

# Academic Strategies and Behavioral Management Interventions for Children with Attention Deficit Hyperactive Disorder (ADHD). A Survey of Literature.

Josephine Ssirimuzaawo, Miph Musoke, Pio Frank Kiyingi

School Of Education, Nkumba University, Uganda

DOI: <https://dx.doi.org/10.47772/IJRISS.2023.7012095>

Received: 13 December 2023; Accepted: 15 December 2023; Published: 10 January 2024

## ABSTRACT

Globally ADHD affects between 5 to 12 % of school going children (APA, 2013), with 9 to 80% of those children having learning difficulties in school (Ghahramani *et al.*, 2016, Birrah *et al.*, 2018). Yet it is recommended that behavioral therapy is the first line of treatment for children with ADHD (APA 2013, CHAD 2021). From this perspective, strategies for academic and behavioral management interventions are very critical especially to the teacher and parent/caregiver. The major purpose of this review article was to identify, explore and review studies that came up and implemented strategies for academic and behavioral management interventions to address challenges of children with ADHD. A literature search was conducted to identify studies on the topic of ADHD interventions and particularly those with findings on academic and behavioral management intervention strategies, conducted in the period between 2000 to 2022 and written in English were considered, a total of 40 studies met the criterion for inclusion and only (16) sixteen of those were reviewed. The findings of the review implicated that the interventions strategies that targeted both the teacher and the parent such as task modifications, get organized and physical classroom accommodation strategies (peer tutoring, physical structure adjustments) all had a significant impact on the behaviors of children with ADHD both at school and home. However, most of those children studied were taking medication for ADHD and these studies were done on smaller samples for shorter duration, therefore it is imperative that, the ADHD interventions strategies should be implemented for a longer period also on a larger sample.

**Keywords:** Interventions, behavioral management, academic strategies, Children, ADHD.

## INTRODUCTION

Attention deficit hyperactive disorder (ADHD) has been described for over 200 years ago and at first it was called “a lack of moral control” among children (Barkley 1997). However, a few decades later, it was termed as “brain damage” syndrome, whereas today it is called ADHD (American Psychiatric Association, 2013). Today ADHD is recognized as the most common behavioral disorder of childhood affecting about 4% to 12% of children aged 3-17 years globally (Pastor, Reuben Duran and Hawkins 2015).

According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), the fundamental characteristics of ADHD are: a persistent pattern of inattention and/or hyperactivity and impulsivity, more severe than in typically normal developing children (American Psychiatric Association 2013). These features are associated with both behavioral and academic difficulties (Bussing and Mehta 2013, Sherman *et al.*, 2008) which be the basis of predicaments in forming and nourishing relationships. The exact cause of ADHD is not clear while genetic factors play some role, current studies suggest that some

environmental characteristics can accelerate the conditions of ADHD (Faraone 2015a, Faraone 2021 b, Franz *et al* 2018).

According to APA 2013, CHAD 2021 and CDC 2020, behavioral therapy which includes academic and behavioral management interventions should be the first line of treatment if children with ADHD are to be assisted to become better in all aspects of their life. This is because such interventions equip teachers and parents/care givers with the skills and strategies they need to support these children thrive in all aspects of their life.

## RESEARCH OBJECTIVES

1. Discuss the academic strategies used for children with ADHD.
2. Explore the behavioral management interventions used for children with ADHD.
3. Synthesize the efficacy of academic strategies and behavioral management interventions for children with ADHD.

## RESEARCH QUESTIONS

The research questions of this review were;

1. What academic strategies have been used or suggested for children with ADHD in the period 2000 to 2022?
2. What behavioral management interventions have been used for children with ADHD? which ones are more effective and why?
3. Which behavioral interventions /academic strategies are effective among children with ADHD?

## METHOD

This study adopted the case study research design where the researcher carried out an in-depth exploration for several articles that were rated fit in the criterion for selection (Creswell 2014). This design was chosen because it helped the researcher answer the above stated research questions.

A search was conducted on internet using “Google Scholar” and “free access PubMed” where links to full texts free articles were accessed, using the key words; ADHD, academic strategies and behavioral intervention, the articles were selected after reading abstracts and applying the following criterion: published in a scientific journal, reporting empirical research, published between the period 2000 to 2022, written in English, peer reviewed article and has a component of academic and behavioral based intervention.

