TEXAS A&M UNIVERSITY
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The Role of Eye Movement Desensitization and Reprocessing (EMDR) Therapy in Addressing Psychological Trauma in patients with Orofacial injuries and Dental Phobia: A narrative Literature Review

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ABSTRACT

Aim – Eye Movement Desensitization Reprocessing (EMDR) Therapy is a psychotherapy that utilizes rhythmic bilateral manual stimulation through horizontal eye movements, to recover information from previous traumatic events. Information stored about previous adverse experiences is reprocessed to alleviate the psychological and physiological symptoms associated with these traumatic memories. We conducted a literature review on The Role of EMDR Therapy in Addressing Psychological Trauma Related to Orofacial Injuries and Dental Phobia.

Methods – A PubMed database search was conducted, and a narrative literature review was done. We examined the impact of EMDR on reduction of symptoms such as PTSD, anxiety, and improvement of patient adherence to dental and reconstructive care. The effectiveness of EMDR therapy was compared to standard care or other psychological interventions.

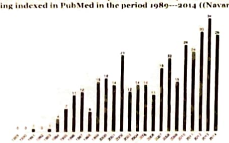
Results: Fifteen articles were reviewed that met the inclusion criteria consisting of 4 Systematic Reviews, 2 Randomized Clinical Trial, 2 Narrative Literature Review, 4 Prospective Cohort Studies, 1 Cross-sectional Study, 1 Case Study, and 1 Case Report. All studies showed that EMDR therapy was effective in reducing PTSD symptoms associated with traumatic experiences, dental phobia and orofacial injuries. EMDR therapy increased patients' adherence to dental treatment plans and improved psychological well-being.

Conclusion: EMDR therapy presents a promising intervention for addressing psychological trauma from orofacial injuries and dental phobia. By alleviating PTSD symptoms, reducing fear, and improving patient adherence, EMDR may enhance the emotional and physical recovery of dental patients. Future studies are needed to establish guidelines for integrating EMDR into dental and maxillofacial care settings.

INTRODUCTION

Eye Movement Desensitization and Reprocessing (EMDR) therapy, developed by Francine Shapiro in the 1980s, is a psychotherapy method that uses rhythmic bilateral stimulation, such as horizontal eye movements, to reprocess traumatic memories and alleviate associated psychological and physiological symptoms (Navarro et al., 2016). By facilitating the integration of adaptive information into the patient's memory, EMDR helps address conditions like post-traumatic stress disorder (PTSD).

Figure 1 Evolution of the number of publications on eye movement desensitization and reprocessing indexed in PubMed in the period 1989---2014 ((Navarro et al., 2016).



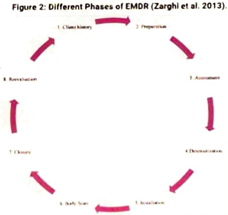
The standard EMDR protocol comprises eight flexible phases, including patient history, bilateral stimulation, memory desensitization, installation of positive cognition, body scans, and re-evaluation, tailored to individual patient needs (Navarro et al., 2016). While evidence supports its effectiveness for PTSD, EMDR also shows promise in addressing psychological symptoms related to medical and dental trauma.

Dental and orofacial trauma significantly impacts oral health-related quality of life (OHQoL) in adults and children, leading to physical, psychological, and functional challenges, as well as long-term financial burdens due to continuous rehabilitation (Verma et al., 2024). This review explores the applicability of EMDR therapy in dental settings, focusing on its potential to reduce dental anxiety, promote cognitive shifts, encourage adaptive behaviors, and improve treatment adherence.

The objectives of this Narrative Review are:

1. To understand the mechanism of EMDR therapy.
2. To explore its impact on psychological trauma and dental phobia.
3. To discuss its integration into clinical practice.

Figure 2: Different Phases of EMDR (Zarghi et al. 2013).



