

**CURRENT RANGE OF TREATMENTS AND THERAPIES
IN CHILDREN AND ADOLESCENTS DIAGNOSED WITH
ADHD; A SYSTEMATIC REVIEW OF THE LITERATURE**

Honors Thesis

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By

Cameron Scott MacLeod

Charlene A. Campbell MSN, MEd, RN.
Faculty Advisor
Department of Health and Human Sciences

Commonwealth Honors Program
Salem State University
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ABSTRACT:

Objective: Attention Deficit Hyperactivity Disorder (ADHD) is a disorder that affects many children and adolescents in the United States. ADHD is associated with inattention, hyperactivity and impulsivity that usually starts during childhood and can last throughout life. The objective was to compile and synthesize the data on the many treatments available and gain insight from the results. This review of the literature examines research studies pertaining to the different therapies and the effects on attention deficit hyperactivity disorder with a focus on children and adolescents. It is the hope that in looking at a broad range of therapies we can work towards a future goal of better individualized treatment outcomes without a major reliance on pharmaceuticals.

Study Design: This study was a systematic review of the literature that examined the current therapeutic options that can be used in treatment of this disorder. The literature was all found on the CINAHL Database with a concentration on nursing research articles.

Results: The studies analyzed in this review fell into the therapeutic modalities of pharmacotherapy; school supports; psychosocial treatments; behavioral therapy; dietary supplements; neurofeedback; fine motor activities; ADHD coaching and animal assisted therapy.

Conclusion: These findings show the different strategies and treatment options that can be utilized for children and adolescents diagnosed with ADHD. From this one can see the benefit from reviewing and looking at all options and applying an individualized approach to treatment.

INTRODUCTION / BACKGROUND:

Attention deficit hyperactivity disorder is a topic that is becoming more in the spotlight. It is one of the most commonly diagnosed mental health disorders. Danielson et al., (2017) defined ADHD as the following:

“Attention-deficit/hyperactivity disorder (ADHD) is a neurodevelopmental disorder that begins in childhood, results in pervasive functional impairment, and has been diagnosed in 11% of children aged 4-17 years in the US. Children with ADHD are more likely than their peers to experience adverse long-term outcomes, including poor school outcomes, more frequent injury, higher rates of co-occurring psychiatric disorders, and greater healthcare utilization.” (p. 240).

This disorder affects the functioning of children and adolescents and has lasting effects well into adulthood. “Attention deficit hyperactivity disorder (ADHD) is the most common neurobehavioral disorder during childhood” (Senapati, 2017, p.174). ADHD usually manifests early in children and adolescents and presents itself most commonly with symptoms of inattention, hyperactivity and impulsivity. This influences one’s personal, social, academic and occupational life and can have huge implications throughout life (Senapati 2017; Ahmann et al., 2017).

It is important to look at the current range of treatments and therapies available for children and adolescents diagnosed with ADHD. In reviewing all of the available options it is the hope that one can better understand the scope of care as well as areas needing further research and promotion. This systematic review of the literature can be reviewed to understand the current treatment practices for ADHD.

METHODOLOGY:

This study is a systematic review of the literature. The criteria for inclusion for the studies included in this review are that they are written within the last five years to remain current as well as being peer reviewed articles. Only articles written in English and having access to full text content will be considered. The types of studies that will be reviewed will be a mix of quantitative and qualitative designs. These will primarily consist of nursing articles. The study population was limited when possible to children and adolescents in the United States. The search strategy to find articles that would be included in this systematic review consisted of using articles coming from the Salem State University Library Database. The databases utilized to find the sources were CINAHL Plus with Full Text; EBSCO and PsycArticles: APA/EBSCO. The keyword search was "adhd or attention deficit hyperactivity disorder and alternative treatment or therapies and children and adolescents". The next stage consisted of combing through all of the listed articles by title collecting those with titles relating to the topic at hand. The articles that showed promise were then sorted through by reading the abstracts and including only those that could be useful in the research. The final step consists of reading through the full article and making the decision whether or not the remaining article was pertinent to the study. This is how the selection of the materials was made for the systematic review. Conclusions are made based on the analysis of therapies and treatments that have been covered in previous studies and articles on the topic of ADHD.

Timeline:

The timeline for this systematic review of the literature was around two years from the initial planning phase to the completion of the thesis. Work started on this thesis project early in the spring semester of 2016 and was completed in the spring of 2018.