### **Inclusion, exclusion criterion and Research Approach.**

The articles addressing a population other than children aged 3 to 18 years, articles before the year 2000 and after 2022 plus articles having an intervention which is not school based were excluded from the study. Therefore, a total of 40 articles were primarily selected but only 16 articles were read in detail and reviewed.

The research approach used was a qualitative design, the sampling techniques used included Snowball sampling method which is based on recommendations from initial subjects to create additional subjects and particularly the **exponential non-discriminative snowball sampling**. The first article read provided multiple recommendations. Each new referral article was explored until secondary data from sufficient number of samples articles were collected. In this case the first article the researcher read provided referrals

for other articles. Convenient sampling which is a method of collecting samples by taking samples that were accessible around a location or Internet service was implemented. In this case the articles that were easily accessible such as those for free access on Google scholar and PubMed were selected for inclusion in the study.

### Sample Size Selection.

Creswell (2013) recommends a sample of up to 10 people in qualitative research for research to reach a saturation level (saturation meaning the level at which adding more participants to the study does not result in obtaining additional information). Therefore, basing on the above recommendations this study used a sample of 16 articles, since the goal of qualitative study is to have a large enough sample to uncover a variety of studies but limit the sample size at the point of saturation, Macanasu (2020).

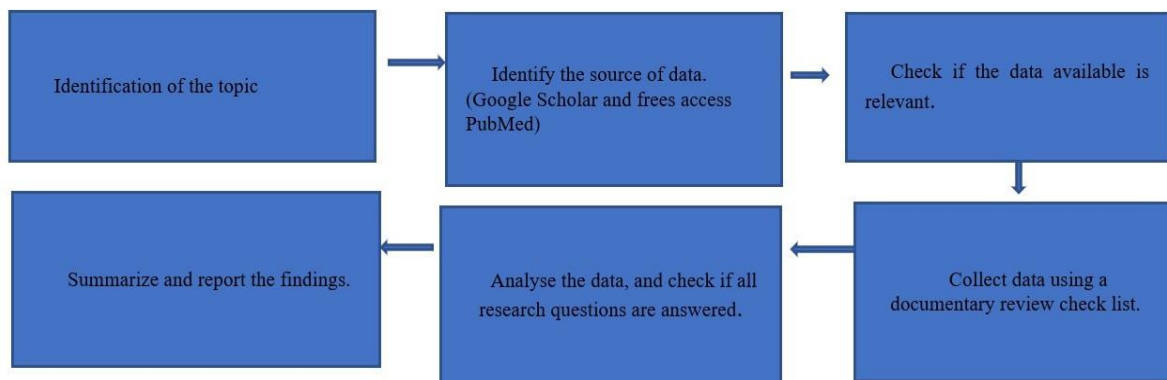
### Data Collection

The data collection methods included the documentary review and the data collection instrument was documentary review check list.

### Data Analysis.

Documentary analysis was done systematically whereby themes were developed from the reviewed studies. From the developed themes, content and text analysis was done theme by theme from several authors to answer the research questions. The whole research process can be illustrated below;

Fig I. The Research Process, step by step procedure.



Source: Researcher 2023.

## FINDINGS

There are three major interventional strategies namely, academic strategies, behavioral management intervention, and classroom accommodation intervention (U.S Department of Education manual 2006). This review of literature is divided into three major themes based on the above strategies these include.

1. Academic strategies such as task modifications, active learning and peer tutoring and use of computer technology.
2. Behavioral management interventions which help children display behavior that is conducive for the teaching–learning process to occur. These include organizational skills and effective behavioral techniques like reinforcement, home school collaboration (parent conferences) self-regulation and social skills training.
3. Classroom accommodation strategies these include classroom schedule and structure, special

classroom seating arrangements, use of different instructional tools and learning environment.

## Academic strategies.

According to William and Mary (2017), in their training book “The training technical Assistance center manual”, academic intervention strategies involve creating an environment that is conducive for teaching and learning process to occur. Some of the academic strategies identified by the above authors include task modifications strategies, use of computer technology, active learning, and peer tutoring.

