique setting 2 = Experimental effects replicated across 3+ participants 1 = Experimental effects are replicated across 2 participants 0 = Experimental effects are replicated with 1 or no participants
G	3 = all criteria are fulfilled 2 = two or three criteria are fulfilled 1 = one of the criteria is fulfilled 0 = no criteria are fulfilled

The total WoE A rating was calculated by adding together the sum of Sections A-G and dividing the scores by 7 to create an average score. The rating calculated based on these criteria is shown in Table D2. The full coding report is shown in Appendix H.

Table D2

The calculated WoE A scores and descriptors for single-subject study design, identified in the (Horner et al., 2005) protocol

Study	A Description of Participants and Setting	B Dependent Variable	C Independent Variable	D Baseline	E Experimental Control/Internal Validity	F External Validity	G Social Validity	WoE A rating
Raggi et al., 2009 (HIP)	2.7	1.8	2.0	2.0	1.0	1.0	1.3	1.7 (Medium)

Note. <1.4 is low; 1.5-2.4 is medium; >2.4 is high

Appendix E: Weight of Evidence B (WoE B): Methodological Relevance

Petticrew and Roberts (2003) produced a typology of evidence to demonstrate the appropriateness of a range of methodological designs that explore the effectiveness of a particular intervention (Table E1). These criteria were used to score each study and results are shown in Table E2.

Table E1

WoE B: Coding Protocol

WoE B Rating (Qualitative Descriptor)	Design	Additional Criteria	Rationale
3 (High)	Randomised Control Trials	Random assignment to active control group. Measures taken pre/post intervention and at follow up point.	This is the hierarchy of design as set out by Petticrew and Roberts (2003). However, additional criteria have also been considered, to take into account the different strengths of the RCT studies. For each study, if any additional criteria were ticked, the lower score was given.
2 (Medium)	Cohort studies, quasi-experimental studies, single-subject case experimental designs, repeated measures design	Non-random assignment to intervention or control group. No intervention or wait-list control group. For small number designs there is data collected at least at three time points	
1 (Low)	Qualitative research, survey, non-experimental evaluation	Single group design with no allocation to groups. No comparison/control group	

		Measures taken post intervention. For small number designs there is data collected at less than three time points

Table E2

WoE B: The calculated WoE B scores and descriptors

Author	WoE B Score	Rationale
Hogue et al., 2021 (CASH-AA)	1 (Low)	No control group – within group design
Raggi et al., 2009 (HIP)	1 (Low)	School data had only one collection point
Sibley et al., 2013 (STAND)	2 (Medium)	Small number pilot study
Sibley et al., 2014 (STAND-G)	2 (Medium)	Wait-list control and small number pilot
Sibley et al., 2016 (STAND)	3 (High)	High quality RCT
Sibley et al., 2020 (STAND vs STAND-G)	1 (Low)	No control group – within group design
Sibley et al., 2021 (community-based STAND)	3 (High)	High quality RCT

Appendix F: Weight of Evidence C (WoE C): Topic Relevance

WoE C ratings were assigned according to the relevance to the review question. The criteria in Table F1 were developed and each study received a 0-3 rating based on the average score across these criteria. Each study was rated against these criteria and results are shown in Table F2.

Table F1

WoE C: Coding Protocol

Criteria	WoE Rating and descriptor	Rationale
Setting replication	3 School or community context 2 University or clinic context 1 Specific care setting or context	The review is looking to carry out effective interventions more widely. Carrying out parent training in a community or school environment is more replicable in the long term and is therefore scored more highly. Training at the university was scored lower because this is unlikely to be replicated more widely. Specific care settings were scored lower because participants were receiving other care which could also have an effect on academic functioning.

Criteria	WoE Rating and descriptor	Rationale
Intervention training provider	3.School-based clinician or trainer 2. Community clinician, trainer or therapist 1. University researcher or research assistant	The review is wanting to establish how effective the intervention would be when carried out within a wider population. A higher score was given to studies that utilised community clinicians with regular caseloads and normal supervision channels. Lower scores were given to studies that used the research director or research assistants and who had high levels of supervision as this lacks the flexibility to be widely replicated.
Relevance to the UK general population	3. Study was conducted in the UK and reported a diverse and representative sample of the population 2. Study was conducted in an OECD member country and reported a diverse and representative sample of the population or conducted in the UK but reported an	The review is looking to see how generalisable the findings are to the UK population. The countries within the Organisation for Economic Cooperation and Development (OECD, 2020) were considered to be more similar to the UK in terms of education, and

	unrepresentative sample of participants. 1. Study was conducted in an OECD member country but had an unrepresentative sample of participants or was too small to be truly representative. 0.Study was not conducted in an OECD member country.	therefore given higher scores. Another way of generalising the study findings is for the sample to be representative of the general population. Therefore, studies that showed sample statistics and sampling techniques that generated a diverse and representative sample were rated more highly.
Effect maintenance	3 Effects maintained for 6 months of more after intervention 2 Effects maintained for between 3 - 6 months after intervention for majority of measures 1 Mixed effects – some maintained, some not maintained over 3 months 0 Effects not maintained, maintained for short period or unknown.	In order to decide if an intervention is effective both for the parent and the child, the results need to be maintained. The longer the study could show the effects were maintained, the higher the score.