RESULTS:

The findings show that the two most common types of ADHD treatments were medications and school supports. A fraction of the childhood ADHD population ever received dietary supplements (Danielson et al., 2017). This is clearly shown below in the figure. This figure shows the percentage of children receiving each of nine types of treatment for ADHD.

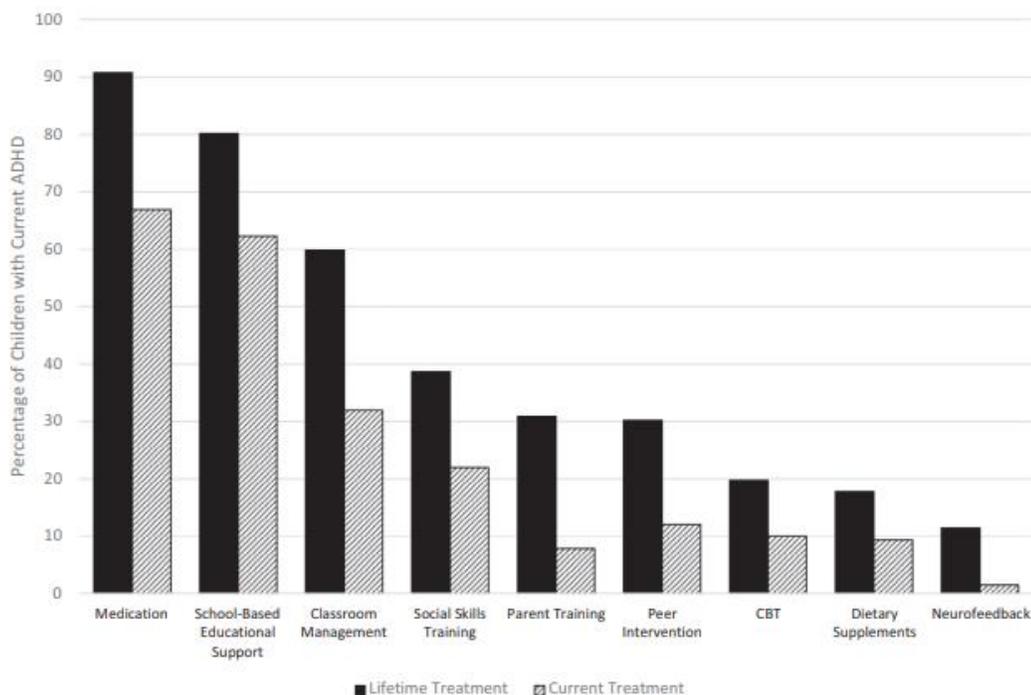


Figure. Graph showing percentage of children 4-17 years of age with current ADHD receiving treatment, by treatment type (medication, school-based educational support, classroom management, social skills training, parent training, peer intervention, cognitive behavioral therapy, dietary supplements, and neurofeedback) (Danielson et al., 2017, p. 242).

Medication use is one of the most common and widely used treatment options for those with ADHD. A survey showed that 90.8% of children had received pharmacotherapy treatments at one time while 66.9% are currently receiving medication for ADHD (Danielson et al., 2017). One measure of the effect of acute stimulant treatment for those with ADHD is to test the drift rate in children performing cognitive tasks. In this study, children with ADHD completed double blind, placebo controlled trials of discrimination tasks to test against the controls the effect of the stimulant (methylphenidate) (Fosco et al., 2016). The results showed marked improvement in speeded accuracy and reduced non-decision time. The study goes on to suggest that one of the effects of medication treatments for ADHD is the impact in cognitive performance in youth by improving the speed/efficiency of information accumulation (Fosco et al., 2016). This was one of the many studies researching the effectiveness of medication therapy for ADHD.

School supports are often a great way to help those in the school systems who have been diagnosed and recognized as having ADHD. There are many ways to implement these supports. In a study, 64.7% of school aged children were currently receiving school supports and 85.8% had ever received some form of school supports (Danielson et al., 2017). A national survey examined elementary and middle school teachers' self-reported use of ADHD supports (Hart et al., 2017). The supports were organized into a three tiered system. The first tier being universal interventions, which are applied for all students in the school and sets a goal of being preventative and proactive in the classroom. This created a learning environment that had expectations and

defined appropriate and inappropriate behaviors and set incentives and consequences respectively. The second tier focused on targeted interventions. These were interventions for students who posed a greater risk of academic or behavioral problems. These students would get targeted attention and educators would keep up to date with the child's behavioral and academic progress. The third and most demanding tier involved intensive interventions. These included Individualized Education Plans (IEP) and special accommodations. These tiers are outlined under the article by (Hart et al. 2017). It was found that most teachers self-reported using lower tier strategies primarily because they are less time and resource intensive. School supports help students with ADHD and give structure and expectations to their academic, behavioral and social impairments.

