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Effect of the desensitization and reprocessing of information through eye movements Technique on Neuropathic and Migraine Chronic Pain in Older Adults: A Systematic Review

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Abstract

Background: Chronic pain is a pervasive global health challenge, causing significant suffering and impairing daily functioning despite advancements in understanding and treatment. Its prevalence is particularly noteworthy in developed regions such as Europe and Colombia, highlighting its broad societal impact. Existing management approaches, including pharmacotherapy, often provide inadequate relief, leaving many individuals with ongoing pain and psychological distress. The profound emotional toll of chronic pain underscores the need for innovative strategies addressing both its physical and emotional dimensions.

Method: The search was carried out on Web of Science, Scopus and PubMed on March 2023, using the following search equation: "Older adult" AND "eye movement desensitization and reprocessing" AND "chronic pain" OR "neuropathic" OR "migraine", with a date range from January 2014 to January 2024. The reporting follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guideline for systematic reviews and meta-analyses. Once the results were obtained, they were loaded onto the Tree of Science platform.

Results: Limited research specifically targeting the efficacy of Eye Movement Desensitization and Reprocessing (EMDR) in chronic neuropathic and migraine pain among older adults was found. While some studies showed promising results, methodological limitations and pain type heterogeneity highlighted the need for further investigation. Nonetheless, broader studies suggested the potential of EMDR in reducing pain perception and improving emotional well-being. Psychotherapeutic interventions, including mindfulness, also emerged as promising strategies.

Conclusion: The extensive impact of chronic pain necessitates comprehensive management strategies. While pharmacotherapy offers relief, the multifaceted nature of pain requires multidimensional approaches. EMDR, along with psychotherapeutic modalities like mindfulness, holds promise in addressing both physical and emotional aspects of chronic pain. Further research, particularly focusing on specific pain types and older populations, is vital for informing evidence-based practices. Integrative approaches combining EMDR and mindfulness may offer holistic solutions to chronic pain management.

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Chronic pain; EMDR (Eye Movement Desensitization and Reprocessing); Neuropathic pain; Migraine pain and Older adults.

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1. Introduction

According to the International Association for the Study of Pain (IASP) and the World Health Organization (WHO), pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage (Kopf & Patel, 2009). This symptom, especially chronic pain, is considered to be one of the most aversive for humans (Crofford, 2015). Despite the advances in recent years focused on understanding the anatomy, physiology, psychology, and treatment of pain, and regardless of the availability of numerous medications and guidelines for chronic pain management, significant gaps remain in its approach (Lee & Neumeister, 2020).

On the other hand, being classified as a public health problem by the WHO (Qureshi et al., 2021), chronic pain is recognized for causing states of agony and unbearable long-term suffering, leading to psychological and social disorders due to anxiety, depression, fear, or anguish (Arana-Domínguez et al., 2017). Statistically, it is estimated that chronic pain affects one-fifth of the adult European population, representing 99 million affected individuals, with a prevalence of 37.3% to 41.1% in developed countries (Hernández-Sánchez et al., 2022). Furthermore, the Global Burden of Disease study reaffirmed the high prominence of pain, noting it as the first cause patients visit a health professional and one of the top ten causes of disability worldwide (Mills et al., 2019).

The Colombian Association for the Study of Pain (ACED) conducted a study on the prevalence of chronic pain in Colombia, showing that the prevalence of chronic pain from any origin in the general population is 48%, occurring more frequently in females (Asociación Colombiana para el Estudio del Dolor, 2014). Although studies on the prevalence of chronic pain in coffee-growing areas are scarce, a study in Caldas state (Colombia) was found revealing a chronic pain prevalence of 31% (Díaz-Cabezas et al., 2009).

In terms of treatment, it is estimated that 70% of the affected population receives treatment, but with partial therapeutic results, and around 30% do not receive any intervention because pain is often managed as part of underlying diseases rather than as an independent condition requiring individualized treatment as pointed out in critical reviews of the literature (Kupers & Kehlet, 2006). Additionally, around 85% of chronic pain patients continue to suffer pain after 12 years and have a significantly higher mortality rate during this period (Mehraban et al., 2014).