### 1. Task Modification Strategies:

- The article “A Randomized Controlled Trial of a School Implemented School-Based Intervention for ADHD Symptoms and Impairments” by Pfiffner *et al* (2016); addressed the efficacy of a school-based intervention named the “Collaborative Life Skills (CLS) for Primary School Children with ADHD”. It was a 12 weeks’ program where they used school mental health providers in 12 schools with six children per school.
- Seeley *et al* (2009) also addressed academic challenges of children with ADHD in the study “The first step to success intervention with students meeting the diagnostic criteria for ADHD.” Du Paul *et al* (2011) in the study titled “Early Intervention for Young Children with ADHD”, used the psychosocial intervention where there was pre-school intervention that targeted teachers who were trained in individualized strategies and home intervention which trained parents. The results of this study indicated a significant change in behaviour and academic functioning in early numeracy. The strength of Pfiffner *et al* (2016) study was it used full time school mental health providers, who were fully involved with the children and emphasis was put on task modification strategies such as the use of Daily Report Card, instructional and homework modifications, and social life skills training of the children. The results of the two intervention studies plus Du Paul *et al* (2011) all indicated that there was a significant change in the children (i.e. they learned independence and social skills), after using the task modification strategies like daily report cards, extended time on tasks, avail visual instructions on tasks, reduce length of the written assignments, cover up part of the page on homework. However, both studies used children who were on medication for ADHD, therefore it is difficult to attribute the changes in the behaviour of the children entirely on the intervention of CLS, furthermore Seeley *et al* (2009) used children with other disruptive behavior like aggression and oppositional defiant behaviour meaning the findings cannot be wholly applied to ADHD children.
- Another study by Power *et al* (2012), titled “A family school intervention for children with ADHD, evaluated the success of the intervention named” Family –School intervention (FSS)”, the major objective of that study was to improve the educational functioning of students in grade two and three who meet the criterion for ADHD. Similarly, to Pfiffner *et al* (2016), this study focused on tasks modifications, and it had three components namely, daily report cards, behavioral homework intervention and conjoint behavioral consultation. Just like Pfiffner *et al* (2016), Power *et al* (2012) had weekly sessions and some of the children in the study were on medication for ADHD and the finding of the study agreed with Pfiffner (2016) because it was indicated that students improved in their social and life skills, but this study was different from Pfiffner *et al* (2016) but similar to Seeley *et al* (2009) in that it also included children with other learning disabilities such as oppositional defiant, anxiety and mood disorders. This stands out as a major weakness of this study since the findings of that study could not be generalized to ADHD children specifically.

### 2. The Use of Computer Technology:

Several studies have documented the use of computer technology as an academic intervention for children with or at risk of ADHD (Rabiner *et al* 2010, DuPaul *et al* 2011, Stewart and Austin 2020, Cullen *et al* 2013). One of the above studies was a review by Stewart and Austin, i.e. they reviewed 16 studies, and their

major purposes was to investigate the efficacy of reading interventions on children with ADHD. Their finding reported major improvements in the vocabulary and reading comprehension with children who used computer-based instructions. Other studies by Rabiner *et al*, 2010, DuPaul *et al* 2011; all reported positive results in academic functioning of those who used computer technology as an intervention. According to U.S Department of Education manual (2006), effective teachers of students with ADHD must use individualized instructional practices such as computer games for basic computation. This can be very helpful for children with ADHD in improving their math since computer games can assist a child to drill and practice basic computation using appropriate games.

### 3. Active Learning and Peer Tutoring:

According to William and Mary (2017) peer tutoring is one of the more effective strategies for students with ADHD because it provides many of the same supports as one-to-one instruction. It facilitates the acquisition of both academic and social skills. Peer tutoring is most effective when training is provided to participating student.

