

**AN EXAMINATION OF THE EFFECTIVENESS AND EFFICIENCY OF EYE MOVEMENT DESENSITIZATION
AND REPROCESSING THERAPY ON POST TRAUMATIC STRESS DISORDER PATIENTS**

*To what extent is Eye Movement Desensitization and Reprocessing Therapy (EMDR) effective and efficient for the treatment
of Post-Traumatic Stress Disorder (PTSD)?*

Word Count: 4000

Introduction

Approximately 275.000.000 people experience stress-related anxiety disorders in the world, indicating that stress is ubiquitous in society¹. Stress generally refers to “any type of change that causes physical, emotional, or psychological strain².” There are positive-stressors such as wedding days or pregnancy just like negative-stressor, which are more abundant in the vagaries of our daily lives: studying for exams, being late to important meetings, losing money in the stock market. They abound. These negative-stressors lower the living quality, leading to emotional/physical problems, thus making people distressed and even vulnerable.

In some cases, trauma can cause stress, too. These traumas might hamper people from maintaining their wellbeing. Within this essay, trauma is referred to as “emotional response to stress-creating and life-threatening events.” When trauma occurs and affects the individual prominently, the individual may experience post-traumatic stress disorder (PTSD), “an anxiety disorder caused by stressful, frightening, or distressing events³.” Traumas such as accidents, assaults, wars, and so on can cause PTSD. With the negative effect of the trauma, people developing PTSD experience problems by not being able to eschew the trauma-related stress. PTSD makes patients relive the distressing moments when triggered by similar moments. Therefore, daily-life tasks turn out to be much harder for PTSD patients, making them unable to manage their personal/professional lives⁴. (Therefore, even the mundane chores become harder to cope with for people with PTSD)

The treatments for PTSD vary as drug and non-drug treatments. While drug treatments use antidepressants to relieve the stress-related PTSD symptoms, the non-drug treatments consisting of psychological therapies aim to make the trauma-related stress eradicated. For example, cognitive-behavioral-therapy (CBT) tries to assess traumatic events and alter its appraisal. As an alternative, exposure therapies (PE) try to present trauma-resembling situations to the patient without losing touch to the present in order to make it evident that trauma is relinquished⁵.

Other than these therapies, one relatively new therapy dubbed as the eye movement desensitization and reprocessing therapy (EMDR) has recently emerged. Developed in 1987 by Francine Shapiro, the therapy aims to modify the neural network storing the traumatic event memory and make the memory's state less distressing⁶. By exposing patients to visual, tactile, or auditory stimuli bilaterally while asking trauma-related questions, EMDR disintegrates the traumatic memory's neural networks. With the disintegration, trauma memory becomes harder to recall as it becomes laborious to access a disintegrated neural network. In a wider context, it is evident EMDR has the ability to disturb the trauma memory, reducing the subsequent stress level in PTSD patients⁷. Nonetheless, EMDR is considered as “controversial” because its neurological action mechanism is not known exactly. There are approximately 87 different theories proposed, but none of them comprise full certainty⁸.

In this essay, the main aim is to evaluate the effectiveness and efficiency of EMDR therapy. In this regard, effectiveness and efficiency will operationally be defined as the degree to which the EMDR is successful in producing the desired results and the degree to which EMDR is applicable and resourceful in producing the desired results, respectively. Therefore, the research question is written as: “To what extent is Eye Movement and Desensitization and Reprocessing Therapy (EMDR) effective and efficient for the treatment of Post-Traumatic Stress Disorder (PTSD)?” This research question is chosen to distinguish EMDR among other treatments of PTSD. This demarcation will enhance the literature regarding EMDR therapy concentrated on PTSD, since in many research papers, either PTSD or EMDR is solely investigated, the literature lacking a study merely concentrated on PTSD and its linkage to EMDR.

Throughout the main body of this essay, it is determined that the EMDR is effective and efficient to a great extent, but still needs improvements in its application. In this regard, meta-analyses, clinical trials, psychology journals, and several studies mentioned in the meta-analyses along with government-lead internet sites are used as secondary data to support the

¹ ('This Is the World's Biggest Mental Health Problem - and You Might Not Have Heard of It')

² ('How Is Stress Affecting My Health?')

³ ('Post-Traumatic Stress Disorder (PTSD) - Symptoms and Causes')

⁴ ('Post-Traumatic Stress Disorder (PTSD) - Symptoms and Causes')

⁵ (Schnyder et al.)

⁶ (Maxfield et al.)

⁷ (Schnyder et al.)

