



Review Article

Is EMDR effective for improving post-traumatic stress symptoms in people with post-traumatic stress disorders? An overview of systematic reviews with meta-analysis

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ABSTRACT

Background: Eye movement desensitization and reprocessing (EMDR) is widely recommended as a first-line trauma-focused therapy in post-traumatic stress disorder (PTSD). This overview of systematic reviews with meta-analysis aimed to evaluate the pooled effects of EMDR on PTSD symptoms in people with PTSD; analyse the methodological quality of included reviews; and quantify the degree of overlap between reviews.

Method: This overview followed the Preferred Reporting Items for Overviews of Reviews statement. Multiple databases were searched up to September 2025. The methodological quality of reviews was assessed using AMSTAR 2 and the degree of overlap between reviews was quantified using the corrected covered area (CCA). **Results:** Twenty-two systematic reviews were evaluated, of which only 11 reported the Grading of Recommendations Assessment, Development, and Evaluation (GRADE). Included meta-analyses suggests that EMDR may reduce PTSD symptoms compared with inactive controls (e.g., waitlist or usual care). On the other hand, EMDR showed comparable effectiveness with active controls, especially with psychological interventions such as trauma-focused cognitive behavioural therapy, cognitive behavioural therapy, or relaxation therapy. However, the certainty of evidence across meta-analyses was variable, primarily ranging from low to very low. Furthermore, other methodological limitations were identified, including issues related to search strategies and reporting transparency. Finally, overlap between reviews was slight (CCA = 2.5%), although incomplete reporting limited this analysis.

Conclusions: EMDR may reduce PTSD symptoms, especially compared with inactive controls, and shows similar effectiveness to other psychological therapies. However, the results should be interpreted with caution due to the low and very low certainty of evidence of most of meta-analyses along with other methodological issues highlighted above.

Introduction

The World Health Organization has reported that the global lifetime prevalence of post-traumatic stress disorder (PTSD) is around 3.9% (Koenen et al., 2017), being more common in women than in men even when exposures to traumatic events are similar. Furthermore, the burden of PTSD is disproportionately distributed, with marked

sociodemographic inequalities observed in vulnerable groups such as displaced persons, victims of interpersonal violence, survivors of natural disasters, and populations exposed to armed conflict. These groups exhibit significantly higher PTSD rates, ranging from 10% to 40% (Charlson et al., 2016). The high disease burden of PTSD is often associated with a substantial functional impairment, high psychiatric comorbidities (e.g., depressive, anxiety, and substance use disorders),

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and increased health and social costs, making PTSD a public health priority (Koenen et al., 2017).

Currently, multiple evidence-based psychological interventions are available for the treatment of PTSD, including trauma-focused therapies such as eye movement desensitization and reprocessing (EMDR) therapy. Specifically, EMDR is grounded in the adaptive information processing [AIP] model and proposes that certain traumatic memories are stored in a dysfunctional way, leading to symptoms of re-experiencing, avoidance, cognitive and emotional disturbances, and hyperarousal. Through a structured combination of exposure to traumatic memories, bilateral stimulation (usually through eye movements), and cognitive reprocessing procedures, EMDR aims to facilitate the adaptive integration of these memories, reducing the associated emotional intensity and promoting the development of functional meanings (Solomon, 2008).

Despite the consensus regarding its clinical effectiveness, EMDR remains a subject of ongoing debate within the academic literature concerning its underlying mechanisms of action. A central point of contention involves the specificity of bilateral stimulation: specifically, whether it constitutes the essential curative component of the treatment or if clinical gains are primarily driven by exposure and cognitive processing elements common to other trauma-focused therapies (Stingl, 2025). Recognizing that clinical effectiveness and theoretical specificity are not synonymous is crucial for a nuanced understanding of trauma recovery. Consequently, it is necessary to distinguish between the robustness of therapeutic outcomes and the complexity of explanatory models, a distinction that situates the findings of this overview within current theoretical controversies regarding trauma psychopathology.

