

Medicinal Plants and Natural Products: A Multi-Modal Treatment Program for A.D.H.D. and A.D.D.

Carla Natalucci-Hall^{1*} and Matt Starr²

¹Clinical Psychologist, Floral Park, New York, USA

²Researcher Student, Bates college, Lewiston, ME 04240, USA

Abstract

Individuals, both diagnosed and undiagnosed with A.D.H.D. or A.D.D., (Attention Deficit Disorder with and without Hyperactivity), have unique challenges in managing daily experiences as well as developmental transitions. Our research seeks to explain how throughout these normative challenges, there is an accumulation of small t traumas that begin to impinge upon the individual causing anxiety, negative mood, and feelings about oneself as “not good enough”. Difficulty with persistence as well as focused attention has led many individuals with A.D.H.D. or A.D.D. to drop out of weekly CBT (Cognitive-Behavioral) psychotherapy and thus, not progress in the usage of skills and strategies that have been shown through research to be helpful with these symptoms. To increase the possibility of helping the community of people with A.D.D. or A.D.H.D., we have developed a protocol using EMDR (Eye Movement Desensitization & Reprocessing Therapy) to address small t traumas. In addition to the homeopathic use of Omega-3, video games and/or drawing, cognitive behavioral therapy, group therapy, and parent training were integrated into the overall treatment protocol. Results from our first group of 9 subjects have produced positive and promising results. These include: increased levels of self-esteem, higher levels of concentration producing more adaptive interpersonal experiences and academic performance, less reactivity in daily activities and more support from parents and teachers as a result. Researchers are in the process of developing an online class for behavioral health professionals that communicates our findings and provides training for the elements of our program. They are also working toward developing a class for college students with A.D.H.D or A.D.D. and their parents to prepare for this specific life transition.

Introduction

EMDR has been confirmed as an effective way to treat trauma by studies that examine its efficacy since its inception [1-5]. It does so by using an eight-step protocol that can address trauma at different levels. Consequently, EMDR has been successfully applied to several mental health issues. These include: anxiety, obsessive-compulsive disorder, and addictions. Its efficiency, effectiveness, and utilization of bilateral stimulation to desensitize distressing feelings and to enhance the replacement of negative cognitions with positive ones [6], makes EMDR pliable to many disorders in comorbidity as well. In fact, clinicians have successfully applied it to O.D.D., depression, anxiety, and/or O.C.D. in comorbidity with A.D.H.D. or A.D.D.

A number of clinicians have also explored the application of EMDR to symptoms of A.D.H.D. or A.D.D. to improve concentration and attention, as well as decrease distractibility and hyperactivity. Our study seeks to add to this body of research by addressing the little t traumas that occur as a result of social difficulties and challenges to achievement for individuals with A.D.H.D. or A.D.D.

A.D.H.D. is a neurobiological disorder in which symptoms derive from non-normative neurochemistry [7]. Behavioral symptoms caused by neurological difficulties can be traced to ‘little t traumas’, according to Francine Shapiro and others [8-11]. Little t traumas are defined as any events that have a negative impact on the mind that does not qualify as P.T.S.D. In the lives of people with A.D.H.D., little t traumas can take the form of social rejection, bullying, repeated academic stressors and failure, and strained familial relationships [9,12]. The cumulative effects of these subclinical level stressors can be as intense as P.T.S.D. inducing stressors [13,14]. The presence of the accumulation of small t traumas often exacerbates existing A.D.H.D. symptoms and leads to anxiety, negative mood, and feelings

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of inadequacy. These byproducts of historical and chronic small t traumas cause those with A.D.H.D. to be subjectively less satisfied with their lives [15], less socially and emotionally well [11], and less likely to reach academic and/ or career success [9]. By way of these findings, any effective treatment for A.D.H.D. would not only alleviate the present emotional distress associated with these little t traumas, but also would lead patients to develop a skill set to help consistently prevent the recurrence of these traumas in the future. As a treatment centered around targeting traumas, our research study hypothesizes that EMDR could lead to the alleviation of emotional distress regarding the accumulation of little t traumas in patients with A.D.H.D. Thus, it would be able to reduce the symptoms that the accumulation of these traumas seems to trigger. As a result of the decrease in emotional triggers and reactivity, the person with A.D.H.D. or A.D.D. may be able to have an increase in resources to manage symptoms of attention, concentration, disorganization, and emotional modulation in a more regulated manner.