⁸ (Sharpley et al.)

conclusions. While the literature was browsed, studies directly related to stress, PTSD, or EMDR were analyzed. Among them, therapy comparisons were the mostly used types. Conversely, studies considering anxiety disorders as a whole or studies not considering EMDR were excluded. Also, narrative studies and interviews ranging from 1989 to 2020 were used in order to see and analyze the development and application of the EMDR. Hence, the essay concludes that EMDR as a stand alone therapy is both effective and efficient to a great extent in treating patients diagnosed with PTSD.

Main Body

PTSD and EMDR

Post Traumatic Stress Disorder (PTSD) is an anxiety related disorder that occurs when a trauma creates memory problems: the traumatic experience is continually recalled, creating discomfort in the patient. The main symptoms of PTSD are reliving the traumatic event by flashbacks and nightmares, trying to avoid thinking, and talking about the trauma, feeling isolation, hopelessness, and inability to express emotions. As PTSD is linked to memory, hence the nervous system. Normally, when a stimulus is received, it is processed by the brain. After the processing, the semantic details of the stimuli (notion/understanding of the stimuli) is stored either as a long-term or short-term memory in the brain, leaving the emotional parts unstored. In the case of PTSD, the nervous system misprocesses the stimuli of the trauma into a memory. Thus, the memory not only contains the semantic details, but also consists of all the emotional burden of the trauma⁹.

There are three different approaches for PTSD treatment: waiting to see if the patient would either get worse or better in time, drugs such as antidepressants, and various psychological therapies. All different therapies have one commonality: trying to make the PTSD symptoms eliminated. Two of these are main traditional therapy types: cognitive behavioral therapy (CBT) and prolonged exposure therapy (PE). CBT aims to change negative meanings and appraisals about the traumatic event to more positive thoughts. It tries to make the patient understand “self” and assess the traumatic event calmly and normally. The other traditional approach, PE, aims to process the traumatic event and its emotional appraisal. It uses prolonged exposure (repeated revisiting of the distressing trauma memories) to process the trauma, the aim is to get the patient accustomed to its memories¹⁰.

Eye movement desensitization and reprocessing therapy (EMDR) is a treatment method for PTSD, too. Being relatively new and controversial, EMDR bases its roots on the Adaptive Information Processing (AIP) model. According to AIP, misprocessing of a memory causes maladaptive storage. Due to this maladaptive storage, the memory can be very easily triggered and recalled, causing trauma to be relived continually. Constructed on the AIP model, EMDR tries to make the neural networks of misprocessed memory disintegrated so that it is not easily triggered and recalled. While doing this, EMDR uses bilateral alternating stimulations. With BAS, as explained in the introduction, dual-attention creating bilateral stimulations are created, disintegrating the misprocessed memory.

The controversial part arises from the problems of accuracy and reliability of EMDR as it is not yet completely clear how EMDR works in the brain. Instead, there are approximately 87 different working mechanisms proposed in literature. Among all mechanisms, the most widely accepted model is the “Working Memory Model”. According to this model, when the traumatic memory is recalled in the therapy, it is temporarily stored in the working memory of the brain (temporary information holder with limited capacity). Conversely, the BAS presented throughout the therapy tries to be stored in the working memory, too. While BAS tries to find itself a spot in the working memory’s limited space, it disintegrates the misprocessed traumatic memory’s neural networks, making the traumatic memory harder to be triggered and recalled. And so, the traumatic memory’s chance of being easily recalled with all of its emotional burden decreases.

Studies on PTSD with EMDR Treatment

A study conducted by van der Kolk et al. in 2002¹¹ showed that EMDR therapy is more effective compared to drug therapy. It aimed to compare the efficacy of drug treatment (a selective serotonin reuptake inhibitor named fluoxetine) and EMDR for the treatment of PTSD. 88 subjects of which had an 18-65 age range - 83% women - diagnosed for PTSD by the

⁹ (Schnyder et al.)

¹⁰ (*PTSD : Decision Aid*; Schnyder et al.)