Psychosocial treatments include a myriad of therapies consisting of social skills training, parent training, peer interventions, and cognitive behavioral therapy. The numbers corresponding to the Danielson et al., (2017) survey is as follows:

Nearly two-thirds of children (62.2%) had ever received at least 1 of the 4 psychosocial treatments. Specifically, approximately one-third of children with ADHD had ever received social skills training (38.7%), parent training (30.9%), or peer intervention (30.2%), whereas 19.8% had ever received CBT... About one-third of children with current ADHD were currently receiving at least 1 of the psychosocial treatments (32.5%) at the time of the survey; 22.0% were receiving social skills training, 12.0% were receiving peer interventions, 10.1% were receiving CBT, and 7.9% had parents receiving parent training. (p.242)

Psychosocial treatments can be an important part of the treatment plan for those with ADHD.

Social impairments as a result of ADHD can have a huge impact on the lives of children and adolescents. Social skills are complicated, observable behaviors that include problem solving skills. Social skills also involve detailed verbal and nonverbal behaviors (Golden et al., 2017). The effectiveness of social skills intervention and training was studied in a nursing review that collected the literature of some 13 studies (Golden et al., 2017). The findings showed that the interventions played a huge role in those with ADHD and the prior research demonstrated the usefulness of social skills training.

Under social skills training, play therapy was studied as an effective treatment for of age group 6-12 yrs. The study evaluated the effectiveness of play activities on these children with pre and post assessments measuring the variables of inattention, hyperactivity & impulsivity and anxiety using the ADHD Rating Scale and Spence Children Anxiety Scale (SCAS). (Aziz et al., 2017). A study by Aziz et al., (2017) reported the following:

Play activities helps children to become more responsible for behaviors and develop more successful strategies, to develop new and creative solutions to problems, to develop respect and acceptance of self and others, to learn to experience and express emotion, to learn new social skills and relational skills with family and to develop self-efficacy. It has been shown to provide significant improvement in children, as compared to those who did not receive play therapy. (p.207)

Findings from play therapy establish it as a useful treatment for children with ADHD.

Parent training falls under the category of psychosocial treatments as well and can be very beneficial for children and adolescents diagnosed with ADHD. The study by Haack et al., (2016) stated the following:

Behavioral parent training is an evidence-based psychosocial treatment directly targeting parenting as the primary mechanism of change, intended to produce sustained improvement in child behavior indirectly via the promotion of effective parenting strategies. Parent training focuses on increasing positive and decreasing negative parenting via instruction and practice in effective caretaking strategies. Specifically, parents are taught to engage in positive attending and monitoring, set clear expectations, and provide consistent positive and negative consequences. (p. 842)

In this study, findings suggested that improvements in negative parenting behavior resulted in greater improvements in ADHD symptoms than those with just improvements in positive parenting. Regardless of the parenting training, there were improvements in child impairment-related outcomes (Haack et al., 2016).

Peer interventions can help to influence the behavior of someone diagnosed with ADHD. This is particularly true for the population of children and adolescents. Under peer interventions peers set a standard of behavior that one can attempt to imitate. It is in this social construct that children and adolescents can learn which behaviors are appropriate and which ones are not.

Cognitive behavioral therapy works to address the behavioral issues associated with inattention, hyperactivity and impulsiveness through teaching. Working memory training in ADHD can help with cognitive functioning and increased retention and

completion of tasks. A pilot study used this population to evaluate whether shortened-length sessions of CogMed Working Memory Training (CWMT) would yield higher engagement, motivation, and expectancy of improvements (Mawjee et al., 2017). The results suggested that shorter training sessions would yield more favorable outcomes but results were mixed.

Dietary supplements and neurofeedback were two of the least used treatments for ADHD. According to the survey only 9.3% of people with ADHD were currently using dietary supplements or herbal remedies where 17.8% had ever used any of them. Compared to the low usage of neurofeedback where only 1.5% were currently using it and 11.4% had ever received neurofeedback (Danielson et al., 2017). There is not a lot of literature on the effectiveness of these two alternative forms of treatment because there are so few people using them.

