

# Case Report

## Eye Movement Desensitization and Reprocessing: A Conceptual Framework

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### ABSTRACT

Eye movement desensitization and reprocessing (EMDR) is a method which was initially used for the treatment of post-traumatic stress disorder. But it is now being used in different therapeutic situations. EMDR is an eight-phase treatment method. History taking, client preparation, assessment, desensitization, installation, body scan, closure and reevaluation of treatment effect are the eight phases of this treatment which are briefly described. A case report is also depicted which indicates the efficacy of EMDR. The areas where EMDR is used and the possible ways through which it is working are also described.

**Key words:** Anxiety, cognitive therapy, conditioning, eye movement desensitization and reprocessing, post-traumatic stress disorder

### INTRODUCTION

Eye movement desensitization and reprocessing (EMDR) is a treatment procedure which is widely accepted and used in clinical settings. Shapiro has developed this procedure as an effective technique for alleviating post-traumatic stress disorder (PTSD). But now it is used in a wide variety of situations like phobias,<sup>[1]</sup> test anxiety,<sup>[2]</sup> dermatological disorders<sup>[3]</sup> and pain management.<sup>[4]</sup>

#### What is EMDR therapy?

Shapiro constructed this therapy in a very structured way and she has explained different phases for EMDR, which helps the therapists to move through this therapy in a very systematic manner. Different phases of the therapy<sup>[5]</sup> are explained below.

The first phase of EMDR is the client history and treatment planning. A detailed history helps the clinician to identify the client's readiness and identify any secondary gains that maintain his/her current problem. By analyzing the dysfunctional behaviors, symptoms and specific characteristics, the clinician decides the suitable target for treatment. The targets which were focused to be the basis for client's pathology are prioritized for sequential processing.

The second phase is called preparation in which the therapist and client make a therapeutic relationship. Therapist helps to set a reasonable level of expectations. He/she trains the person certain self-control techniques to close the incomplete sessions and to maintain stability between and during the sessions. The therapist instructs the client to use the metaphors and stop signals to provide a sense of control during the treatment session. The therapist explains about the client's symptomatology and also makes the person understand the active processing of the trauma.

Assessment is the third phase in which the client and the therapist jointly identify the target memory for the particular session. The patient is then instructed to

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recognize the most salient image associated with this memory and he/she will be helped to elicit negative beliefs associated with it which provide an insight about the irrationality of the particular event. Positive beliefs suited to the target are also introduced which contradict with his/her emotional experiences.

The validity of cognition scale (VOC) and subjective units of disturbance scale (SUDS) are assessed to understand the appropriateness of positive cognition (how much he/she considers a particular statement is true for the target memory) and how distressing is the stored memory, respectively. Both these assessments are used as baseline measures. In the assessment phase, emotions and physical sensations associated with traumatic memory are also noted down.

In the fourth desensitization phase, the client's disturbing event is evaluated to change the trauma-related sensory experiences and associations. Increasing the sense of self-efficacy and elicitation of insight is also a part of this phase. In this phase, the client is asked to attend both the target image and eye movement simultaneously and is instructed to have openness to whatever happens. After each set of eye movements, the client is directed to take a deep breath and instructed to blank out the material to which he/she is focusing. Depending upon the client's response, the clinician directs his/her subsequent focus of attention and also directs the length, speed and type of stimulation used.

In the fifth phase, the installation phase, the therapist attempts to increase the strength of positive cognition which is supposed to replace the negative one. Until the VOC reaches 7 or up to ecological validity, the most enhancing positive cognition is paired with the previously dysfunctional material during the bilateral stimulation.

Sixth phase is the body scan phase in which the client is asked to get the body scanned to know whether any somatic response considered as residues of tension related to the targeted event is still remaining. If it is present, the therapist targets this body sensation for further processing.

Closure is the seventh phase in which the self-control techniques, which were already taught, are used when reprocessing is not complete. This helps in bringing the person back to a state of equilibrium. In this phase, the therapist explains what to expect between sessions and to maintain a record of disturbances that arise between sessions to use these targets if necessary for further sessions. Reevaluation is the eighth phase in which review is carried out for optimal treatment effect and to check out additional targets.

## CASE STUDY

A case study of test anxiety can give a clear description of the EMDR therapy. A 22-year-old graduate student came with the complaint that she was not able to write the exam as she could not recall what she had studied. She had shivering sensation in the body, palpitation and sweating of hands. She left the exam hall without completing the exam. It was her first examination after joining the graduation course and teachers insisted the students to perform well in the examination as it would be included for the internal marks. This also produced so much stress in the student. While interviewing, she was so sad and was crying. She was anxious whether she could write the next examination which was going to be held after 2 days. She had also lost confidence in writing examination. As EMDR was found to have an immediate benefit, the therapist explained about the EMDR and got consent to work with the therapy. She was taught about safe place. The image she had was that she was sitting in the examination hall, unable to write the exam. The negative cognition was that she was not in control, and her positive cognition was that she could manage the situation. Her VOC was 2 and her SUD was 9. Her felt emotions were anxiety and sadness. The patient also felt shivering all over the body and choking sensation. Finger tapping was more comfortable than eye movement for her. In the desensitization phase, finger tapping was carried out while the client was focusing on the distressing image, negative cognition, physical sensation and emotion. After completing this phase, her VOC was found to be 7 and SUD changed to 0. After processing, the distressing image was shifted into an image that she was writing the exam with greater confidence. During body scan, no disturbing body sensations were found out. Before completing the session, the client was motivated to study well as she had done previously. Her next visit was after the next examination and she was found to be successful in writing the examination and was able to perform well.