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MATERIALS AND METHODS

A narrative literature review was conducted to evaluate the impact of Eye Movement Desensitization and Reprocessing (EMDR) therapy on symptoms such as PTSD, anxiety, and patient adherence to dental and reconstructive care. Articles were identified through a systematic PubMed database search using the terms: "Eye Movement Desensitization and Reprocessing Therapy," its associated abbreviation "EMDR therapy," "EMDR in Dental Trauma," "Orofacial Trauma," "Dental Phobia," "Post-Traumatic Stress Disorder," and "PTSD."

Inclusion Criteria

- Articles focusing on EMDR therapy in dental or medical contexts, specifically addressing trauma or phobia.
- Studies involving adult populations with orofacial trauma, dental phobia, or PTSD.
- Research comparing EMDR therapy to standard care with no specific intervention or other psychological or pharmacological interventions.

Exclusion Criteria

- Studies unrelated to orofacial trauma or phobia in dental and medical care contexts.
- Studies unrelated to EMDR Therapy

Population & Intervention

The population of interest included pediatric patients with dental related phobia and adults with a history of trauma presenting as PTSD or dental related phobias impacting their oral health-related quality of life. The intervention examined was EMDR therapy, either as a standalone treatment or compared to other psychological interventions or standard care.

Research examining the impact of dental and orofacial trauma on oral health-related quality of life often used the Oral Health Impact Profile (OHIP) 14 questionnaire. This tool includes 14 questions across 7 domains. Responses are measured on a Likert scale from 0 (never) to 4 (very often). The OHIP-14 is considered a reliable and comprehensive instrument for assessing various factors that affect quality of life (Verma et al 2024).

Table 1: Domains of the OHIP questionnaire according to the problems presented ((Conforte et al. 2016).

Domain	Questions
Functional limitation	1–2
Physical pain	3–4
Psychological discomfort	5–6
Physical incapacity	7–8
Psychological incapacity	9–10
Social incapacity	11–12
Social disadvantage	13–14

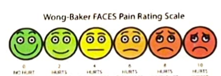
Table 2: OHIP-14 Questionnaire (Conforte et al 2016).

1. You have had problems saying some words	0 1 2 3 4
2. The taste of foods has worsened	0 1 2 3 4
3. You have felt strong pain in your mouth	0 1 2 3 4
4. You have felt uncomfortable eating any food	0 1 2 3 4
5. You have felt uncomfortable	0 1 2 3 4
6. You have felt stressed	0 1 2 3 4
7. Your diet has been hampered	0 1 2 3 4
8. You had to stop taking your meals	0 1 2 3 4
9. You have found it hard to relax	0 1 2 3 4
10. You have already felt a bit embarrassed	0 1 2 3 4
11. You have felt irritated by other people	0 1 2 3 4
12. You have found it difficult to carry out your daily activities	0 1 2 3 4
13. You have felt that life in general has worsened	0 1 2 3 4
14. You have not been able to carry out your daily activities	0 1 2 3 4

Studies evaluating the onset of PTSD and major depression following trauma utilized the Structured Clinical Interview for DSM-III-R and the Clinician-Administered PTSD Scale along with other psychometric instruments including the Impact of Event Scale, State-Trait Anxiety Inventory, Beck Depression Inventory, Hamilton Depression Rating Scale, the civilian version of the Mississippi Scale for Combat-Related Posttraumatic Stress Disorder, and Peritraumatic Dissociation Experiences Questionnaire (Shalev et al. 1998).

Studies that examined the efficacy of EMDR therapy in alleviating dental phobia related to local anesthetic administration and dental extractions in children aged 8-13 utilized The Wong–Baker FACES Pain Rating Scale and a happiness Likert scale to assess pain and the overall dental experience of children after treatment. The Wong–Baker scale consists of faces ranging from a happy face at 0 (indicating "no hurt") to a crying face at 10 ("hurts worst"), with accompanying numbers and descriptions. This scale is particularly effective for children who may find it difficult to rate pain on a numerical scale. By selecting the face that best represents their pain, children can easily communicate their discomfort. The Wong–Baker scale has been widely validated for use in both children and adults (Rathore et al 2024).