Fine motor activities and training can help improve the motor functioning of those with ADHD. A case study by Senapati looked at the effectiveness of fine motor activities on fine motor skills in a child with ADHD. (Senapati 2017). This study observed that the activities improved the fine motor functioning of the child with ADHD and could be used as a form of therapy for others to help function. Several motor activities had been reported as a difficulty for children with ADHD and skills training improved some of these impairments.

Another available therapy for those with ADHD is ADHD coaching. These are trained coaches who work with clients to help minimize impairments and set goals while building upon strategies to achieve higher functioning. “ADHD coaching is a promising behavioral intervention and a useful component of multimodal treatment” (Ahmann et al.

2017, p.121). This coaching can be used at all ages and allows the clients to manage their impairments in inattention, hyperactivity and impulsivity. The coaching is client centered to promote empowerment. It educates about ADHD and offers tools and resources as well providing skills and strategies to work off of client strengths and weaknesses. This can be a very individualized treatment with trained professionals in ADHD coaching. There are many different models on effective coaching for this population. Treatment is usually focused on individual coaching but group coaching is sometimes used with adults (Ahmann et al. 2017). ADHD coaching has been in longitudinal studies that reported that the benefits were sustained over time. Most research on ADHD coaching has focused on college students where there is marked improvement in executive functioning, self-esteem, well-being and quality of life. (Ahmann et al. 2017).

Animal assisted therapy is a lesser used form of treatment that could potentially help those in this population diagnosed with ADHD. It has many subsets and approaches to it such as therapy animals or full time pets, as well as equine-assisted activities. These therapies are increasing in popularity and are being utilized in many forms of psychological treatment. “The term Equine-assisted activities and therapies (EAAT) was developed in the 1990s, although these activities have been gaining in popularity for decades” (Anderson and Meints 2016, p.3344). One activity under EAAT is therapeutic riding (TR). TR helps those with special needs in many areas while using skills such as attention, control, focus and communication (both verbal and nonverbal), to improve social functioning (Anderson and Meints 2016). The nonverbal communication with these animals allows children and adolescents to learn from these interactions and attribute them to social functioning. It is sometimes easier for this population to pick up

body language without having the misinformation that verbal communication can add in. Animal assisted therapies are yet another one of the potential treatments that can help those diagnosed with ADHD with social skills.

DISCUSSION:

The most common type of treatment for children and adolescents diagnosed with ADHD is medication therapy followed by school supports in second. School supports are given more often to those who are receiving special education services and those who are not may be under treated. (Hart et al., 2017) “A previous study of national parent survey data indicated that less than one-half of children with current ADHD (44%) received behavior therapy within the past year, whereas 74% received medication in the past week” (Danielson et al. 2017, p. 240). It is of concern that many children go without any behavioral parent training or other treatments that fall under psychosocial treatments even when it is recommended. Combination therapy has the highest potential of being effective with the concurrent use of medication therapy and a behavioral therapy.

Limitations:

There are a few limitations of this study particularly involving the amount of research available on many of the different treatment types available for this diagnosis. There is still a lot of research and studies to be done on this topic. It is reported that there is limited amount of information on strategies used by general educators and school teachers to help students with ADHD in the school setting. (Hart et al., 2017). There are not many sources on the topic and with the change of classifications with the DSMV (Diagnostic and statistical manual of mental disorders. 5th ed.) in 2013 making it all the more difficult.

Implications:

Many articles express a need for further examination and research into treatments and therapies for those within this population of children and adolescents with ADHD. Additional studies on the treatments available for this population are needed. (Antshel 2015; Chan et al., 2016; Ahmann et al., 2017). The whole area of mental health is changing and coming to the forefront of society, and with the change of categorization and the rise of new ADHD diagnoses there needs to be more research done to look at all available treatment options. Treatments should go beyond just prescription medications and there should be more consideration of other treatments or combination therapies.

CONCLUSION:

There are many different treatment types and therapies for ADHD. These treatments come in the form of pharmacotherapy; school supports; psychosocial treatments; behavioral therapy; dietary supplements; neurofeedback; fine motor activities; ADHD coaching and animal assisted therapy. Medication use and school supports are two of the most common treatments. The study supports the need for further research and evaluation of different treatment strategies to treat children and adolescents diagnosed with attention deficit hyperactivity disorder.

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Ethical Clearance:

This review of the literature is in compliance with ethical standards.

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Conflict of Interest:

There are no conflicts of interest.

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