This hypothesis is derived in part from a review of the research on applications of EMDR done by Dr. Francine Shapiro, which suggests that EMDR could be used to effectively deal with the stress regarding adverse life experiences [16]. Additional studies found EMDR to be effective in reducing participants’ subclinical stress levels at college [17], in life [18]; and at work [19]. In addition to these

Corresponding Author: Dr. Carla Natalucci-Hall, Clinical Psychologist, Floral Park, New York, USA; E-mail: dr.carla.natalucci@gmail.com

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promising findings using EMDR to treat little t traumas, a select number of studies have applied either EMDR's original protocol or an EMDR protocol with slight modifications to target the accumulation of small t traumas in patients with A.D.H.D. Two controlled studies have found that a slightly modified EMDR protocol effectively decreased A.D.H.D. symptoms in children by targeting little t traumas [20,21]. Additionally, a single group case study found that a modified EMDR protocol led to subjective assessments from participants' parents indicating improved symptom related behavior of participants [22]. Finally, two individual case studies found modified EMDR protocols led to A.D.H.D symptom reduction in two pre-adolescent boys [23,24]. The collection of research suggests that EMDR would be an appropriate and effective centerpiece of a protocol intended to reduce symptoms of A.D.H.D by targeting and reducing distress surrounding small-t traumas.

These studies' positive findings about EMDR and A.D.H.D also form the basis for slightly more modifications to address individuals who have difficulties engaging with traditional forms of bilateral stimulation. According to Dr. Shapiro, the alteration of the structure of typical eye movements may be necessary when EMDR is done with patients that have A.D.H.D [6]. To our knowledge, only two studies have used a modified EMDR protocol by changing how bilateral stimulation is done with patients that have A.D.H.D. Withers [22] did so with group EMDR therapy by using bilateral body movements instead of bilateral eye movements. Frost [24], however, is the only instance in which video games have been effectively used to gain and maintain the attention of a patient with A.D.H.D during bilateral stimulation. In this study, a video game of the client's favorite superhero was used to induce bilateral stimulation to improve attention and concentration on tasks as well as to develop behavioral modulation and affect regulation. To our knowledge, drawing activities have not been formally documented in research as used to induce calming during bilateral stimulation with patients who have ADHD.

A large body of work exists on the effectiveness of video games in engaging participants with A.D.H.D. A meta analysis of studies that used video games as a treatment for A.D.H.D found that video games significantly increased participants' attentional control and motivation on treatment tasks [25], motivation to engage with video games relative to other forms of treatment [26], and enjoyment of treatment and willingness to participate in treatment [27]. The results of these studies suggest that compared to other forms of treatment, video games are extremely effective in not only garnering and holding the attention of kids with A.D.H.D, but in serving as an enjoyable mode of treatment.

According to Dr. Shapiro though, EMDR is insufficient as a treatment for A.D.H.D, and it should only be "used in conjunction with well-accepted A.D.H.D. treatments to address contributing psychological factors that exacerbate present symptoms" [12]. Evidence based adjunct treatments can be used to effectively complement EMDR. With these factors in mind, the researchers have developed a multi-modal protocol to manage symptoms of A.D.H.D. Specifically, a slightly modified EMDR-centric protocol was embedded in a comprehensive treatment approach. This comprehensive approach includes: parent training, cognitive behavioral therapy, video games, and mindfulness skills.