Currently, EMDR is widely recognized as an evidence-based treatment for PTSD. Several international clinical guidelines recommend EMDR as a first-line trauma-focused psychotherapy. The World Health Organization recommends EMDR alongside trauma-focused cognitive behavioural therapy for PTSD (World Health Organization, 2013). Similarly, the Department of Veterans Affairs & Department of Defense clinical practice guideline and the International Society for Traumatic Stress Studies strongly recommend EMDR as an effective trauma-focused therapy (International Society for Traumatic Stress Studies [ISTSS], 2018; Department of Veterans Affairs & Department of Defense [VA/DoD], 2023). In the United Kingdom, the National Institute for Health and Care Excellence also recommends offering EMDR or trauma-focused Cognitive Behavioural Therapy to adults with PTSD (National Institute for Health and Care Excellence [NICE], 2018). This is in line with the growing interest in EMDR among clinical professionals, which has led to a notable expansion of empirical literature in this field (de Jong et al., 2024).

The growing number of randomized clinical trials evaluating the effectiveness of EMDR in PTSD has favoured the publication of multiple systematic reviews with meta-analysis on this topic. However, this body of evidence is heterogeneous. These clinical trials cover different types of traumas (e.g., interpersonal, accidents, disasters), populations (e.g., adults, children and adolescents, healthcare personnel, war veterans) and care contexts (e.g., outpatient clinics, inpatient units, and community-based services). These studies often differ in their inclusion criteria, methodological quality, follow-up duration, type of comparators, and statistical approaches, which can lead to partially conflicting conclusions and make it difficult to extract clear clinical recommendations.

Therefore, given the proliferation of numerous systematic reviews with often inconsistent conclusions, a higher-level synthesis is imperative to provide clinicians with an integrated and critical overview of the current empirical evidence. In this context, we chose an overview design because unlike a conventional meta-analysis, the methodological objective of an overview of systematic reviews is not mainly to re-estimate treatment effects from primary trials. Instead, the design aims to critically synthesize the existing meta-analytic evidence, specifically focusing on evaluating the reliability of current conclusions and

the methodological quality of the reviews published to date.

Consequently, the objective of this study is to conduct an overview of systematic reviews with meta-analyses structured around three fundamental axes: first, to evaluate the pooled effects of EMDR on PTSD symptoms in people with PTSD; second, to rigorously analyse the methodological quality of the published reviews; and, third, to quantify the degree of overlap between reviews. This three-part distinction is essential for clarifying the robustness of the available evidence and providing a coherent roadmap to guide both clinical decision-making and future research.

Methods

The Preferred Reporting Items for Overviews of Reviews (PRIOR) statement (Gates, 2022) was followed. The review protocol was prospectively registered at Open Science Framework: <https://osf.io/b89fn/overview>.

Artificial intelligence content

Artificial intelligence tools were not employed in the development, data extraction, or synthesis of this study.

Protocol deviations

PTSD-specific symptoms were prioritized to ensure a homogeneous synthesis of outcomes directly aligned with core diagnostic criteria. However, it is recognized that this focus on primary symptoms may limit the perspective on holistic clinical recovery; therefore, these findings should be interpreted with caution when generalizing to broader clinical dimensions, such as comorbid depression, anxiety, or overall functional impairment. In addition, only meta-analyses evaluating randomized clinical trials were considered as this design currently provides the highest level of empirical evidence. However, we acknowledge that these deviations may influence the overall interpretation of the results, especially in terms of external validity and breadth of inference.

Data sources and search strategy

One reviewer (X) searched the CINAHL (via EBSCOhost), Embase, PsycINFO (via ProQuest), PubMed, and the Cochrane Library databases from inception to September 18, 2025. In addition, one reviewer (X) manually checked the reference lists of the included systematic reviews, scoping reviews and overviews to complete search strategies. Document type and language of publication were imposed as search filters. Only articles published in peer-reviewed journals and written in English or Spanish were considered. This decision was made because articles published in peer-reviewed journals could provide the most rigorous and reliable information, while the language restriction was required by available linguistic resources. While the complete search strategy for all databases can be seen in **Supplementary File 1**, the search terms and combinations applied are shown below as an example.