¹¹ (Talbot)

DSM-IV criteria were recruited via newspaper ads, the Internet, and solicitation from medical and mental health professionals. As the selection contains various sources, it ensures random selection, increasing the study results' representativeness. Then, these subjects were randomly assigned to EMDR, fluoxetine, or pill placebo (placebo as the control group). For 8 weeks, subjects received treatments. After the treatment, 6 months later, follow-up assessments of these subjects were conducted, too. Right after the treatment's implementation, asymptomatic subjects were 8% more for the EMDR group compared to the fluoxetine group. Yet, what shows EMDR more effective is the follow-up assessment which analyzed subjects 6 months after the provided treatment: 57% of the EMDR group had asymptomatic lives whereas all of the fluoxetine group gained their symptoms back. The strength of the study is EMDR's applicability through a large age range. Also, with random assignment, the possibility of research bias is eliminated as random assignment inhibits researchers to manipulate distribution of subjects to allocated groups, increasing the results' strength. Yet, having 83% of the subjects as women is a weakness, creating less generalizable results. Thus, with the study, we understand that EMDR therapy is slightly more effective in the short-run, yet much more effective in the long-run treatment of PTSD. This might be due to psychological drugs' sole aim, suppressing the symptoms of PTSD. Yet, psychological therapies such as EMDR aim to eliminate the root causes of the traumatic memory. Therefore, as we can interpret, drugs, in spite of their short-term effectiveness of symptom-suppression, turn out to be ineffective in the long run as the symptoms they suppress arise back when the drug is not used. Yet, this is not the case with EMDR because it achieves to target the distressing memories that engender PTSD, making it lost so that it can never be traced back and recalled. All in all, it is evident that compared to medicine, EMDR therapy is much more effective in reducing symptoms.

Another study conducted by Lee et al. in 2002¹² showed that subjective distress decreases with EMDR, yet increases with PE. The aim of the study was to see which therapy, EMDR or PE, was better at weakening the symptoms of PTSD. 24 patients (11 females and 13 males) that were diagnosed with PTSD according to the DSM-IV criteria were selected from a clinical psychology section of a hospital and the psychology department of a government defense service. These subjects were treated with either EMDR or PE by being allocated through random assignment. It was concluded that PE caused reliving of the trauma in many patients, not making significant change on the symptomatology of PTSD. Yet, EMDR achieving to construct distancing (talking about the trauma stimuli with slowly being detached to it) instead of reliving contributed significant changes on the PTSD symptomology. We can explain these results by considering the application methodologies of PE and EMDR. As PE implements the use of trauma-like scenario exposure towards the patients, it tries making the trauma memory extinct. Yet, it also has a possibility to aggravate the patient by making the patient face the trauma directly as direct-exposure to trauma can cause emotional imbalance. Even though PE achieves making the trauma extinct, the trauma still has the ability to relapse and cause PTSD again as PE only makes the neural networks of the trauma extinct, not altered or eliminated. Yet, EMDR tries to alter the original memory and its neural networks. Therefore, it has a low possibility of causing relapse, making it a more effective solution for PTSD treatment. The weakness of the study is "self-reported" results. Self-reporting might have resulted in biased results as in desirability bias wherein patients respond in a way that would be seen as suitable. As such, the patients may have provided researchers with faulty information regarding their psychological well being. Mentioned by MacCluskie and Sikes et al. both in their EMDR literature reviews¹³, self-reported-EMDR makes the success of the treatment possibly amplified. This could cause the results of the study to be subjective, hampering the process of proving the accuracy and efficacy of EMDR. Also, a strength to this study can be the women and men subject number being close, making the results representative of both the sexes. All in all, it can be concluded that EMDR, despite having self-reporting measures making its results possibly subjective, still lowers the subjective distress of PTSD more compared to PE, revealing its "effectiveness" among other therapies.

Another study conducted and published by Konuk et al. in 2006¹⁴ showed that EMDR is able to treat PTSD symptoms in a very short-time. Also, this study proved that EMDR is easily applicable even in hard environmental conditions - harsh and dangerous environments where both the patient and therapist has the possibility to feel insecure and uneasy. In the study, 41 people that have experienced the trauma and developed PTSD from the 1999 Marmara, Turkey, earthquake were treated with EMDR. These subjects were chosen from people who had requested mental help due to the earthquake. It was noted that the subjects merely had PTSD and not any other mental problem. The EMDR therapy sessions were carried out weekly, 90-minute sessions per week, in the tent-cities patients lived - places where people lived because their buildings collapsed in the earthquake. In the study, after approximately 4 EMDR sessions, re-experiencing, avoidance, and arousal of

¹² (Lee et al.)

¹³ (Sikes and Sikes; Pitman et al.)