According to McMahon and Koltzenburg (2005), chronic pain involves an evaluation by the sufferer of the magnitude of the threat it represents, leading to an amplified emotional pain response often associated with depression, frustration, anger, and anxiety, producing complete emotional changes and behavior deviation towards greater disability, emphasizing the importance of the mental dimension of pain. Alongside the strong psychological effects of pain on these patients, social influences and interactions with the environment make it unlikely to achieve broadly effective pain management using analgesic medications alone, without considering psychotherapeutic and non-pharmacological interventions that can positively impact the quality of life of patients and their families (Albajes & Moix, 2021; McMahon & Koltzenburg, 2005).

Given the complexity and multidimensional impact of chronic pain, this study aimed to explore the effect of EMDR technique on neuropathic and migraine chronic pain in older adults. In this context, Eye Movement Desensitization and Reprocessing (EMDR) emerges as a potential therapeutic tool. Previous studies have demonstrated the effectiveness of EMDR in reducing symptoms of anxiety, depression, and stress (Altmeyer et al., 2022; Behnammoghadam et al., 2019; Rathschlag & Memmert, 2014; Wood et al., 2018), which are closely related to the experience of chronic pain. However, despite this promising evidence, research on the effect of EMDR on neuropathic and migraine chronic pain in older adults presents significant limitations.

Existing studies may face methodological challenges such as small sample sizes, lack of adequate control groups, or limitations in pain assessment (Alvarez et al., 2021). Moreover, the heterogeneity in types of chronic pain and patient characteristics can hinder the generalization of results (Norbury & Seymour, 2018). Therefore, although EMDR shows potential as a complementary intervention in chronic pain management, further research with solid designs and more representative samples is needed to confirm its effectiveness and better understand its mechanisms of action in this specific population. Consequently, this study seeks to address the question: What is the effect of the EMDR technique on neuropathic and migraine chronic pain in older adults?

2. Method

To write this article, various search engines were used to examine the relationship between Eye Movement Desensitization and Reprocessing (EMDR) and chronic neuropathic and migraine pain in older adults aged 60 to 80. The first tool used was the indexed database Web of Science

(WoS) to identify articles related to the research topic. The search equation used was: "Older adult" AND "eye movement desensitization and reprocessing" AND "chronic pain" OR "neuropathic" OR "migraine" with a date range from January 2014 to January 2024. The search returned a total of 390 articles that met the selection criteria for this study: adult population, use of the EMDR technique, chronic neuropathic, and migraine pain studies written only in English language. No study was manually eliminated to improve the accuracy of the results. (see figure 1).

Once the results were obtained, they were uploaded to the Tree of Science (ToS) platform (Zuluaga et al., 2022). This tool allows for the construction and understanding of the research background, theoretical framework, and results from the initial search in WoS. The Tree of Science approach is based on graph theory, where scientific articles are visualized as nodes and the references between them as connections. Each node represents a unit of knowledge within the academic network. The importance of a node is established according to its position, which is determined by the connections linking it to other nodes (Chen & Redner, 2010). Thus, studies located at the root refer to the EMDR technique and chronic neuropathic and migraine pain. Similarly, trunk articles refer to relevant research for developing the theoretical framework, and leaves are articles that determine current perspectives or trends on the topic. (see figure 2).

Also, the Scopus indexed database was also used to investigate articles related to the EMDR technique and chronic neuropathic and migraine pain. The search returned a total of 22 articles, from which those meeting the selection criteria related to this study were selected: adult population, use of the EMDR technique, and neuropathic and migraine pain. Studies involving non-human subjects and those not addressing chronic pain were excluded. Finally, PubMed database was used. This search returned 100 articles, of which those meeting the selection criteria related to this study were considered: adult population, use of the EMDR technique, and chronic pain, excluding studies involving animals or not linked to chronic pain. A total of 26 articles were selected for analysis of the results. (see table 1).

This review was not registered on PROSPERO database.