### Behavioral Management Interventions

#### Organizational Skills:

- The get organized skills target the child and address organizational and social skills knowledge deficits and instructions. Pfiffner *et al* (2011) in their intervention titled “child life and attention skills program” (CLAS) addressed the organizational component by carrying out staff training, supervising for implementation of the training strategies, child training in the get organized skills like assignment note books, color coded folders, daily report cards, homework partners, calendar trainings, extra books, CLAS also included teacher/parent consultation and particularly addressed children’s behaviour, this was unique to this study. The findings of this study showed changes in the behaviour of children with ADHD, however the study was for a short time and used a very small sample size which suggests that the studied sample needed continued intervention to see if the positive behaviour can be sustained.
- Shen *et al* 2021 in their study titled “the effects of parent/teacher training on academic performance and parent anxiety on school aged children with ADHD” carried out training of teachers in helping children get organized as a way of managing some of the behaviors of ADHD. The findings of this intervention concluded that there was gradual reduction in the core symptoms and improvement in the academic performance. These finding are in line with APA 2013 which stated that intervention for classrooms are very effective. Like with other studies, the major challenge of this study was; it never focused on the child self-management skills; it included children on medication and; it involved parental training as well. Therefore, we cannot attribute the findings of this study to school/teacher interventions only.

### Effective Behavioral Techniques

#### Home-School Collaboration:

- According to DuPaul *et al* (2011), Stewart and Austin (2020), Meza et al (2020) and Tercelli and Ferreira (2019), home-school collaboration is an effective intervention for children with ADHD. These should include; teacher implemented strategies such as the daily report cards, parent training in effective instructions and reinforcements plus child skills training in self-management (self-mindfulness both at school and at home). Across all the three studies reporting on daily report cards the two i.e. (DuPaul *et al* 2011) and Stewart and Austin (2020) all agreed that daily report card is very effective in improving academics and behaviour management in children, since it involves giving

feedback to parents on how children behave and do work at school and vice versa.

- Terceili and Ferreira (2019), Stewart and Austin (2020) also reported that self-regulation by children also called “child self-mindfulness” alone as an intervention was not very effective in helping children manage their behavior in class and at home. Therefore, they recommended a multiple approach in the behaviour management of children with ADHD.
- Huang et al (2019) in their study titled “the effectiveness of behaviour parent therapy” (BPT) in pre-school children with ADHD, noted that parental therapy was very crucial in helping parents understand effective instructions and use of reinforcements in managing children with ADHD. Huang et al (2019) used the nine steps recommended by Barkely (1998) which focused on; i) finding out why children behave that way; ii) pay attention to them; iii) increase compliance; iv) use token economy (reinforcement); v) give them time out; vi) manage them in public places; vii) work with teachers to improve/monitor behaviour; viii) plan to handle future problems; ix) have a booster session with parents for feedback and way forward. The findings of BPT were consistent with Seeley et al (2009) and Pfiffner et al (2016) which all showed that parental therapy or training was effective in reducing in-attention and hyperactive-impulsive symptoms in children with ADHD. Huang et al (2019) further noted that BPT also reduced the severity of other comorbidities like anxiety and depression. Hence basing on the findings of the above studies it is paramount to conclude that for any intervention in children with ADHD the home-school collaboration component should be a priority.

### Classroom Structure modifications:

- Abrahao et al (2021) noted that the reduced school functioning of ADHD children is provoked by teachers who may not be knowledgeable of the right pedagogical classroom support required to suit the behaviour of these children, hence the need for classroom structure modification as an intervention to improve the academic performance of ADHD children. In line with Abraho et al (2021), several studies such as William and Mary (2017), Reiber and McLaughlin (2004) and Pfiffner et al (2011) have documented classroom interventions teachers can use to work with ADHD children namely.
- Physical Classroom Arrangement which includes seating arrangements that target minimizing noise and visual distractions, closed rooms and traditional row setting is the best for ADHD children, seated away from windows, reduce on the clutter and displays in the class.
- Classroom Schedule Structure. This should focus on; establishing class routines, set consistent and classroom rules and consequences for misbehaving, repetition of the rules is paramount for a desired behavior. Procedures, set class rules and have a well-organized learning environment. It can be concluded therefore that for several studies as indicated above, the classroom intervention has proved effective in reducing ADHD symptoms and improving the academic achievement of children with ADHD.