Previous research indicates that parent training is useful both as an adjunct treatment for A.D.H.D [28-30] and as a primary treatment for children with A.D.H.D. [31,32]. Parental therapy is

focused on constantly maximizing the quality of a child's environment. Specifically, the incorporation of parent training helps develop child management tools and strategies for the parent and social skills for the child. This has been seen to produce a calmer, more regulated environment. After, gathering the history of the client with a specific focus on A.D.H.D. or A.D.D. symptoms and little t trauma events, parent training would occur prior to and throughout the treatment.

The existing body of research states that CBT is effective in reducing the extremity of ADHD symptoms in adolescents both as a standalone psychosocial treatment [33-36] and as a complimentary treatment to parental training [37]. CBT is focused on providing the patient with a better understanding of the negative cognitions and emotions that plague their personal experience. It then attempts to provide the patient with a more effective knowledge of the aspects of their environment that caused those negative cognitions and emotions. Then, it attempts to provide the patient with strategies to form more positive conceptions of themselves, and successfully navigate the series of potential triggers for the disruptive behavior(s) in question. After fully gathering an understanding of a patient's already present disruptive behaviors and cognitions, CBT would occur prior to the initial of EMDR.

Each subject will then be introduced to the calm safe place while using a self-chosen video game or drawing that is found calming. This modification was initially explored due to the difficulties current clients with A.D.H.D. or A.D.D. have had with starting or engaging in this part of the standard EMDR protocol. Particularly clients with A.D.H.D. have repeatedly said that they do not find anything calm or safe, or that they cannot visualize at all. Slow bi-lateral stimulation would be applied through the use of pulsers in the subjects' pockets while playing the chosen game. This new way of doing the calm safe place would be used to see if the client can reduce the distress to begin the reprocessing phase, and then to provide calming after reprocessing. Next the reprocessing phase would be completed in accordance with the standard protocol. The little t trauma targets would include: bullying, social exclusion, feelings of unworthiness or being damaged, parental or teacher stressors, feelings of overwhelm with tasks of daily living, and lack of success at school or work, as well as relationships.

Next, mindfulness tools and skills would be taught to subjects in an individual or group format. Previous research suggests that mindfulness training is effective both as an adjunct treatment for adolescents with A.D.H.D. [38] and as a psychosocial treatment for children with A.D.H.D. [39-42]. Additionally, mindfulness therapy would provide patients with a social skill set to help manage future little t traumas, thus making it an ideal complement to the alleviation of distress regarding past little t traumas that EMDR provides.

Finally, we propose adding the homeopathic usage of omega-3 to target A.D.H.D biologically. Previously, researchers have found that those with omega-3 deficiencies exhibit significantly more A.D.H.D. symptoms than those without [43,44]. In response to these findings, multiple studies have found that omega-3 is an effective supplement for reducing A.D.H.D. symptoms in patients of all ages, but only when used as a compliment to other treatments [45-49]. Thus, the homeopathic usage of Omega-3 would serve as an ideal final compliment to address the biological issues that parental therapy, mindfulness training, and EMDR fail to treat on their own.

Methodology

Over the course of sessions, several assessments and tasks are accomplished to set up and complete the multi-modal treatment for A.D.H.D.. Each client is seen with their parent for a detailed intake of the reasons for entering treatment and their prior psychological treatment history. Next, several questionnaires are administered to the parent regarding child symptomatology. The parent is also offered the teacher version of the questionnaires and/or another copy of the questionnaire for a non-present parent, grandparent, babysitter, etcetera to fill out. Lastly, the benefits of Omega-3 is stated to the parent, who is then given the appropriate current research links. They can then either independently choose to add this dimension to treatment or engage in the therapy alone.