(eye-movement-desensitization-and-reprocessing OR eye-movement-desensitization-and-processing OR eye-movement-desensitization-reprocessing OR EMDR) AND (posttraumatic OR post-traumatic OR PTSD) AND (review OR meta-analysis OR meta-review OR meta-analytic-review OR metaanalysis OR meta-analyses OR overview* OR umbrella OR scoping)

Eligibility criteria

Eligibility criteria were selected using the PICOS (Population, Intervention, Comparison, Outcome, and Study design) framework (O'Connor, 2008).

Inclusion criteria

P: Individuals diagnosed with PTSD without restrictions in terms of age, gender/sex, race/ethnicity, or other sociodemographic and clinical characteristics.

I: EMDR applied alone or in conjunction with usual care.

C: No restrictions were imposed regarding the type of comparator.

O: PTSD symptoms were assessed using different scales and tools.

S: Systematic reviews with meta-analyses of randomized clinical trials.

Exclusion criteria

Reviews were excluded if: (I) the full text was unavailable; or (II) meta-analyses pooled different psychological interventions without providing a disaggregated analysis for EMDR.

Study selection

The study selection process was carried out by two reviewers independently. One reviewer (X) used Zotero 7.0.3 citation management software to include all references retrieved by search strategies. Then, the same reviewer removed manually duplicates and excluded titles and abstracts that were not associated with our objectives. Afterward, two reviewers (X and X) evaluated independently full texts those abstracts appeared to meet inclusion criteria or those references where abstract was insufficient for assessment. Disagreements between reviewers were solved by consensus. The initial percentage agreement between reviewers was 84.5%, and 100% at the final round. We did not need a third reviewer during this process.

Methodological quality assessment

Two reviewers (X and X) independently used the AMSTAR 2 tool to assess the methodological quality of reviews (Shea et al., 2017). Discrepancies were resolved by consensus. To calculate the percentage of agreement between reviewers, the number of items that were scored in the same way was considered before pooling the results between the two independent evaluations. The inter-rater agreement between these reviewers was 90.3%, and 100% in the final round. We did not need a third reviewer during this process. AMSTAR 2 is composed of 16 items with rating options of "yes," "partially yes," or "no." Although seven items are identified as critical domains (items 2, 4, 7, 9, 11, 13, and 15), no overall rating was calculated, in accordance with the developers' recommendations (Shea et al., 2017).

Data extraction

Two reviewers (X and X) independently extracted the following information from each systematic review: [I] first author and year of publication; [II] number of studies included in meta-analyses of interest; [III] total sample size included in meta-analyses; [IV] type of control group; [V] tools to assess PTSD symptoms; [VI] main findings: overall effect size, i^2 ; p-value; and [VII] greater, lesser, or equal effectiveness of EMDR over control group. Disagreements were solved by consensus. The inter-rater agreement between reviewers was 77.6%, and 100% at the final round. We did not need a third reviewer during this process. Importantly, meta-analyses based on one study were not extracted, since we considered as meta-analyses only those analyses where at least two studies were pooled. Furthermore, meta-analyses that failed to specify the type of control group were excluded to ensure clinical clarity and direct applicability. Specifically, meta-analyses labeling control groups broadly as "inactive controls," "active controls" (without specifying the intervention), or "trauma-focused interventions" (without specifying the therapy) were not included.

Overlap calculation

One reviewer (X) constructed an evidence matrix to calculate the corrected covered area (CCA). An evidence matrix includes all primary studies (even duplicates) evaluated in the extracted meta-analyses. This evidence matrix was enriched with those clinical trials reported in the meta-analyses that were extracted from each review. If a clinical trial appeared more than once in meta-analyses belonging to the same review, that clinical trial was only extracted once. The CCA is the area that is covered after removing primary studies the first time they are counted. The CCA is calculated in three steps: N is the total number of primary studies (including duplicates) in the citation matrix, r is the total number of primary studies once duplicates are removed, and c is the total number of reviews included in the citation matrix (Pieper et al., 2014). The degree of overlap between reviews can be classified as slight (CCA 0-5%); moderate (CCA 6-10%); high (CCA 11-15%); or very high (CCA >15%) (Pieper et al., 2014).