### REFERENCES

1. Barkley, R. (2008). Psychosocial Interventions in Attention Deficit Hyperactivity Disorder. *Child and Adolescent Psychiatric Clinics of North America*.
2. Barkley RA. Attention Deficit Hyperactivity Disorder: A Handbook for Diagnosis and Treatment, 2nd edition. New York: Guilford, 1998
3. Barkley RA. Defiant Children: A Clinician’s Manual for Assessment and Parent Training, 2nd edition. New York: Guilford Press, 1997.
4. Eiraldi, R. B., Mautone, J. A., & Power, T. J. (2012). *Strategies for Implementing Evidence-Based Psychosocial Interventions for Children with Attention-Deficit/Hyperactivity Disorder*. *Child and Adolescent Psychiatric Clinics of North America*, 21(1), 145–159. <https://doi.org/10.1016/J.CHC.2011.08.012>
5. Evans, S. W., Langberg, J. M., Egan, T., & Molitor, S. J. (2014). Middle school-based and high school-based interventions for adolescents with ADHD. *Child and adolescent psychiatric clinics of North America*, 23(4), 699–715. <https://doi.org/10.1016/j.chc.2014.05.004>.

6. Fabiano, G. A., Schatz, N. K., & Pelham, W. E. (2014). *Summer Treatment Programs for Youth with ADHD*. *Child and Adolescent Psychiatric Clinics of North America*, 23(4), 757–773. <https://doi.org/10.1016/J.CHC.2014.05.012>
7. Faraone et al., 2015 S.V. Faraone, Asherson, T. Banaschewski, J. Biederman, J. K. Buitelaar, J. A. Ramos-Quiroga, L. A. Rohde, E. J. Sonuga-Barke, R. Tannock, B. Franke. Attention-deficit/Hyperactivity Disorder. *Nt. Rev.Dis. Primers*, 1(2015). Google Scholar.
8. George J. DuPaul, Lisa L. Weyandt & Grace M. Janusis (2011) ADHD in the Classroom: Effective Intervention Strategies, *Theory Into Practice*, 50:1, 35-42, DOI: 10.1080/00405841.2011.53493
9. Gresham, F. M., Cook, C. R., Collins, T., Dart, E., Rasetshwane, K., Truelson, E., & Grant, S. (2010). *Developing a Change-Sensitive Brief Behavior Rating Scale as a Progress Monitoring Tool for Social Behavior: An Example Using the Social Skills Rating System—Teacher Form*. *School Psychology Review*, 39(3), 364–379. <https://doi.org/10.1080/02796015.2010.12087758>
10. Huei-lin Huang, Chia-Hua Lu, Hsiao-Wei Tsai, Chia-Chen Chao, Tsai-Yu Ho, Sheng-Fa Chuang, Chih-Hao Tsai, and Pin-Chen Yang (2019); Effectiveness of behavioral parent therapy in preschool children with attention-deficit hyperactivity disorder. Departments of Psychology and Psychiatry, and Graduate Institute of Behavioral Science, Kaohsiung Medical University; Department of Psychiatry, Kaohsiung Medical University Hospital, Kaohsiung; and Department of Psychology and Counseling, Taipei Municipal University of Education, Taipei, Taiwan
11. Illaria Tercelli, Nuno Ferreira, (2019); *A systematic review of mindfulness based interventions for children and young people with ADHD and their parents*, University of Edinburgh University of Nicosia DOI: 10.2478/gp-2019-0007 Received: 26 February 2019; Accepted: 3 March 2019 GLOBAL PSYCHIATRY
12. Jocelyn I. Meza, Lauren M. Friedman, Melissa R. Dvorsky, Peter Kass, Divya Chhabra, and Linda J. Pfiffner (2020); *Outcomes of School–Home Intervention for Attention and Behavior Problems : Teacher Adherence Matters*. © Springer Science Business Media, LLC, part of Springer Nature.
13. Kortekaas-Rijlaarsdam, A.F., Luman, M., Sonuga-Barke, E.J.S., & Oosterlaan J. (2018). *Does methylphenidate improve academic performance? A systematic review and meta-analysis*. *European Child & Adolescent Psychiatry*. Advance (2020) *Understanding and Supporting Attention Deficit Hyperactivity Disorder (ADHD) in the Primary School Classroom: Perspectives of Children with ADHD and their Teachers*. *J Autism Dev Disorder*. <https://doi.org/10.1007/s10803-022-05639-3>
14. Langberg, Joshua M., Stephen P. Becker, Jeffery N. Epstein, Aaron J. Vaughn, and Erin Girio-Herrera. (2012) “*Predictors of Response and Mechanisms of Change in an Organizational Skills Intervention for Students with ADHD*.” *Journal of Child and Family Studies* 22, no. 7 (2012): 1000–1012. doi:10.1007/S10826-012-9662-5.
15. Loren, R. E. A., Vaughn, A. J., Langberg, J. M., Cyran, J. E. M., Proano-Raps, T., Smolyansky, B. H., ... Epstein, J. N. (2013). *Effects of an 8-Session Behavioral Parent Training Group for Parents of Children With ADHD on Child Impairment and Parenting Confidence*. *Journal of Attention Disorders*, 19(2), 158–166. <https://doi.org/10.1177/1087054713484175>
16. Meza, J. I., Friedman, L. M., Dvorsky, M. R., Kass, P., Chhabra, D., & Pfiffner, L. J. (2020). *Outcomes of School–Home Intervention for Attention and Behavior Problems: Teacher Adherence Matters*. *School Mental Health*, 12(4), 703–715. <https://doi.org/10.1007/S12310-020-09378-7>
17. Pfiffner, L. J., Kaiser, N. M., Burner, C., Zalecki, C., Rooney, M., Setty, P., & McBurnett, K. (2011). *From Clinic to School: Translating a Collaborative School-Home Behavioral Intervention for ADHD*. *School Mental Health*, 3(3), 127–142. <https://doi.org/10.1007/S12310-011-9059-4>
18. Power, T. J., Mautone, J. A., Soffer, S. L., Clarke, A. T., Marshall, S. A., Sharman, J., Blum, N. J., Glanzman, M., Elia, J., & Jawad, A. F. (2012). *A family-school intervention for children with ADHD: results of a randomized clinical trial*. *Journal of consulting and clinical psychology*, 80(4), 611–623. <https://doi.org/10.1037/a0028188>