Once the history and results of the questionnaires are analyzed, goals are set up to address A.D.H.D. symptoms and other comorbid symptoms. These could include: anxiety, depression and/or O.D.D. Then, tasks of journaling, breathing, and relaxation are reviewed and demonstrated for both parent and child. Daily journaling, breathing at transition or stress points during the day, and relaxation after school and at bedtime are established. To reinforce these and develop other skills, parent and group sessions are scheduled concurrently to the individual sessions. These focus on the reprocessing of the little t traumas with EMDR. The little t traumas targeted with the current A.D.H.D. subjects include: parents and other authority figures yelling, coercion, and/or violence from others to complete tasks or to pay attention, bullying, social isolation, feeling negative about oneself, and having challenges to establishing and/or maintaining enjoyable relationships due to the inattentive or kinetic symptoms of A.D.H.D..

Assessments Utilized

Vanderbilt Assessment Scales for Parents Vanderbilt

Assessment Scales for Teachers Amen Clinic

A.D.H.D./A.D.D. Type Questionnaire Amen Clinic

Anxiety & Depression Type Questionnaire

DSM-V & ICD-10

All diagnoses were made using the DSM-V and ICD-10 Coding Criteria

Case Presentations

Case 1

J., a 10 year old boy, presented for treatment at the request of his parent due to A.D.H.D., O.D.D., depression, and anxiety symptoms. He had been refusing to go to school and was aggressive toward his parents. Upon presentation, J. refused to enter the office, hitting and kicking his mother. At first, Cognitive-Behavioral therapy (CBT) and parent training were initiated to reduce physical aggression, increase school attendance and manage anxiety symptoms adaptively. During the reprocessing phase, these therapies continued and group therapy was added to desensitize J. towards bus and school situations, as well as to learn appropriate social skills, communication tools, and mindfulness. In addition, Omega-3 was taken by J. once per day.

EMDR was then utilized to address the little t traumas he had experienced due to his presenting symptoms. These included: parents and other authority figures coercing him to go places and get on

school buses; physically intervening when he refused and became aggressive; yelling from others to complete tasks or to pay attention; social isolation; feeling negative about himself, and feeling that his relationships were tenuous.

The standard EMDR protocol for little t traumas was used for J.. He responded well to the pulsers, which we called "buzzees". Several memories were reprocessed to a SUDS of zero. J. was able to establish a calm safe place, but he could only do so when engaging in an activity he liked, such as drawing or playing video games. These additions to the standard EMDR protocol were introduced because he had difficulty paying attention to one image and became agitated when asked to close his eyes.

As a result of reprocessing the little t traumas J. had experienced, he was able to improve his relationships with family and school personnel, increase his social circle, and develop a more neutral self-image. These improvements allowed us to examine if by reprocessing these little t traumas, J. was able to manage his difficulties with attention and concentration because he was not being distracted and, perhaps even derailed by his other symptoms.

Parental, teacher and observational data seem to indicate that J. was able to complete tasks more effectively and efficiently. In addition, comments seem to point to the fact that he was not experiencing symptoms to situations that overwhelmed him in his daily life, i.e., not triggered by his everyday settings, he behaved more adaptively and could then use his inner resources to direct and sustain his attention.

An interesting side effect of using the "buzzees" while J was playing video games was that he became calmer and more focused on the tasks in the video games. In these games, clients have to figure out tasks that move them from one place to another and collect items. The games challenge concentration and frustration, as well as attention to task. The calmer J. became with the "buzzees", the more J. was able to problem-solve and complete increasingly difficult levels of games.

Case 2

L., an 11 year old girl, was brought to therapy by her parents. They reported L. having a number of symptoms, including: A.D.H.D., O.D.D., depression, and anxiety for several years. She had been refusing to listen to parental requests, had difficulty with keeping focused on tasks, felt she could only sleep with her parents in their bed, had difficulty participating in and completing academic activities, was highly disorganized with school and room items, forgot to do tasks of daily living such as self-care, and became withdrawn and sad when having difficulty with peers, a frequent occurrence. Upon presentation, L was shy and scared to enter the office. Cognitive - Behavioral therapy (CBT) targeted anxiety and depressive issues. In addition, CBT was used to reinforce attention and concentration, develop a schedule for task completion, and improve organization through the establishment of routines. Parent training was initiated to help L. to manage anxiety symptoms adaptively and to support her while she worked through relationship issues with her friends. During the reprocessing phase, these therapies continued and group therapy was added to learn adaptive social skills to help her manage bullying more effectively. It also helped her develop communication tools and mindfulness to improve her ability to deal with her own reactivity. In addition, Omega-3 was taken by L. one time per day. Then, EMDR was utilized to address the little t traumas she had experienced due to presenting symptoms. These included: parents and other authority

