Autumn Murphy

Writing Assignment

Drugs and Behavior

Due: 3/8/19

Are There Better Alternatives to Treating Symptoms of ADHD Than Medication Alone?

One stigma that tends to stand out when someone thinks about ADHD (Attention Deficit/Hyperactivity Disorder) is that they need to be medicated in order to function better and perform better in an academic setting. For a long time, using medication such as Adderall, Vyvanse, and Ritalin were usually prescribed to children, adolescents, and adults that may suffer from having symptoms of ADHD that resulted in impairment in different areas of functioning. This could include executive functioning such as organization and time-management, or other areas like attention, and memory. One that is not always mentioned however, is the area of performance in the classroom. This is a setting that children, adolescents, and adults typically spend a lot of time in when they are working to complete their education. Because they may suffer in a lot of other areas and settings, most likely they will suffer in completing homework, and doing well on assignments and retaining the information that they learn. Medication alone has been used to treat inactive or underactive parts of the brain to hopefully improve functioning in people with ADHD, and can have positive effect. However, medication alone does not always help and individuals may struggle to do better in the classroom, or not want to take medicine at all. This paper aims to look at different strategies that could possibly help children improve how well they do in the classroom by looking at what other studies have questioned and how well their methods worked in improving overall function in their lives compared to just taking medicine for symptoms.

The study titled, “Efficacy of Cognitive Behavioral Therapy With and Without Medication for Adults With ADHD: A Randomized Clinical Trial” attempts to answer the question on the effectiveness of pairing medication treatments with Cognitive Behavioral Therapy compared to CBT interventions without medication. The article talks about how a lot of this research is mostly unknown (Cherkasova et al., 2016). CBT made sense to researchers to put through clinical trials because behavior training through creating better strategies like organization and time-management can help improve core issues with symptoms, unlike medicine interventions. There were 88 adult participants that met diagnostic criteria for ADHD and other criteria into either the group with medication (a long-acting methylphenidate) and CBT or into the group with CBT alone. Individuals in both groups were assigned to twelve 1.5 hour weekly sessions of cognitive behavioral training with a therapist who specializes in this treatment (5 therapists were used over the length of the study). A program based around ADHD skill acquisition featured impulse control, executive functioning skills, and skills for their personal relationships; homework was given to help practice the cognitive and behavioral skills learned by participants in the study (Cherkasova et al., 2016). Coaches were also used in the study as resources, and there were also group CBT sessions throughout the program as well.

As far as results, there were significant improvements in symptoms and outcomes for ADHD across both groups. Those who were on medication and paired with CBT interventions reported that there were faster improvements than those with CBT alone at the 6-month follow up, especially in areas like self-esteem and organizational skills. The researchers were able to conclude that CBT without medication is still a viable treatment option for those who may not wish to be on medication or have had no benefits with medications. This was important because the study could show that a combination of both medication and therapy could help individuals

improve skills needed to function better overall. I wonder what this would have looked like if it was done with children and tested with a before-and-after assessment as far as performance goes.

Another study looked at Operant Behavior Therapy paired with methylphenidate, which is also known as Ritalin, when treating ADHD in children. The researchers wanted to understand the efficacy of operant behavioral therapy in combination with a medication (methylphenidate) along with the possible effects of withdrawal and the "normalization effects" resulting from the combination of therapy and medication (Klein & Abikoff, 1997). In the study, 89 children aged from 6-12 years of age were randomly assigned into treatment groups for a period of 8 weeks. One group for treatment was the placebo and operant behavioral therapy, another was just methylphenidate alone, and the last group for assignment was the behavior therapy and methylphenidate combination. After 8 weeks of treatment, children who were assigned into the medication and therapy group were given a placebo for another 4 weeks; none of the staff were notified in different parts of the study in order not to influence results. In all the study lasted 12 weeks. When looking at the results after some psychological tests and behavioral rating scales from parents and teachers, it was hard to see the impact on larger populations because there was not an effective control group for the study (Klein & Abikoff, 1997). It should be noted that this study was published prior to the DSM-III release, and diagnosis requirements were not the same as it is for the current edition of the DSM. Also, medication strength may also play a factor in how well the combination works as far as how much was being prescribed to the children. If this study was replicated, there might be more solidifying results if there was a better control group and was done under the current DSM edition.

There were other methods that I looked at that involved little to no use of medications used for treating ADHD in children. One study that I found looked at assessing how well

computerized working memory training worked for this specific population. The research article discusses the possible deficits in executive functioning, which plays a huge role in ADHD and how one experiences different symptoms. The biggest example included in working memory, along with temporal processing (Klingberg, Fernell, Olesen 2006). Having difficulties in these areas can have big impacts on the individual and how they perform in both social and academic areas of their lives. With working memory, it helps us retain information after it is presented to us and create a response to that presentation (possibly of some kind of stimuli), and with a weaker working memory, individuals struggle with learning and memory.