19. Santos, W. M., & Albuquerque, A. R. (2019). School interventions for ADHD: A literature review (2000-2018). *Psicologia: Teoria e Prática*, 21(3), 205-227. doi:10.5935/1980-6906/psicologia.v21n3p205-22.
20. Seeley, J. R., Small, J. W., Walker, H. M., Feil, E. G., Severson, H. H., Golly, A. M., & Forness, S. R. (2009). *Efficacy of the First Step to Success Intervention for Students with Attention-Deficit/Hyperactivity Disorder*. *School Mental Health*, 1(1), 37–48. <https://doi.org/10.1007/S12310-008-9003-4>
21. Stewart A, PhD and Christy R. Austin, MED Remedial and Special Education (2020), *Reading Interventions for Students With or At Risk of Attention-Deficit/ Hyperactivity Disorder: A Systematic Review* Alicia Vol. 41(6) 352–367 © Hammill Institute on Disabilities 2019 Article reuse guidelines: [sagepub.com/journals-permissions](https://sagepub.com/journals-permissions) DOI: 10.1177/0741932519849660.
22. Ward, R. J., Bristow, S. J., Kovshoff, H., Cortese, S., & Kreppner, J. (2022). *The Effects of ADHD Teacher Training Programs on Teachers and Pupils: A Systematic Review and Meta-Analysis*. *Journal of attention disorders*, 26(2), 225–244. <https://doi.org/10.1177/1087054720972801>
23. Watabe, Y., Stewart, J. L., Owens, J. S., Andrews, N., & Griffeth, J. C. (2012). *Effectiveness and Sustainability of School-Based Interventions for Youth with or at Risk for ADHD*. *School Mental Health*, 5(2), 83–95. <https://doi.org/10.1007/S12310-012-9094-9>
24. Wolfe, B.(2018). *The Impact of a Peer-Tutoring Model on the Academic Performance of Secondary Students*. (Doctoral dissertation). Retrieved from <https://scholarcommons.sc.edu/etd/4468>
25. Zuddas, A. (2017). *Practitioner Review: Current best practice in the use of parent training and other behavioural interventions in the treatment of children and adolescents with attention deficit hyperactivity disorder*. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*.
26. Zwi, M., Jones, H., Thorgaard, C., York, A., & Dennis, J. A. (2009). *PROTOCOL: Parent training interventions for attention deficit hyperactivity disorder*. *Campbell Systematic Reviews*, 5(1), 1–27. <https://doi.org/10.1002/CL2.58>