Data synthesis

Results are shown in the main text regarding the effects of EMDR in comparison to different control groups. This decision was made due to all meta-analyses share the same intervention (EMDR), population (PTSD), and outcome (PTSD symptoms). In addition, the certainty of evidence assessed with (GRADE) framework was extracted by one reviewer (x) for included meta-analyses if original authors of reviews reported it. Only meta-analyses where the GRADE framework was applied were included in the main text. This decision was made to report in the main text those meta-analyses where certainty is known, which is essential to show clinicians and researchers the best research practice. The rest of meta-analyses that satisfied our inclusion criteria are reported in Table 1 for transparency.

Results

A total of 803 references were retrieved by electronic databases. After removing duplicates, 362 references were screened by title and abstract. Of them, 91 full texts were analyzed and 22 systematic reviews with meta-analysis were eventually included. Fig. 1 shows the flow diagram reporting the study selection process. The list of excluded studies and the reason for exclusion during full text analysis is reported in Supplementary File 2.

Main characteristics of the included studies

The primary comparison across meta-analyses focused on EMDR versus active control, including psychological interventions such as trauma-focused cognitive behavioural therapy, cognitive behavioural therapy, and relaxation therapy. On the other hand, some meta-analyses used inactive controls, based mainly on waitlist or usual care. There were heterogeneous samples with PTSD, including groups such as war veterans, survivors of natural disasters, refugees, asylum seekers, and adults reporting histories of childhood abuse. Finally, most included reviews meta-analyzed other outcomes rather than PTSD symptoms (e. g., depression or anxiety), although they were not the focus of this overview. The main characteristics of the included reviews are shown in Table 1.

Methodological quality assessment

All included reviews (100%) employed the PICOS framework to establish their eligibility criteria (Item 1). However, significant methodological deficiencies were identified in most reviews. Regarding search strategies (Item 4), only five reviews (21.7%) met all requirements. Reporting of excluded studies (Item 7) was also limited, with only six reviews (26.1%) fulfilling the criteria. Furthermore, only

Table 1
Characteristics of the included studies.