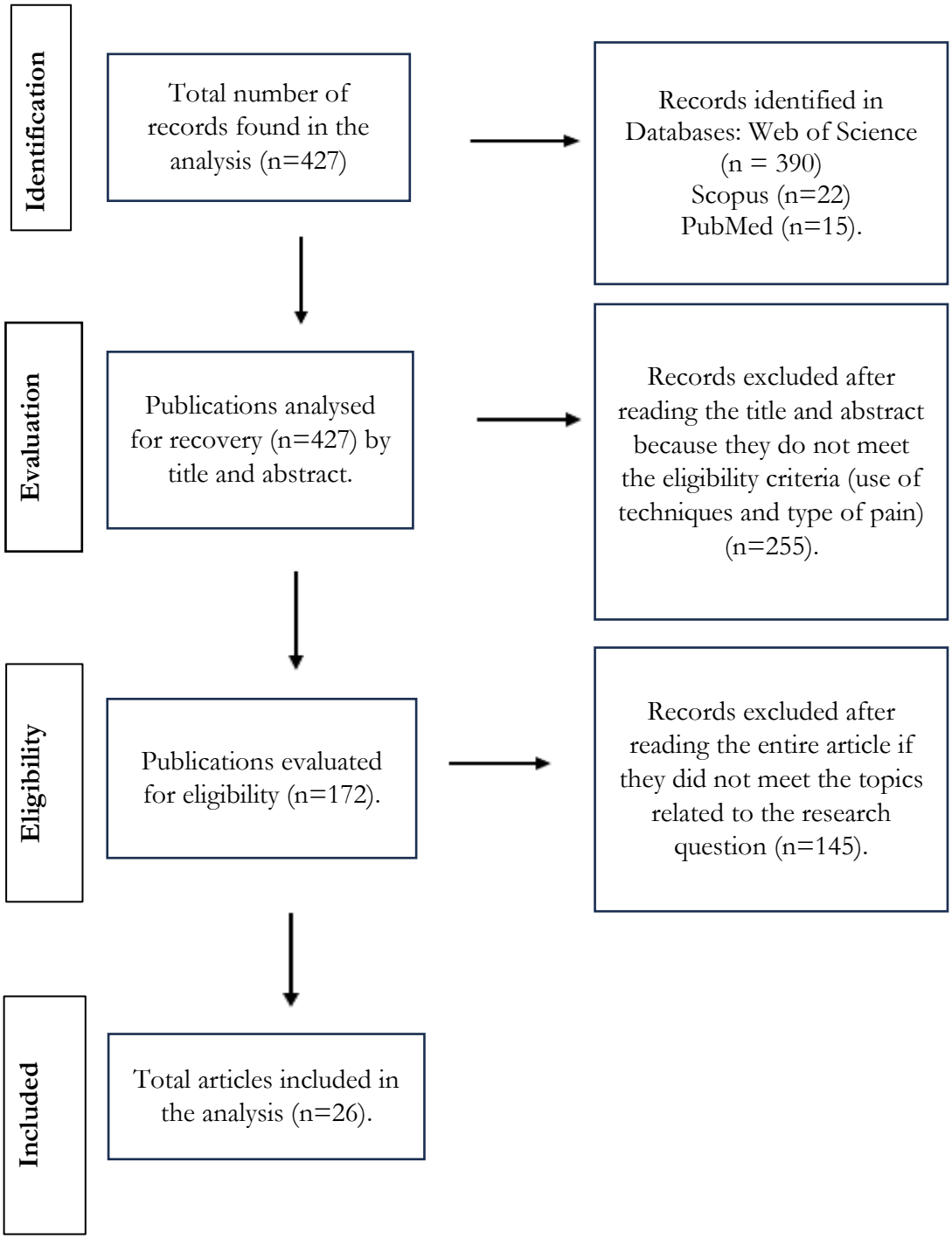

Figure 1: PRISMA Flowchart

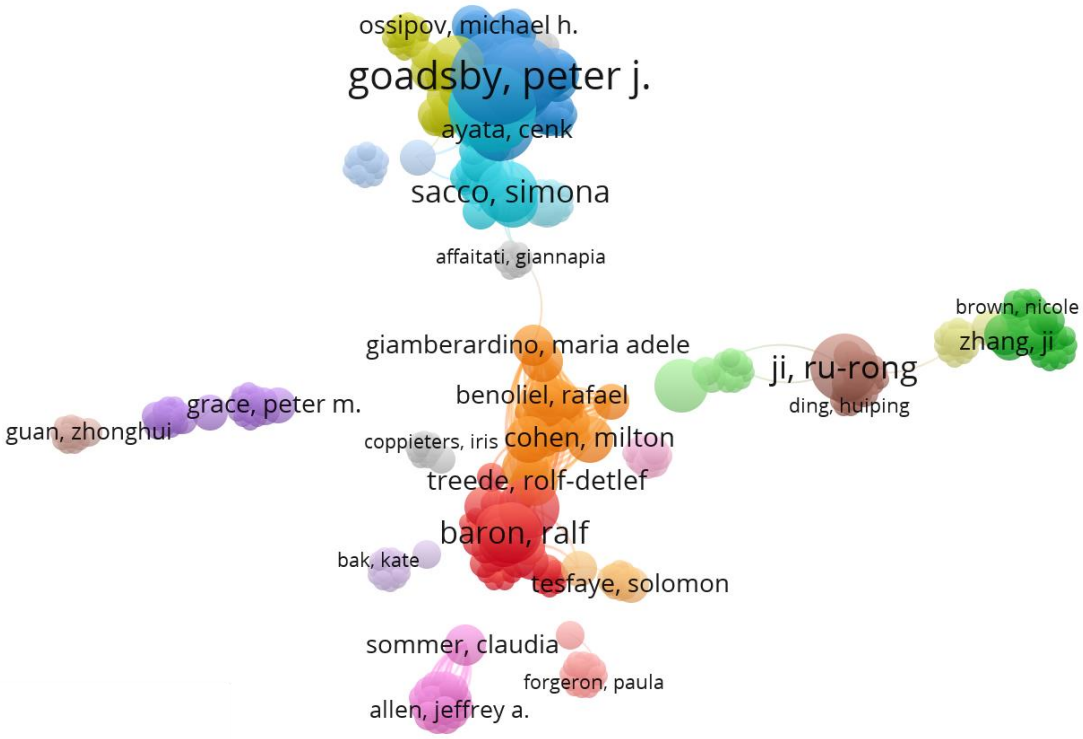

Figure 2. Final Citation Network (Research Communities)

Table 1. Studies included in the systematic review

Study	Location	Population (Subjects)	Gender Female %	Age range (Years)	Instruments used for evaluation	Type of pain	Type of innervation
Wells et al. (2014)	Rome, Italy	19	N/R	18>	ICHD-3	Episodic Migraine	Mindfulness
Hughes (2014)	Vancouver, Canada	1	100%	35	ICD-10	Complex Regional Pain Syndrome	EMDR
Li et al. (2015)	Denmark, Copenhague	2716	N/R	N/R	ICHD-3	MA. TMA HM. BMA	N/R

Dindo et al. (2015)	Iowa City, USA	93	91%	18>	A self-administered screener for migraine in primary care - MSQL -HDI	Migraine.	Behavioral intervention.
Ardebil & Banth (2015)	Ardebil-Iran	88	100%	30 a 45	ICD-10	Pain	Mindfulness.
Hepp et al. (2015)	USA	8.688	38%	18>	ICD-9	MC	OMPM
Cherkin et al. (2016)	Washington, USA	342	N/R	20 a 70	Questionnaire suitable for researchers.	DLC	CBT MBSR
Gerhardt et al. (2016)	Heidelberg, Germany	40	N/R	18>	ICD-10	DLC	EMDR
Silberstein et al. (2017)	Philadelphia, USA	1130	N/R.	18 a 70	ICHD-3	Migraine.	Analgesic (Fremanezumab)
Rostaminejad et al. (2017)	Yasuj, Iran	60	N/R.	18>	Subjective Units of Distress Scale -Pain Assessment Scale.	Phantom limb pain	EMDR
Zanini et al. (2018)	Milano, Italia	37	N/R.	18>	-QUID. -HADS. -CORE-OM.	Pain	TCC