Table F2

WoE C: The calculated scores and descriptors

Author	Setting replication	Intervention training provider	Relevance to the UK population	Effect Maintenance	WoE C
Hogue et al., 2021 (CASH-AA)	1	2	1	2	1.5 (Medium)
Raggi et al., 2009 (HIP)	2	1	1	1	1.25 (Low)
Sibley et al., 2013 (pilot STAND)	2	1	1	2	1.5 (Medium)
Sibley et al., 2014 (pilot STAND-G)	2	1	1	1	1.25 (Low)
Sibley et al., 2016 (STAND + MI)	2	1	1	1	1.25 (Low)
Sibley et al., 2020 STANDvsSTAND-G	2	1	1	3	1.75 (Medium)

Author	Setting replication	Intervention training provider	Cultural relevance to the UK	Effect Maintenance	WoE C
Sibley et al., 2021 (Community STAND)	3	2	1	0	1.5 (Medium)

Note. <1.4 is low; 1.5-2.4 is medium; >2.4 is high

Appendix G: WoE A completed coding protocols (Kratochwill, 2003)

Study 1

[Adapted from the Procedural Manual of the Task Force on Evidence-Based Interventions in School Psychology, American Psychology Association, Kratochwill, T.R. (2003)]

Coding Protocol: Comparing 2 interventions Dyadic and Group

Name of Coder: Rebecca Stokoe Date: 30/01/23

Full Study Reference in proper format: Hogue, A., Fisher, J. H., Dauber, S., Bobek, M., Porter, N., Henderson, C. E., & Evans, S. W. (2021). Randomized trial of academic training and medication decision-making for adolescents with ADHD in usual care. *Journal of Clinical Child and Adolescent Psychology*, *50*(6), 874–887. https://doi.org/10.1080/15374416.2020.1716362

Intervention Name (description of study): Changing Academic Support in the Home for Adolescents with ADHD

☐ Type of Publication:

☐ Book/Monograph

☒ Journal Article

☐ Book Chapter

☐ Other (specify):

General Characteristics

A. General Design Characteristics

A1. Random assignment designs (if random assignment design, select one of the following)

☐ Completely randomized design

☐ Randomized block design (between participants, e.g., matched classrooms)

☐ Randomized block design (within participants)

☒ Randomized hierarchical design (nested treatments)

A2. Nonrandomized designs (if non-random assignment design, select one of the following)

☐ Nonrandomized design

☐ Nonrandomized block design (between participants)

☐ Nonrandomized block design (within participants)

☐ Nonrandomized hierarchical design

☐ Optional coding for Quasi-experimental designs

A3. Overall confidence of judgment on how participants were assigned (select one of the following)

☐ Very low (little basis)

☐ Low (guess)

☒ Moderate (weak inference)

☐ High (strong inference)

☐ Very high (explicitly stated)

☐ N/A

☐ Unknown/unable to code

B. Participants

B4. Total size of sample (start of the study): 145
B5. CASH-AA sample size: 54
B6. CASH-AA + MIP sample size: 91

C. Type of Program

☐ Universal prevention program

☐ Selective prevention program

☐ Targeted prevention program

☒ Intervention/Treatment

☐ Unknown

D. Stage of Program

☐ Model/demonstration programs

☒ Early stage programs

☐ Established/institutionalized programs

☐ Unknown

E. Concurrent or Historical Intervention Exposure

☒ Current exposure (medication)

☐ Prior exposure

☐ Unknown

Key Features for Coding Studies and Rating Level of Evidence/Support

(Rating Scale: 3= Strong Evidence, 2=Promising Evidence, 1=Weak Evidence, 0=No Evidence)

A. Measurement (Estimating the quality of the measures used to establish effects)

A1 The use of the outcome measures produce reliable scores for the majority of the primary outcomes

☐Yes

☐No

☒Unknown/unable to code

A2 Multi-method (at least two assessment methods used)

☒ Yes

☐ No

☐ N/A

☐ Unknown/unable to code

A3 Multi-source (at least two sources used self-reports, teachers etc.)