¹⁴ (Konuk et al.)

the trauma related to PTSD significantly decreased. These results demonstrate the fast effective ability of EMDR for PTSD treatment. Also, they show that EMDR is a useful and efficient treatment in different environments such as tent-cities. These features of EMDR were analyzed in the review by Sikes et al.,¹⁵ too, wherein it is demonstrated that EMDR was more effective compared to CBT and PE as it takes less time for patients to get better and as it doesn't have any homework that consumes the time of patients. A strength of the study is that it excludes subjects having other mental problems than PTSD, making the results more precise with eliminating possible confounding variables that would possibly influence the results. On the other hand, this study has a limitation, too: the 41 subjects were not excluded according to any drug that they were on, which makes the study's results less concise as the results might be occurring due to any possible drug that is used, too. Also, a possible bias in this study can be the "hindsight bias" because the subjects are people who already want to receive help with their PTSD. These subjects may report their symptoms as relieved just because they thought, from the beginning, that the therapy would work. All in all, if we are to interpret the results of this study as in line with the Sikes et al. review, we can interpret that EMDR makes a great choice of therapy for the treatment of PTSD in a challenging environment with a time-constraint, underscoring the "efficient" feature of EMDR.

Another study conducted by Devilly et al. in 1998¹⁶ shows how treatment fidelity not being present possibly affecting the effectiveness of EMDR. This study's main aim is to compare EMDR to standart psychiatric support (as the control group) and EMDR variant named REDDR (subjects are not bilaterally stimulated). In this study, 51 veterans with PTSD were assigned to the aforementioned three comparison groups. After the treatment methods were applied, statistically, the same amount of improvement was observed in all three compared groups: standard psychiatric support, EMDR, and REDDR. Compared to many other studies finding EMDR more effective, this study did not differentiate EMDR as a better treatment. This may be due to the limitation of the study regarding "treatment fidelity". Treatment fidelity simply refers to the "measure of the reliability of the administration of an intervention in a treatment study."¹⁷ In this study, treatment delivery wasn't according to standard protocols: inaccurate instructions, repetition of negative cognition during treatment, and different assessment procedures pre- and posttest were the problems affecting fidelity. So, it can be concluded that when the treatment fidelity is not provided appropriately, EMDR loses its distinctiveness and its higher levels of efficacy compared to other methods. Therefore, it can be interpreted that the lack of fidelity in EMDR sessions can make its implementation flawed. Then, we would expect to see the EMDR affecting the brain and memories in a different, problematic, way, inhibiting any possible positive EMDR effect on the patient. Even in an EMDR review study by Pitman et al.,¹⁸ it is demonstrated that "adherence to treatment protocols allows the better treatment of PTSD." So, when the necessary neurobiological mechanism is not affected, effectiveness is not reached with the EMDR treatment. Also, the assessment criteria changing throughout a study can possibly cause different results for same reported measures or same results for different reported measures, making the results altered and inevitably not concise and reliable. All in all, we can say that this study possibly demonstrates how a limitation of "being unable to control the treatment fidelity" can cause EMDR therapy less effective than it normally has been proven to be throughout the literature.

Another study conducted by Acarturk et al. in 2016¹⁹ proved EMDR as a gentle and easily implementable therapy as a PTSD treatment. In the study, the aim was to see if EMDR therapy would be successful in treating refugees with PTSD. Study was carried out with 49 EMDR and 49 wait-list control adult subjects from Kilis Refugee Camp in the Turkish-Syrian border. The subjects were chosen from treatment seeking adult refugees from the Kilis Refugee Camp, excluding subjects that had any substance abuse and mental health problems other than PTSD. EMDR was provided to the subjects in the site of the refugee camp. Due to Syrian people having low familiarity regarding mental health practices, to prevent their prejudice, they were provided with psychoeducation related to trauma and therapies. It was seen that even in refugee camp conditions with a subject group possibly having unfamiliarity to mental health practices, EMDR therapy proved to reduce PTSD symptoms. This study had several particular strengths. One is that the subjects who were using any drug, possibly could alter the EMDR's results, were excluded, and treatment fidelity was ensured with having EMDR supervisors. The other strength is that psychoeducation was provided to subjects, creating awareness about the therapy and mental health. These strengths ensured the EMDR to be implemented in an accurate way, and aided the patients to approach the therapy without prejudice, increasing the chance of EMDR's effectiveness in reducing PTSD symptoms. However, there was a limitation, too: due to refugees being mobile, sizable drop-outs from the study were present, making the long-term data collection problematic. All in all,

¹⁵ (Sikes and Sikes)

¹⁶ (Deville et al.)

¹⁷ (Deville et al.)

¹⁸ (Pitman et al.)