Reuter et al. (2018)	Berlin, Germany	246	81%	18 a 65	ICHD-3	Migraine.	Analgesic (Erenumab) .
Stauffer et al. (2018)	North America	858	83%.	18 to 65	ICHD-3.	Migraine	Analgesic (Galcanezumab)
Ventzel et al. (2018)	Aarhus, Denmark	174	N/R	N/R	-Questionnaire with validated questions on pain, anxiety, and quality of life -ICHD-3.	Neuropathic	Oxaliplatin or adjuvant docetaxel
Ghanbari Nia et al. (2018)	Yasuj, Iran	75	N/R	N/R	RAPS	Rheumatoid-type pain	EMDR
Lipton et al. (2019)	USA	1495	92%	18 to 75	ICHD-3	Migraine.	Analgesic (Ubrogepant)
Wettstein et al. (2019)	Heidelberg, Germany	228	71%	41 to 82	Study Protocol Login	Musculoskeletal Pain	N/R
Di Stefano et al. (2020)	Rome, Italy	88	70%	N/R	ICHD-3.	Neuropathic pain	N/R
Arias et al. (2020)	Badalona, Spain	28	78%	18 to 76	ICHD-3	Chronic Pain	EMDR.
Lilliengren et al. (2020)	Sweden	228	75%	18>	-BSI. -IIP	Chronic Pain	Intensive dynamic psychotherapy

Simshäuser et al. (2020)	Freiburg, Germany	62	93%	18>	ICHD-3.	Migraine	Mindfulness
Schreiber et al. (2021)	Boston, MA, USA	259	100%.	N/R	General pain questionnaire.	Neuropathic	Psychosocial intervention
Wells et al. (2021)	Winston-Salem, North Carolina	89	92%	18>	ICHD 2.	Migraine.	Mindfulness
Teixidó-Abiol et al. (2022)	Barcelona, Spain	115	N/R	N/R	HAM	Non-Oncological Chronic Neuropathic Pain	Psychotherapy
Garland et al. (2022)	Utah, USA	250	63.6%	18>	ICD-10	Chronic pain.	-MORE Protocol -Mindfulness -Group Psychotherapy
Ulrich et al. (2024).	Zurich, Switzerland	198	N/R	18>	PHQ-ADS.	Migraine	Smartphone-based chatbot

Notes. N/R=Not reported; ICHD-3 = International Classification of Headache Disorders, 3rd edition; ICHD-2 = International Classification of Headache Disorders, 2nd edition; ICD-10 = International Classification of Diseases, 10th edition; MA = Migraine with Aura; CM = Chronic Migraine; EM = Episodic Migraine; TMA = Typical Migraine with Aura; HM = Hemiplegic Migraine; BMA = Brainstem Aura Migraine; MSQL = Migraine-Specific Quality of Life; HDI = Headache Disability Inventory; PMM = Preventive Migraine Oral Medications; CLBP = Chronic Low Back Pain; EMDR = Eye Movement Desensitization and Reprocessing; CBT = Cognitive Behavioral Therapy; MBSR = Mindfulness-Based Stress Reduction; QUID = Italian Pain Questionnaire; HADS = Hospital Anxiety and Depression Scale; CORE-OM = Clinical Outcomes in Routine Evaluation – Outcome Measure; RAPS = Rheumatoid

Arthritis Pain Scale; BSI = The Brief Symptom Inventory; IIP = The Inventory of Interpersonal Problems; HAM = Hamilton Depression and Anxiety Rating Scale; PHQ-ADS = Patient Health Questionnaire Anxiety and Depression Scale.

3. Results

The search engines show an evolution in the number of articles per year on the effects of EMDR technique on neuropathic and migraine chronic pain in older adults. From 2014 onwards, there has been an increase in the number of published articles. The following studies laid the foundation for current trends. These studies address specific subtopics on neuropathic and migraine chronic pain. Based on the studies found, this systematic review identified two trends: i) Effect of EMDR-like techniques on neuropathic and migraine chronic pain in older adults ii) Effect of the EMDR technique on neuropathic and migraine chronic pain in older adults.