☒ Yes

☐ No

☐ N/A

☐ Unknown/unable to code

A4 Validity of measures reported (well-known or standardized or norm-referenced are considered good, consider any cultural considerations)

☐ Yes validated with specific target group

☐ In part, validated for general population only

☐ No

☒ Unknown/unable to code

A. Overall Rating for Measurement (select 0, 1, 2, or 3): ☐3 ☐2 ☒1 ☐0

B. Comparison Group

B1 Type of Comparison Group (Select one of the following)

☐ Typical intervention (typical intervention for that setting, without additions that make up the intervention being evaluated)

☐ Attention placebo

☐ Intervention element placebo

☒ Alternative intervention of same programme (CASH-AA + MIP)

☐ Pharmacotherapy

☐ No intervention

☐ Wait list/delayed intervention

☐ Minimal contact

☐ Unable to identify type of comparison

B2 Overall confidence of judgment on type of comparison group

☐ Very low (little basis)

☐ Low (guess)

☒ Moderate (weak inference)

☐ High (strong inference)

☐ Very high (explicitly stated)

☐ Unable to identify comparison group

B3 Counterbalancing of change agent (participants who receive intervention from a single therapist/teacher etc were counter-balanced across intervention)

☐ By change agent

☒ Statistical (analyse includes a test for intervention)

☐ Other

☐ Not reported/None

B4 Group equivalence established (select one of the following)

☒ Random assignment

☐ Post hoc matched set

☐ Statistical matching

☐ Post hoc test for group equivalence

B5 Equivalent mortality

☒ Low attrition (less than 20 % for post)

☐ Low attrition (less than 30% for follow-up)

☐ Intent to intervene analysis carried out?

B. Overall Rating for Comparison Groups (select 0, 1, 2, or 3): ☐3 ☐2 ☒1 ☐0

C. Appropriate Statistical Analysis

Analysis: Adolescent self report of school grades – within group ANOVA

☐ Appropriate unit of analysis

☐ Familywise/experimenter wise error rate controlled when applicable

☒ Sufficiently large N

Statistical Test:
α level: 0.05
ES: 0.4
N required: 52

Analysis: Homework problems checklist (HPC) – within group ANOVA

☒ Appropriate unit of analysis

☐ Familywise/experimenter wise error rate controlled when applicable

☒ Sufficiently large N:

Statistical Test:
α level:0.05
ES: 0.4
N required: 52

C. Overall Rating for Statistical Analysis (select 0, 1, 2, or 3): ☐3 ☐2 ☒1 ☐0

G External Validity Indicators
G. Sampling Procedures

G1.1 Sampling procedures described in detail ☐ yes ☒ no
Inclusion/exclusion criteria specified ☒ yes ☐ no
Specified criteria related to concern ☒ yes ☐ no

G2. Participant Characteristics Specified for Treatment and Control Group (modified):
☒ Age/School Year
☒ Gender
☒ SEN diagnostic label
☒ Ethnicity
☐ Home Language
☒ Socio-economic background

☐ Levels of general cognitive abilities
☐ Levels of social difficulties
☐ Levels of emotional difficulties

G3. Details are provided regarding variables that:
G3.1 Have differential relevance for intended outcomes ☒ yes ☐ no
Specify: substance users, attendance,
G3.2 Have relevance to inclusion criteria ☒ yes ☐ no

Specify: ADHD screening eligibility

G4. Receptivity/acceptance by target participant population (treatment group)

Participants from treatment group	Results (what person reported to have gained from participation in the programme)	General rating
☐Child ☐Parent ☐Teacher ☐Other		☐Participants reported benefitted overall from the intervention ☐Participants reported did not benefit overall from the intervention ☐Participants did not report receptivity / acceptance

G. Overall Rating for External Validity Indicators: ☐3 ☐2 ☒1 ☐0

I. Identifiable Intervention Components (answer I1 through I7)

I2. Design allows for analysis of identifiable components (select one) ☐ yes ☒ no
I3. Total number of components: 4 (Motivational interviewing, Behaviour/organisation training, parent-teen collaboration and family-school partnership)
I4. Number of components linked to primary outcomes: unknown
I5. Clear documentation of essential components (select one) ☐ yes ☒ no
I6. Procedures for adapting the intervention are described in detail (select one) ☐ yes ☒ no

I7. Contextual features of the intervention are documented (select one) ☐ yes ☒ no