figures yelling at her to complete tasks or to pay attention, bullying and social isolation, feeling negative about herself, and having “roller coaster type” feeling relationships.

The standard EMDR protocol for little t traumas was used for L. She responded very well to the “buzzees”. Several memories were reprocessed to a SUDS of zero. In addition, L. was able to establish a calm safe place at times when she was not anxious or upset. This ability improved when she was engaging in drawing or playing video games. Again, these additions to the standard EMDR protocol were introduced because she sometimes became very upset or anxious when asked to close her eyes due to her level of anxiety.

Reprocessing L.’s little t traumas improved her reactions in her relationships at home and at school, increased her social circle, and developed a more balanced mood. The change to the protocol seemed to allow L. to be more comfortable with the process of EMDR and thus, more able to engage in the protocol.

Parents, teachers, and clinicians have observed L. to engage in more appropriate social interactions, react less to peers and bullying, function more independently and effectively for task completion, and manage her fears, negative thoughts, and feelings more adaptively. Of note is that L.’s reaction to the “buzzees” while playing video games was that she was able to problem-solve and tolerate frustration for difficult game levels more adaptively.

Case 3

O., a 9 year old boy, was recommended for treatment by his teacher and a friend who is a speech therapist. His parents reported that O. has a number of symptoms since birth, including: A.D.H.D., O.D.D., depression, and anxiety. He has been very kinetic with his arms, legs and body when sitting, standing or walking. In addition, he refuses to respond verbally or physically to parental requests. During homework, at school, swimming and Taekwondo, he has a lot of difficulty keeping focused on tasks, has difficulty responding verbally to questions, and completes activities incorrectly due to the anxiety of angry reprisals. In addition, he often forgets to hand in homework or take assignments home. His backpack is disorganized and he admits to not liking school or educational tasks.

Upon presentation, O. was shy, but quickly developed a pattern of coming into the office immediately and shutting the door on his family, who were in the waiting area. Cognitive-Behavioral therapy (CBT) targeted anxious behavior and negative thoughts. CBT also addressed his attention, concentration, and disorganization. Schedules, routines, and reinforcements were discussed and implemented. Parent training focused on helping O. to reduce anxiety symptoms by asking parents to eliminate yelling and coercive behaviors for task completion. Additionally, group therapy focused on the development of communication tools and mindfulness to deal with anxiety as well as negativity. Omega-3 was also taken two times per day by O. EMDR was used conjointly to address little t traumas he had experienced due to symptoms of A.D.H.D.. These included: parents and other authority figures yelling for him to sit down and to complete tasks or to pay attention, and negative feelings about his family and himself.

The standard EMDR protocol for little t traumas was used for O. He responded well to the “buzzees” and his memories of constant discipline were reprocessed to a SUDS of two. O. was not able to establish a calm safe place on his own. Several strategies were tried

including drawing and video games. Both were highly successful for O. This change to the standard EMDR protocol helped O. to reduce his anxiety, improve his responsiveness to his parents and teachers, and to establish a more neutral mood.

Reprocessing O.’s little t traumas improved his ability to follow instructions, increased his interactions during problem solving activities, and allowed him to be more in sync with his environment. His parents, teacher, and the clinician have observed these changes in O. to continue to improve over time.