3.1 Effect of EMDR-like techniques on neuropathic and migraine chronic pain in older adults

In this line of research, a total of eight studies were reviewed that analyzed various intervention strategies for chronic pain, including conditions such as migraine, trigeminal neuralgia, and chronic lumbar pain. The total population of these studies exceeded 88,000 patients, with a particular focus on those with chronic and episodic migraine who had not responded to previous preventive treatments. Although gender distribution and age range were not uniformly specified across all studies, it was noted that the study by Stauffer et al. (2018) predominantly included women with a mean age of 40.7 years.

Regarding pharmacological interventions, six studies were reviewed that evaluated the efficacy of various medications in treating chronic pain. For example, the study by Reuter et al. (2018) examined the use of erenumab in patients with episodic migraine who had not responded to previous preventive treatments. They observed a significant reduction in the number of headache days compared to the placebo. Additionally, the study by Silberstein et al. (2017) investigated the effect of fremanezumab in patients with chronic migraine, finding a statistically significant decrease in the mean number of headache days (0.1 days) per month compared to the placebo. Similarly, the study by Stauffer et al. (2018) evaluated galcanezumab for the prevention of episodic migraine, highlighting the effectiveness of this treatment.

The study by Di Stefano et al. (2020) explored pain distribution in patients with trigeminal neuralgia, finding that pain was most often localized in the right second division. All participants in this study reported experiencing triggering factors (e.g., talking, eating, washing the face) that

provoked episodes of trigeminal neuralgia pain. On the other hand, Ventzel et al. (2018) investigated chronic pain and neuropathy following adjuvant chemotherapy, providing information on the sequelae of oncological treatment.

In terms of psychological variables, several of these studies included assessments of aspects such as depression, anxiety, and health-related quality of life. They used validated instruments like the Hospital Anxiety and Depression Scale (HADS) and the SF-36 Quality of Life Questionnaire. For example, the study by Wettstein et al. (2019) evaluated the relationship between age and quality of life in patients with chronic lumbar pain, finding that although older patients had higher disability based on performance, they scored higher in mental health and most well-being measures compared to younger patients.

Standard pain measures, such as the Visual Analog Scale (VAS) and the McGill Pain Index (MPI), were used to assess pain intensity and quality. In terms of adherence to pharmacological therapies, this varied across studies. The study by Hepp et al. (2015) revealed varying levels of adherence over time, observing that adherence to oral preventive medications was generally low but significantly lower for medications like amitriptyline and topiramate.

Given the complexity of this condition and the influence of psychological and social factors on the pain experience, it is essential to adopt a holistic approach that addresses both the physical and emotional aspects of the patient. An integrated approach, as suggested by several reviewed studies, can not only improve treatment adherence but also clinical outcomes and the quality of life for patients with chronic pain (Hepp et al., 2015; Silberstein et al., 2017).

3.2 Effect of the EMDR technique on neuropathic and migraine chronic pain in older adults.

A total of 17 studies related to intervention strategies from a psychological perspective were considered. The total number of participants included 1,984 subjects, addressing: episodic migraine (19), unspecified migraine (442), unspecified pain (125), chronic pain (478), rheumatoid pain (75), neuropathic pain (374), complex regional pain syndrome (1), phantom limb syndrome (60), and chronic lumbar pain (382). On average, 83% of the participants were females, and in 65% of the studies, the starting age criterion for inclusion in the research was 18 years.

Based on the results obtained in this review, it was found that the use of psychotherapeutic strategies aimed at treating pain is gaining increasing value in clinical practice. These strategies show a degree of efficacy in changing the perception of pain, as well as improving collateral

effects such as anxiety-depressive episodes (Dindo et al., 2015; Simshäuser et al., 2020), achieving significantly higher scores in indices related to quality of life and post-treatment self-efficacy (Wells et al., 2014), in addition to reducing healthcare costs (Lilliengren et al., 2020).

Six studies adopted the use of Eye Movement Desensitization and Reprocessing (EMDR) as an intervention strategy, demonstrating a significant degree of clinical efficacy in reducing chronic pain by evaluating pre and post-intervention scores using the VAS PAIN and the Pain Disability Index. This was done using the standard EMDR protocol in a treatment of 16 sessions (Hughes, 2014) and 12 sessions of 90 minutes each in a population aged 18 to 75 years (Arias et al., 2020).