I. OVERALL Rating of Identifiable Intervention Components: ☐3 ☐2 ☐1 ☒0

J. Implementation Fidelity
J1. Evidence of Acceptable Adherence (answer J1.1 through J1.3)
☒J1.1 Ongoing supervision/consultation – 2 monthly
☐J1.2 Coding intervention sessions/lessons or procedures

☐J1.3 Audio/video tape implementation (select J1.3.1 or J1.3.2):
☐J1.3.1 Entire intervention
☐J1.3.2 Part of intervention

J2. Manualization (select all that apply)
☐J2.1 Written material involving a detailed account of the exact procedures and the sequence in which they are to be used

☐J2.2 Formal training session that includes a detailed account of the exact procedures and the sequence in which they are to be used
☐J2.3 Written material involving an overview of broad principles and a description of the intervention phases
☒J2.4 Formal or informal training session involving an overview of broad principles and a description of the intervention phases

J3. Adaptation procedures are specified (select one) ☐ yes ☐ no ☒ unknown

J4 Length of Intervention
☒Unknown/insufficient information provided
☐ Information provided (if information is provided, specify one of the following:)
☐ weeks: _____
☐ months _____

☐ years _____
☐ Other _____

J5 Intensity/dosage of Intervention
☒ Unknown/insufficient information provided
☐ Information provided (if information is provided, specify both of the following:)
☐ length of intervention session:
☐ frequency of intervention session:

J6 Program Implementer (select all that apply)
☐ Research Staff
☐ School Specialty Staff
☐ Teachers
☐ Educational Assistants
☐ Parents
☐ College Students
☐ Peers
☒ Other – clinic-based therapist
☐ Unknown/insufficient information provided

J7 Training and Support Resources (select all that apply)
☒ Simple orientation given to change agents
☐ Training workshops conducted
# of Workshops provided:1
Average length of training: 90mins

J8 Who conducted training (select all that apply)
☐ Project Director
☐ Graduate/project assistants
☐ Other (please specify):
☒ Unknown
☐ Ongoing technical support
☐ Program materials obtained
☐ Special Facilities
☐ Other (specify):

OVERALL Rating for Implementation Fidelity: ☐3 ☐2 ☒1 ☐0

Summary of Evidence

Indicator	**Overall evidence rating** **0-3**	**Description of evidence** **Strong** **Promising** **Weak** **No/limited evidence** **Or Descriptive ratings**
General Characteristics		
Design		
Participants		
Type of programme		
Stage of programme		
Concurrent/ historical intervention exposure		
Key Features		
Measurement	1	Weak
Comparison group	1	Weak
Appropriate Statistical Analysis	1	Weak
External Validity	1	Weak
Identifiable Intervention Components	0	None
Implementation Fidelity	1	Weak

Appendix H: WoE A completed coding protocols (Horner et al., 2005)

Study 7

Coding Protocol: Horner, R. H., Carr, E. G., Halle, J., McGee, G., Odom, S., & Wolery, M. (2005). The use of single-subject research to identify evidence-based practice in special education, Exceptional Children, 71(2), 165-179.

Name of Coder: Rebecca Stokoe **Date:** 29.01.23

Full Study Reference: Raggi, V.L., Chronis-Tuscano, A., Fishbein, H. *et al.* Development of a Brief, Behavioral Homework Intervention for Middle School Students with Attention-Deficit/Hyperactivity Disorder. *School Mental Health* **1**, 61–77 (2009). https://doi.org/10.1007/s12310-009-9008-7

Study programme name: Homework intervention program (HIP)

Section A: Description of Participants and Settings

Participants are described with sufficient detail to allow others to select individuals with similar characteristics (e.g., age, gender, disability, diagnosis).

☒ All quality criteria are met = 3

☐ A majority of quality criteria are met = 2

☐ A limited amount of quality criteria is met = 1

☐ None of the quality criteria are met = 0

The process for selecting participants is described with replicable precision.

☒ All quality criteria are met = 3

☐ A majority of quality criteria are met = 2

☐ A limited amount of quality criteria is met = 1

☐ None of the quality criteria are met = 0

Critical features of the physical setting are described with sufficient precision to allow replication.

☐ All quality criteria are met = 3

☒ A majority of quality criteria are met = 2

☐ A limited amount of quality criteria is met = 1

☐ None of the quality criteria are met = 0

Section B: Dependent Variable

Dependent variable is described with operational precision.

☐ All quality criteria are met = 3

☒ A majority of quality criteria are met = 2

☐ A limited amount of quality criteria is met = 1

☐ None of the quality criteria are met = 0

Each dependent variable is measured with a procedure that generates a quantifiable index.

☒ All quality criteria are met = 3

☐ A majority of quality criteria are met = 2

☐ A limited amount of quality criteria is met = 1

☐ None of the quality criteria are met = 0

Measurement of the dependent variable is valid and described with replicable precision.