According to Hyer and Brandsma,<sup>[6]</sup> EMDR is efficacious because it is based on sound psychotherapy principles. They stress this statement with several supporting evidences. In EMDR, the client is explained about the salient components of the treatment. The therapist indirectly facilitates the client, and in certain instances, does something to help the client in his changing process, using a manualized set of rules. Another factor is that the client himself decides up to what extent he should expose himself to traumatic memories. So, the client is not exposed to high level of anxiety during the treatment. Client also has enough freedom to discuss or conceal the content or details of his/her trauma. EMDR also focuses on both sensations

and emotions which help in effective information processing. EMDR prevents avoidance and promotes growth in a positive direction.

### How does EMDR work?

As the treatment has got wide acceptance in the therapeutic field, so many queries regarding its efficacy, working strategy and about the methods used were raised. For the question of how EMDR works, Shapiro<sup>[7]</sup> directs our attention to Pavlov's hypothesis that the traumatic memories produce a pathological change in the neural element, which occurs due to excitatory, inhibitory imbalance in the brain, produced by these memories. Pathological changes of neural element prevent the progression of information processing to come to a resolution. So, the memory will remain active in its original anxiety producing form and intrudes into the mind. Restoration of neural balance and reversal of neural pathology takes place when saccadic movements are induced along with image and cognition of the traumatic memory. This helps in resolution of information processing regarding this traumatic event, resulting in a change in picture, cognition and anxiety level. But Shapiro's explanation has so many drawbacks because she could not give adequate explanation about how neuropathology is developed while experiencing a traumatic event and how it is reversed during EMDR, and the way in which the information processing is progressing.

Another study which gives much more detailed explanation about EMDR therapy is based on conditioning principle.<sup>[8]</sup> Before explaining how EMDR works, the negative effect of trauma should be explained using conditioning principles. It argues that not only the traumatic event itself but also the perception of traumatic event producing unanticipated danger and an unconditional emotional response of terror with which coping is not possible form an unconditioned stimulus. The associated environment in which trauma occurs is cognitively represented in the memory. That is, the thoughts or interpretations related to a particular trauma (e.g., I am helpless) along with contextual stimuli that represent the objective conditions of trauma represent conditioning stimulus.

Stimulus generalization takes place when cognitive responses (CS2) are produced in a person, which share the contents of the buffer, that is, the overall pattern of stimulation to which the person is exposed at the time of trauma (CS1) and it is so similar that it also elicits anxiety in a similar way. Similarity of the responses will be in such a way that it produces a reliving of the traumatic experience and it enhances the excitatory strength of the CS. In PTSD, the extinction cannot occur because for extinction to occur, CS should be

present without Unconditioned Stimulus (US) causing conditioning emotional responses to get eliminated. As it was previously explained, due to stimulus generalization, the traumatic memories not only elicit anxiety but also strengthen their association. As a result, the CS-US relationship continues to persist.

Recall of traumatic memory is so aversive that cognitive avoidance or escape behavior is used to terminate the anticipatory or elicited anxiety. This forms a kind of negative reinforcement. Using eye movement desensitization as a treatment, the patient, when he/she agrees to participate, uses an approach strategy rather than avoidance strategy. Explaining it in terms of paradoxical intention, it helps to reduce the anticipatory anxiety which would emerge due to the recall of the feared memories. During eye movement desensitization, the saccadic eye movement is produced by following the movement of the therapist's finger and simultaneously the person should have an awareness of the image of traumatic memory, negative self-assessment of trauma, and physical responses of anxiety. Eye movement desensitization can be described as a stimulus generalization procedure because in this the original contextual cues are replaced by new elements, that is, tracking a rapidly moving finger. So, disparity is found between the new buffer contents (CS2) and the original buffer content (CS1). The person is not at all able to simultaneously maintain awareness to internal stimulus and the new external stimulus. When the finger wagging is sufficiently intense, the person will be distracted from trauma relevant thoughts. Thus, the conditioning trial will become an unreinforced trial and will thereby become an extinction trial (CS-no-US). The patient's approach behavior results in an experience of "success" of having coped with previously avoided stimulus.

It should also be noted that in the context of conditioning model, during eye movement desensitization, it is not compulsory to use the saccadic or tracking eye movement. The therapist can also use auditory or tactile stimulus as an external new stimulus. The condition applied here is that the patient should find it increasingly difficult to maintain the traumatic memory in awareness because of the distraction produced by the external new stimulus (auditory, visual or tactile). Greater the difficulty in maintaining the traumatic memory into awareness, the greater will be the speed with which extinction occurs. To know which stimulus should be used for the therapy, the therapist should analyze which sensation is the prominent component of the traumatic memory.