Additionally, a reduction in pain-related disability was observed in individuals over 18 years old after the application of the Numerical Rating Scale [NRS] (Gerhardt et al., 2016). It was found that once EMDR treatment was completed, the effects were maintained at 10 months in patients aged 34 to 56 years (Ghanbari Nia et al., 2018) and at 24 months in subjects over 18 years old (Rostaminejad et al., 2017).

Furthermore, six randomized clinical trial studies used mindfulness training along with medications provided by healthcare services, achieving a notable reduction in perceived pain intensity in individuals over 18 years old who underwent eight two-hour mindfulness sessions compared to intervention strategies focused on chronic headache education (Wells et al., 2021).

Similarly, a study by Cherkin et al. (2016) found that the application of the base protocol in Mindfulness for individuals aged 20 to 70 years produced a clinically significant improvement, greater than 30% according to the criteria used by the modified Roland Disability Questionnaire [RDQ]. In regard to migraine, a reduction in the monthly frequency of migraine related pain days was observed from the start of the intervention plan in individuals over 18 years old (Wells et al., 2021).

Other studies found that the efficacy of mindfulness was greater compared to conventional cognitive-behavioral therapy (CBT) for managing symptoms associated with chronic pain. However, CBT showed better results at the end of the treatment process, as indicated by the scores obtained by the authors on the Patient Health Questionnaire-8 (PHQ-8) at 8 and 26 weeks (Cherkin et al., 2016).

Considering the above, studies should consider how psychological intervention strategies aimed at enhancing resilience play a crucial role in psychological morbidity and pain severity (Zanini et al., 2018).

In contrast to conventional intervention methods, and to achieve broader reach in subjects with migraine-related symptoms, it was found that using strategies via mobile applications focused on training individuals with such symptoms achieved a significant reduction in somatic symptoms, perceived stress, and an increase in self-efficacy in managing headaches in a total sample of individuals aged 26 to 50 years (Ulrich et al., 2024). This was achieved through behavioral interventions for modifying dysfunctional behaviors, psychoeducation, and the use of mindfulness.

It is important to consider the economic implications of using psychotherapy for managing chronic pain, achieving substantial savings three years after treatment with intensive dynamic psychotherapy in healthcare services (Lilliengren et al., 2020), and the efficacy of group-based strategies for this type of symptomatology (Garland et al., 2022). From this perspective, it is necessary to consider the strategies for action and intervention developed by the various research studies collected throughout this document, in which the biopsychosocial variable is given a determining role in the approach to the phenomenon of chronic pain (Schreiber et al., 2021; Teixidó-Abiol et al., 2022).

Finally, the use of psychotherapy, particularly mindfulness training and EMDR, were the most used intervention strategies in the reviewed studies. Considering their degree of clinical efficacy in managing chronic pain, they can be considered effective treatments for such pathologies, with reduced economic costs for healthcare services, given that they can be executed in group settings.

4. Discussion

The aim of this study was to conduct a systematic review of the impact of the EMDR technique on chronic neuropathic and migraine pain older adult samples. However, upon observing that the obtained results did not precisely address the type of pain to be considered and the target study population, the analysis was expanded to studies involving any type of chronic pain, extending the age range from 18 years and older. Among the studies found in this review, there was a lack of homogeneity in terms of gender in the target population. It was found that in 44% of the studies, the female population exceeded 60% of the total subjects analyzed. These findings corroborate Gutiérrez Lombana and Gutiérrez Vidal (2012), who found that females report pain more frequently. This highlights the importance of addressing future research on chronic pain in the female populations.

This study supports the research by Stauffer et al. (2018), which predominantly included women with an average age of 40.7 years, emphasizing the need for more specific research in the older

adult population, given their higher susceptibility to chronic pain and potential variability in treatment response.