☐ All quality criteria are met = 3

☒ A majority of quality criteria are met = 2

☐ A limited amount of quality criteria is met = 1

☐ None of the quality criteria are met = 0

Dependent variables are measured repeatedly over time.

☐ All quality criteria are met = 3

☐ A majority of quality criteria are met = 2

☒ A limited amount of quality criteria is met = 1

☐ None of the quality criteria are met = 0

Data are collected on the reliability or interobserver agreement associated with each dependent variable, and IOA levels meet the minimal standards (e.g., IOA = 80%; Kappa = 60%).

☐ All quality criteria are met = 3

☐ A majority of quality criteria are met = 2

☒ A limited amount of quality criteria is met = 1

☐ None of the quality criteria are met = 0

Section C: Independent Variable

Independent variable is described with replicable precision.

☐ All quality criteria are met = 3

☒ A majority of quality criteria are met = 2

☐ A limited amount of quality criteria is met = 1

☐ None of the quality criteria are met = 0

Independent variable is systematically manipulated and under the control of the experimenter.

☐ All quality criteria are met = 3

☐ A majority of quality criteria are met = 2

☒ A limited amount of quality criteria is met = 1

☐ None of the quality criteria are met = 0

Overt measurement of the fidelity of implementation for the independent variable is highly desirable

☒ All quality criteria are met = 3

☐ A majority of quality criteria are met = 2

☐ A limited amount of quality criteria is met = 1

☐ None of the quality criteria are met = 0

Section D: Baseline

The majority of single-subject research studies will include a baseline phase that provides repeated measurement of a dependent variable and establishes a pattern of responding that can be used to predict the pattern of future performance, if introduction or manipulation of the independent variable did not occur.

☐ All quality criteria are met = 3

☒ A majority of quality criteria are met = 2

☐ A limited amount of quality criteria is met = 1

☐ None of the quality criteria are met = 0

Establishes a pattern of responding that can be used to predict the pattern of future performance, if introduction or manipulation of the independent variable did not occur.
☐ All quality criteria are met = 3

☐ A majority of quality criteria are met = 2

☒ A limited amount of quality criteria is met = 1

☐ None of the quality criteria are met = 0

Baseline conditions are described with replicable precision.
☒ All quality criteria are met = 3

☐ A majority of quality criteria are met = 2

☐ A limited amount of quality criteria is met = 1

☐ None of the quality criteria are met = 0

Section E Experimental control/internal validity

The design provides at least three demonstrations of experimental effect at three different points in time.
☐ All quality criteria are met = 3

☐ A majority of quality criteria are met = 2

☒ A limited amount of quality criteria is met = 1

☐ None of the quality criteria are met = 0

The design controls for common threats to internal validity (e.g., permits elimination of rival hypotheses).
☐ All quality criteria are met = 3

☐ A majority of quality criteria are met = 2

☒ A limited amount of quality criteria is met = 1

☐ None of the quality criteria are met = 0

The results document a pattern that demonstrates experimental control.
☐ All quality criteria are met = 3

☐ A majority of quality criteria are met = 2

☒ A limited amount of quality criteria is met = 1

☐ None of the quality criteria are met = 0

Section F: External Validity
Experimental effects are replicated across participants, settings, or materials to establish external validity.

☐ All quality criteria are met = 3

☐ A majority of quality criteria are met = 2

☒ A limited amount of quality criteria is met = 1

☐ None of the quality criteria are met = 0

Section G: Social Validity
The dependent variable is socially important.
☐ All quality criteria are met = 3

☒ A majority of quality criteria are met = 2

☐ A limited amount of quality criteria is met = 1

☐ None of the quality criteria are met = 0

The magnitude of change in the dependent variable resulting from the intervention is socially important
☐ All quality criteria are met = 3

☐ A majority of quality criteria are met = 2

☒ A limited amount of quality criteria is met = 1

☐ None of the quality criteria are met = 0

Implementation of the independent variable is practical and cost effective.
☐ All quality criteria are met = 3

☐ A majority of quality criteria are met = 2

☒ A limited amount of quality criteria is met = 1

☐ None of the quality criteria are met = 0

	Overall evidence rating (0-3)	Evidence descriptors
Description of participants and setting	2.7	High
Dependent Variable	1.8	Medium
Independent Variable	2.0	Medium
Baseline	2.0	Medium
Experimental control/internal validity	1.0	Low
External validity	1.0	Low
Social validity	1.3	Low

Note. <1.4 is low; 1.5-2.4 is medium; >2.5 is high