Gunter and Bodner<sup>[9]</sup> have reviewed various studies about how eye movement plays its part in the therapy

process. One of the explanations is based on working memory account. The working memory is a central executive system which does the higher order cognitive functions. Visuo-Spatial Sketch Pad (VSSP) and phonological loop are the two buffer subsystems from which stored information is available for further use. They store visuo-spatial information and auditory-verbal information, respectively. While performing eye movement, unpleasant images in VSSP get reduced in their vividness by concurrently using up processing resources in VSSP. Reduced vividness helps in reducing emotionality. Based on central executive account, the eye movement benefit occurs at the level of the central executive. It suggests that VSSP cannot be considered as the only locus in which disruption of memory takes place. According to central executive account, holding a memory in mind while focusing on another task results in reduced vividness, emotionality and completeness for the memory of unpleasant events. So, based on this account, not only the visuo-spatial task but also auditory or verbal stimuli can be used as a distractor.

Another view is that the eye movements activate the innate investigatory reflex that inhibits fear and permits exploratory behavior. This has two stages called reflexive pause and reflexive exploration. A strong sense of relaxation and pleasant visceral sensations which are produced by the reflexive pause when associated with unpleasant memories, reduce fear through conditioning. The reflexive exploration causes attention and cognitive processes more focused, flexible and efficient. This is thought to produce an idiosyncratic shift in emotion and cognition that often occur during EMDR. Inter hemispheric communication (IHC) suggests that horizontal eye movement increases the communication between left and right hemispheres of the brain, which improves the retrieval of unpleasant event without any negative arousal. So, initially, horizontal eye movement is considered to be providing a beneficial effect in EMDR. Gunter and Bodner<sup>[9]</sup> also studied the relevance of all these views and came to certain conclusions by conducting some experiments. They stated that eye movement benefits occur when a person brings memories to mind rather than eye movements alone.<sup>[2,10]</sup> This also supports the working memory account. Lee and Drummond<sup>[10]</sup> also suggested that vividness of image is reduced considerably only in eye movement distancing condition rather than eye movement reliving.

Result of Gunter and Bodner<sup>[9]</sup> shows that VSSP is not the only locus where the disruption of memory occurs because even the tasks which do not tax the VSSP, such as auditory distractors, can also produce effects similar to visuo-spatial tasks (which tax VSSP), such as eye movements. So, the central executive account is

much more effective in explaining the effectiveness of EMDR. This revelation also supports that not only the eye movement but also other distractors are useful for the EMDR therapy.<sup>[11]</sup> Eye movement also increases the arousal compared to the eye stationary control condition. This rejects the mechanism of investigatory reflex because based on this mechanism eye movement benefit occurs by inducing relaxation. Gunter and Bodner<sup>[9]</sup> found out that expectancy does not have an effect on eye movement benefit. IHC cannot be considered as the primary mechanism through which eye movement benefit occurs because the vertical eye movement which occurs without inducing IHC also shows efficacy in reducing the emotionality, vividness and completeness of unpleasant memories. Even if eye movement was found not to permanently alter memories' vividness and completeness, the evaluation of the memory is changed so that the person can better cope with the unpleasant memories.

#### Areas where EMDR is used

EMDR was mainly intended for the treatment of PTSD. Levin *et al.*<sup>[12]</sup> found that there is a reduction in the PTSD symptoms and the subject started to spend less time for scanning the environment for threats. Sexual abuse/rape is another significant area in which EMDR is widely used to alleviate trauma related to it and for better social functioning of the trauma victim.<sup>[7,13,14]</sup> Deliberate self-harming behaviors which originate due to the persons' exposure to traumatic events can also be treated with this therapeutic method.<sup>[15]</sup> For normal individuals, EMDR can be used as a stress reduction method. Wilson *et al.*<sup>[16]</sup> used this to reduce the stress of police officers who are highly stressed due to their occupation. EMDR reduced subjective distress, anger, job stress and PTSD symptoms. Standard stress management program was also found to be less effective when compared to the EMDR therapy. EMDR is used in various other situations. One of the medical conditions in which this treatment is used is in phantom limb pain. Long-term follow-up indicates greater effectiveness in the reduction of phantom limb pain and depression.<sup>[4,17]</sup> Gupta and Gupta<sup>[3]</sup> in their work with patients of dermatological disorders found that stress-induced flare up of dermatological problems and associated distress in social interaction can be reduced by the EMDR. Using four case reports they concluded that EMDR is effective in primary dermatological disorders where psychological stress plays an important part in the pathogenesis of disease and when the psychiatric disorders have their symptomatic presentation with dermatological problems. Herbert *et al.*<sup>[18]</sup> cited in their scientific article that the therapy is also applied in attention-deficit/hyperactivity disorder, dissociative disorders, self-esteem issues, and personality pathology and spiritual development.

## CONCLUSION

As this therapy is in the infantile stage compared to other basic psychotherapies, much more studies should be conducted to know the variety of areas in which EMDR can be used.<sup>[19]</sup> Measures should also be taken to spread this therapy to budding clinicians as it has an immediate effect on the clients in reducing their distress.

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