Regarding the use of instruments for pain assessment, there is partial consensus among researchers. 40% of the studies in this review implemented the International Classification of Headache Disorders (ICHD-3) criteria, 14% used the International Classification of Diseases (ICD-10), 44% used other evaluation instruments such as the Visual Analog Scale (VAS) and the McGill Pain Index (MPI), and 2% of the studies used the International Classification of Diseases (ICD-9). This could be associated with the variety of pains addressed by the researchers (Orrù et al., 2020). Furthermore, the results of this systematic review reveal a wide range of intervention strategies for chronic pain, with a particular focus on conditions such as migraine, trigeminal neuralgia, and chronic lumbar pain. Various pharmacological interventions showed promising effects in reducing chronic pain, such as the use of erenumab and fremanezumab in patients with migraine, which was associated with a significant decrease in the frequency and intensity of pain episodes (Reuter et al., 2018; Silberstein et al., 2017).

However, despite the encouraging results, several gaps in the literature suggest the need for further research. Firstly, most of the reviewed studies did not report the specific duration of pain reduction induced by the medications. This information is crucial for understanding the long-term efficacy of these interventions and their impact on patients' quality of life. Additionally, the lack of longitudinal studies evaluating the evolution of chronic pain over time limits the understanding of the long-term effectiveness of pharmacological treatments.

Of the 26 studies found in this review, only six addressed the EMDR technique in pain (Arias et al., 2020; Gerhardt et al., 2016; Ghanbari Nia et al., 2018; Hughes, 2014; Rostaminejad et al., 2017; Tesarz et al., 2014). Notably, the study by Arias et al. (2020) was the only one that adopted the general category of chronic pain. This highlights the research gaps concerning this area of study, especially in the older adult population, given the pain's ability to produce states of agony and long-lasting suffering, which also leads to psychological and social disorders due to states of anxiety, depression, fear, or distress (Arana-Domínguez et al., 2017).

In the face of the limited evidence regarding the use of EMDR in these conditions, the six studies addressing pain are conclusive in their results, demonstrating an improvement in scores related to pain perception (Arias et al., 2020; Gerhardt et al., 2016; Ghanbari Nia et al., 2018; Hughes, 2014; Rostaminejad et al., 2017; Tesarz et al., 2014) and also revealing its contribution to modifying negative emotional states associated with pain (Arias et al., 2020).

Regarding the efficacy duration of the generative effects post-EMDR intervention over time, the studies included in this review are inconclusive, as post-intervention measurements in some studies were conducted at 8 months (Hughes, 2014), 10 months (Ghanbari Nia et al., 2018), 24 months (Rostaminejad et al., 2017), and in other studies, follow-up measures after the treatment plan were not observed (Arias et al., 2020). This suggests the importance of conducting longitudinal studies to predict the technique's efficacy in chronic pain perception.

Additionally, considering what McMahon and Koltzenburg (2005) stated about the magnitude of chronic pain and its high association with some psychological factors, EMDR presents itself as an effective approach to improve the quality-of-life perception in this population (Ghanbari Nia et al., 2018). However, it is suggested to consider the sociodemographic characteristics of the population, the type of pain, the instruments used for evaluation, and the variables to be addressed.

Regardless the limited attention to research related to EMDR in pain, particularly in the case of migraine, the effects of Mindfulness have been precisely studied in various types of pain: unspecified (Ardebil & Banth, 2015), chronic (Garland et al., 2022), episodic migraine (Wells et al., 2014), and unspecified migraine (Simshäuser et al., 2020; Wells et al., 2021). These studies have observed a reduction in migraine days from the start of the intervention plan and a decrease in pain perception (Wells et al., 2021).

Considering this, it is mandatory to propose studies that highlight the impact of the combined use of EMDR and Mindfulness, given their effect on chronic pain and unspecified migraine (Arias et al., 2020; Wells et al., 2021). Under this premise, the present line of research opens a range of possibilities for implementing integrative treatments that improve the quality of life for people suffering from these conditions

Conflict of interest statement

The authors declare that the research was conducted in the absence of any potential conflict of interest

Authors' contribution

MBG: Data collection, analysis and interpretation of results, all authors reviewed the results and approved the final version of the manuscript. WDM: Data collection, analysis and interpretation of results, all authors reviewed the results and approved the final version of the manuscript. DLM: Draft manuscript preparation, data collection, analysis and interpretation of results, all authors reviewed the results and approved the final version of the manuscript.

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