Conclusion

To our knowledge, this is the first study to attempt to use EMDR in consonance with evidence based treatments to address A.D.H.D symptoms that have developed in concert with the accumulation of small t traumas. Additionally, this appears to be one of the first studies to adapt the Calm/Safe Place of the traditional EMDR protocol to the characteristics of the patient with A.D.H.D. and small t traumas. In fact, modifying the activity that created the Calm/Safe Place was essential for this population of individuals with A.D.H.D. to engage in not only that part of the EMDR protocol, but the treatment overall. Specifically, using video games and drawing during the Calm/Safe Place proved effective for calming and engaging patients in the entire process, as well as other treatment modalities. This was largely because clients looked forward to coming to treatment, were engaged during the therapy, and were excited to play video games or draw to wrap up, especially when upset by the memories being reprocessed.

The researchers found that when targeting the accumulation of small t traumas in clients with A.D.H.D, EMDR effectively reduced their reactivity to the small t traumas. This seemed to allow the clients to utilize resources for attention, concentration, and compliance. This appeared to help the client to adapt to and succeed more functionally in their daily environments. Adjunct therapies applied in conjunction with EMDR (social skills group training, parent training, CBT) supported these improvements and the development of skills. These include: increased emotional regulation, persistence for task completion, frustration management for problem solving, appropriate responsiveness to requests, and social adaptability. In addition, treatment effects were observed to hold over time by parents, teachers, and the clinician.

This study’s results support previous findings showing that EMDR can not only be used to target non-PTSD level stressors [18,17,19], but to reduce patients’ A.D.H.D. symptoms by targeting the accumulation of small t traumas [23,20,24,21]. Our results also affirm previous hypotheses predicting that EMDR can effectively be combined with other evidence based treatments to comprehensively treat A.D.H.D. [12]. In addition, this study adds fundamental research to previous statements that modified EMDR protocols can be as or more effective than the traditional protocol for patient populations with unique behavioral and cognitive characteristics [23,6]. Specifically, this study’s use of a multi-modal approach to A.D.H.D. with little t traumas and video games for the Calm/ Safe Place seems to be the first within the body of research on potential applications of EMDR.

This study’s results have a number of implications for the approach to modifying traditional EMDR protocol going forward. Due to our protocol’s procedural flexibility and approach to the Calm/Safe Place, our methodology could be especially effective when used with patients who find it difficult to engage in the EMDR process and/or

with other forms of treatment. Thus, this protocol can serve as a template for how to effectively modify the traditional EMDR protocol for clinicians interested in applying EMDR to special populations. As a result, this protocol should broaden not only the population of patients whose A.D.H.D can be effectively treated, but the population of people for whom EMDR can be effectively applied.

In addition, these findings are an encouraging addition to the existing body of A.D.H.D. treatments by offering an effective multi-modal approach and a clear alternative to single modality options. They demonstrate to clinicians that a flexible and comprehensive EMDR-centric treatment for A.D.H.D. is possible. Specifically, the researchers have shown that the modified Calm/Safe Place using video games or drawing was an effective option for treating specific symptoms of clients with A.D.H.D. using EMDR. Modifying the protocol to address patient specific barriers to EMDR and other treatments also creates the possibility of more clients with A.D.H.D. seeking treatment of this kind.

Future research needs to address how to determine the individual efficacy of the adjunct parts of the treatment protocol, as well examine the marginal effects of each adjunct treatment within the context of this protocol. These additional findings would make modifying this protocol to enhance its efficiency possible. The nature of a case study was ideal for demonstrating how to implement our protocol to other clinicians. It also helped us to examine a small sample size of patients, but did limit inferences and the generalizability of findings. A large, randomized controlled trial would help further support our findings that the researchers' protocol is applicable to different groups of patients with A.D.H.D. While our findings require tempered optimism, the researchers believe they have found one possible multi-modal, EMDR-centric approach for A.D.H.D. that serves as a promising sign for current practice and future research.

Competing Interests

The authors declare that they have no competing interests.

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