Figure 3: The Wong–Baker FACES Pain Rating Scale (Rathore et al 2024)



RESULTS

Fifteen articles were reviewed that met the inclusion criteria which consisted of 4 Systematic Reviews, 2 Randomized Clinical Trial, 2 Narrative Literature Review, 4 Prospective Cohort Studies, 1 Cross-sectional Study, 1 Case Study, and 1 Case Report. Thirteen of the studies focused primarily on adult population age 18-65 and two focused on pediatric population age 8-13. All studies showed that EMDR therapy was effective in reducing PTSD symptoms associated with traumatic dental injuries and dental phobia.

Studies have shown that EMDR therapy significantly reduces symptoms of PTSD, depression, and anxiety compared to non-specific treatments, with evidence of neurobiological changes, such as decreased amygdala hyperactivation and improved brain connectivity (Wilson et al., 2018). EMDR is effective across trauma types and populations, offering shorter treatment durations than therapies like Cognitive Behavioral Therapy (CBT) and its variants. It has been found more effective in treating PTSD and related symptoms than many CBT forms (Wilson et al., 2018).

Prospective cohort studies, such as Shalev et al. (1998), reveal that orofacial injury patients are at risk of PTSD, anxiety, and depression which negatively affects their quality of life. Timely management is crucial to minimize long-term effects (Verma et al., 2024). Glynn et al. (2010) underscore the need for mental health support in treating these patients, with EMDR highlighted as a potential intervention.

De Jongh et al. (2002) demonstrated EMDR's success in addressing trauma-induced dental phobias in four single case studies. Over 2-3 sessions, patients showed reduced anxiety and maladaptive beliefs, maintained improvements at follow-up, and completed feared dental treatments, suggesting EMDR's viability for trauma-related dental phobias.

Two randomized clinical trials provided strong evidence for EMDR in treating dental phobias. Doering et al. (2013) found EMDR significantly reduced dental anxiety, avoidance behavior, and PTSD symptoms, with 83.3% of patients resuming regular dental visits. Rathore et al. (2024) showed EMDR reduced pain and anxiety in children aged 8-13 undergoing dental extractions, demonstrating its potential as an adjunct to pediatric pain management.

Figure 4: Administering eye movement desensitization and reprocessing therapy to an anxious child (Rathore et al. 2024)

Lastly, Tirupathi et al. (2019) introduced Eye Movement Distraction (EMD), a modified EMDR technique, for managing dental anxiety in children during local anesthesia administration. EMD effectively reduced anxiety and improved cooperation, presenting a promising, non-invasive approach for needle-phobic pediatric patients.

Table 3: Subjective opinion of children in various groups (Tirupathi et al. 2019)

	EMDR	Control
Comfortable	90	14
Painful	24	100
Chi-square static	102.11	
p value	<0.00001 (highly significant)	

CONCLUSION

EMDR therapy presents a promising intervention for addressing psychological trauma from orofacial injuries and dental phobia. EMDR therapy was more effective in treating symptoms of PTSD, depression, anxiety, and subjective distress than various interventions and control conditions including different forms of CBT. EMDR therapy significantly reduced dental anxiety, avoidance behavior, and symptoms of PTSD. Additionally, EMDR therapy is also effective in pediatric patients and can be used as a non-invasive adjunct to improve patient comfort during pediatric dental procedures. By alleviating PTSD symptoms, reducing fear, and improving patient adherence, EMDR may enhance the emotional and physical recovery of dental patients. Future studies are needed to establish guidelines for integrating EMDR into dental and maxillofacial care settings.

Figure 5: Diseases Treated by EMDR (Zarghi et al. 2013)

NEUROSCIENCE

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