¹⁹ (Acarturk et al.)

with all results, limitations, and strengths, we can understand that EMDR is easily implementable and effective even in refugee camp conditions. On a further note, we can interpret that EMDR is a gentle therapy because in this study, even people with rudimentary mental health knowledge and possible prejudice were able to be convinced that EMDR can be an effective therapy for them. All in all, we can say that this study demonstrates EMDR's effectiveness in challenging environments and shows EMDR as a gentle treatment that can easily be adapted by subjects, emphasizing its "efficient" feature.

Controversial Side Effects of EMDR Therapy

According to numerous studies published on EMDR as a treatment for PTSD, symptoms of the PTSD patients are seen to be diminished. However, EMDR can induce side-effects due to its mechanism of action, too. As it directly manipulates the memory and trauma-related neural pathways in the brain, the therapy can have intense side-effects. These side effects are not clearly demonstrated in the research studies because they are not directly related to PTSD symptoms. Also, as EMDR's effects are mostly self-reported measures, the papers are unable to demonstrate side-effect examples unless they are directly provided by the subjects. Yet, interviews and testimonies of PTSD patients provide a detailed demonstration of these side-effects. To show these side effects, below, testimonials are provided. Additionally, information from the interview of an EMDR patient was provided. As these side-effects are observations or first-hand experience descriptions, they have the possibility to be subjective and biased, yet they are worth being considered as topics to be investigated.

In the Fall 2020 issue of "Combat Stress" magazine by the American Institute of Stress, an article named "Adverse Effects of Trauma-Focused Therapies"²⁰ focus on testimonials of patients who preferred EMDR to eliminate PTSD, rendered by an over 30 year-experienced private practice psychologist named Dr. Louisa Gatson. Overall, anger and emotional pressure were all mentioned by EMDR patients. According to one testimonial, a woman patient treated with EMDR was described as overwhelmed and angry, and felt, by her own words, "like a ball suffocating her". Also in another testimonial, a patient felt "like he was a volcano, ready to erupt," demonstrating emotional pressure. More intense side-effect examples such as panic-attacks and suicide attempts can be given. According to a testimonial, a patient had a severe panic-attack enough for the patient to collapse. Another patient even had three suicide attempts in six months.

Other than the testimonials, interviews with EMDR patients can be investigated to examine the side-effects of EMDR. I conducted an interview with my math teacher who has been receiving EMDR for a full year²¹. She said she experienced two vivid long-term memory losses. On one occasion she was in a math lesson and forgot how to solve derivatives so had to leave the lesson. The second was when she was in the middle of an exam, forgetting everything she studied and receiving a 7 out of 40 at the end. Addition to these side-effects, she mentioned she felt very tired after EMDR sessions and had many nightmares on the night of every session. All of these side effects can be possible due to the nature of EMDR itself. EMDR unchains the traumatic memories to construct them in a more appropriate manner. However, sometimes, the unchaining process can be intense for the patient, possibly making the patient feel uneasy, emotionally pressured, or distressed since, compared to other therapies, EMDR directly delves into the trauma memories, sometimes making it hard for the patient to endure.

Conclusion

After studying EMDR in such detail, I have come to the conclusion that it is an effective and efficient therapy for treating PTSD to a large extent. Still, it may cause adverse effects. In the case of effectiveness, EMDR is a better choice over drug treatment and more successful choice in treating PTSD over PE therapy. In the case of efficiency, it is faster than PE and CBT and is easily implementable in challenging environments and situations. On the other hand, EMDR can make no difference without treatment's fidelity, and the side-effects it compromises makes it partially detrimental to the patients, too, as the side-effects can lower subjects' quality of life to a great extent.

In the literature regarding EMDR treatment for PTSD, the studies mostly present EMDR as a completely effective solution for PTSD. However, the results of these studies are based on self-reportation, creating possibly biased results as self-report is a subjective way of determining psychological well-being. Also, in the research papers the side-effects are mostly neglected which may be due either to subjects experiencing but not reporting side effects by thinking that the side

²⁰ (Gatson)

²¹ (Savas)

effects are not related to EMDR, or to subjects not being questioned regarding side effects, yet merely being asked if they have seen their PTSD get better or worse (which may be due to framing effect)

In my opinion, further studies are needed to prove EMDR as an effective and efficient treatment. As its neurological mechanism is not precisely known, problems with its implementation and reporting are present. If the mechanism can be determined, then the implementation of EMDR can be manipulated to decrease side effects, and the outcomes it presents not only can be documented with self-reportation, but also with neuro-imaging technologies. Yet, despite all detrimental effects of EMDR, it still serves as an efficient and effective therapy for the treatment of PTSD.

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