In a 5 week period with 53 participants, this double-blinded study used a group that focused on a computer program called RoboMemo®, Cogmed Cognitive Medical Systems AB, Stockholm, Sweden (Klingberg et. al 2006) to train working memory of children and was close to the level of the working memory for individuals. Other child participants were assigned to a group that had similar tasks but had fewer loads on the working memory; this made doing tasks easier for maybe less of an impact on results. Psychologists in the study administered tests with the computer group and required the children to finish 25 days worth of training before their follow up session.

Tests were given to groups after the 5 week period such as the Stroop task, Digit-span task, Span-board task, and Raven's task at both the post-intervention and follow-up. Overall, the working memory of the children in the computerized training group had significant improvements when performing the various tasks compared to the other group and the effect was greater due to the difficulty matching for each individual (Klingberg et. al 2006). I thought that this study was really interesting because I have never heard of a study of this nature ever being done, especially because it focused on training the working memory without any medication. I

wonder if this could be done in other ages and possibly combine it with either medication or some form of therapy. It would be interesting to see other studies done like this for older groups or for more groups with brain injuries that have a hard time dealing with working memory.

Another study that I looked at that did not use medication was a study done on improving homework in middle-school aged adolescents who suffer in the classroom from ADHD. Researchers wanted to compare parent-monitoring and the acquisition of study skills by the students. In a 4 week, between-groups design, 42 students that included only 6 girls (rest were boys) in 6^{th}-8^{th} grade along with their parents participated in the study. Ages ranged from about 11-14 years (Meyer, Kelley 2007). One group had students monitor homework and study habits using the Homework Problem Checklist given by researchers while another group had parents complete their checklists; a wait-list control group was also used did finish questionnaires but were not treated. Parents were asked to prompt their children to complete homework, and would reward their child for having at least an 80% completion rate with some preferred activity.

What I found interesting about the results were that the parental monitoring actually really helped students do better in class because they were more prepared after completing homework (Meyer, Kelley 2007). If you think about it, then they may actually retain the material being covered and then do better when tested. Being better prepared might also be good in improving behaviors that lack in people with ADHD such as organization and procrastination. Those who self-monitored and were rewarded for it stuck to their positive behavior changes. As far as relevance, I personally haven't seen ADHD being treated as a behavior as far as using reinforcements to obtain a desired behavior go. This intervention seemed to work well, but it could be interesting to pair with medication and how it may affect the results.

The last study that was analyzed looked at a school-based, multicomponent program designed specifically for children with ADHD. Teachers carried out a 5-week study with 50 children and tested them on various neuropsychological tasks, behavior rating scales for parents and teachers, and direct observations of behavior were done in the study. Of the 50 students, 29 of them were trained in techniques that included behavior modification, cognitive behavior, and instructional management strategies (Miranda, Presentación, Soriano 2002). The remaining 21 students were placed in a control group.

At the end of the four weeks of working with the students and evaluating their progress, test scores improved, as well as behavior in the classroom. Teachers also reported that their knowledge of these types of strategies also improved and could respond better to students who have more educational needs than others (Miranda et. Al 2002). This study was done at the end of 1996, and I think that another study should be done with an updated DSM and updated curriculum that includes technology. Classroom dynamics are also different because of technology and it would be interesting to see how effective it is for improving behavior and performance in the classroom.

Overall, these studies looked at either combinations of medication and therapy for individuals with ADHD, as well as other non-medical interventions to improve performance in academics. These included parental-monitoring/self-monitoring groups paired with rewards to see effects on homework completion, classroom setting studies that looked at different components carried out by teachers, and even computerized programs that focus on working memory in children with ADHD. It was interesting that most of these studies did not focus on medicine or performance as a whole, but rather in specific ways to see which interventions could work as well as stimulant medication or even better than medication alternatives. There were

improvements in the different studies, but possibly re-doing these with an added component of medication groups could show very different results.

However, these seem to work just fine without medication, but in order for an individual to do really well in academic settings, they need a lot more support from other areas in a child's life such as school and the home. Without those support systems, students may not do as well and might resort to medication with a chance of not reaching to their full potential. I wonder how challenging this would be because of extra costs in schools and it may not be as accessible to schools or individuals that can not afford these kinds of services. As always, doing more research on potential alternatives to ADHD medication alone could open more doors and effectively treating different aspects of the disorder in the future.

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