Study	Sample characteristics	k	n	Control	Outcome	Effect_size	Effect_value	CI_low	CI_high	p_value	i2_value	EMDR...	GRADE
Bisson 2007	Heterogeneous sample	5	162	WL/UC	PTSD symptoms - clinician	SMD	-1.51	-1.87	-1.15	UR	UR	>	UR
		5	156	WL/UC	PTSD symptoms - self report	SMD	-1.13	-2.13	-0.13	UR	UR	>	UR
		6	187	Active control (TFEBT)	PTSD symptoms - clinician	SMD	0.02	-0.5	0.55	UR	UR	=	UR
		7	206	Active control (TFEBT)	PTSD symptoms - self report	SMD	-0.17	-0.45	0.11	UR	UR	=	UR
		2	53	Active control (SM)	PTSD symptoms - clinician	SMD	-0.35	-0.9	0.19	UR	UR	=	UR
		3	75	Active control (SM)	PTSD symptoms - self report	SMD	-0.4	-0.86	0.06	UR	UR	=	UR
		2	124	Active control (OT)	PTSD symptoms - self report	SMD	-0.84	-1.21	-0.47	UR	UR	>	UR
Bisson 2013	Heterogeneous sample	6	183	WL/UC	PTSD symptoms (clinician-rated)	SMD	-1.17	-2.04	-0.3	0.0084	0.84	>	VERY LOW
		6	159	WL/UC	PTSD symptoms (self-report)	SMD	-0.8	-1.68	0.07	0.0073	0.84	=	UR
		7	327	Active control (TFEBT)	PTSD symptoms (clinician-rated)	SMD	-0.03	-0.43	0.38	0.89	0.64	=	VERY LOW
		3	76	Active control (TFEBT)	PTSD symptoms (clinician-rated) follow up 1-4 months	SMD	-0.19	-0.97	0.58	0.62	0.64	=	UR
		7	306	Active control (TFEBT)	PTSD symptoms (self-report)	SMD	-0.3	-0.6	0.01	0.057	0.32	=	UR
		5	111	Active control (TFEBT)	PTSD symptoms (self report)) follow up 1-4 months	SMD	-0.04	-0.61	0.52	0.88	0.53	=	UR
		2	53	Active control (CBT)	PTSD symptoms (clinician-rated)	SMD	-0.35	-0.9	0.19	0.21	0.0	=	VERY LOW
		3	71	Active control (CBT)	PTSD symptoms (clinician-rated) follow up 1-4 m	SMD	-0.74	-1.64	0.15	0.1	0.68	=	UR
		3	75	Active control (CBT)	PTSD symptoms (self-report)	SMD	-0.4	-0.86	0.06	0.09	0.0	=	UR
		3	75	Active control (CBT)	PTSD symptoms (self-report)Follow up 1-4 months	SMD	-0.52	-0.98	-0.05	00.29	0.0	>	UR
Bradley 2006	Heterogeneous sample	2	124	Active control (OT)	PTSD symptoms (self-report)	SMD	-0.84	-1.21	-0.47	0.00001	0.0	>	VERY LOW
		4		Inactive control (WL)	PTSD symptom changes	d	1.25	-0.97	3.48	UR	UR	=	UR
	Heterogeneous sample	4		Active control (OT)	PTSD symptom changes	d	0.75	-0.16	1.65	UR	UR	=	UR
		11	424	Active control (TFEBT)	PTSD symptoms (clinician-rated or self-report)	SMD	-0.43	-0.86	-0.01	0.05	0.75	>	UR
Chen 2015	Heterogeneous sample	4	117	WL/UC	PTSD symptoms (clinician-rated or self-report)	SMD	-1.08	-1.83	-0.33	0.019	0.7	>	LOW
Cusack 2016	Heterogeneous sample	2	64	Active control (REL)	PTSD symptoms (clinician-rated or self-report)	SMD	-0.57	-1.4	0.29	UR	UR	=	INSUFICIENT
Davidson 2001	Heterogeneous sample	3		WL/UC	PTSD symptoms (clinician-rated or self-report)	r	0.44	0.31	0.55	UR	UR	>	UR
		2.		Active control (ET or CBT)	PTSD symptoms (clinician-rated or self-report)	r	-0.28	-0.54	0.02	UR	UR	=	UR
Ehring 2014	Adult survivors of childhood abuse	2		Inactive control (WL)	PTSD symptoms (clinician-rated or self-report)	g	0.76	0.1	1.42	UR	UR	>	UR
		2		Active control (UC/ placebo)	PTSD symptoms (clinician-rated or self-report)	g	0.39	-0.36	1.13	UR	UR	=	UR
Hoppen 2023 (short term)		11	449	Active control (UC)	PTSD symptoms (clinician-rated or self-report)	SMD	0.53	0.31	0.75	0.001	0.69	>	UR

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Table 1 (continued)

Study	Sample characteristics	k	n	Control	Outcome	Effect_size	Effect_value	CI_low	CI_high	p_value	i2_value	EMDR...	GRADE
(short term)		10	359	Active control (TFCBT)	PTSD symptoms (clinician-rated or self-report)	SMD	0.07	-0.14	-0.28	0.495	0.69	=	UR
(Mid term </=5m)		4	99	Active control (TFCBT)	PTSD symptoms (clinician-rated or self-report)	SMD	0.08	-0.25	-0.4	0.638	0.64	=	UR
(Mid term >/=5m)		2	148	Active control (TFCBT)	PTSD symptoms (clinician-rated or self-report)	SMD	0.29	-0.07	-0.65	0.115	0.45	=	UR
Karatzias 2019	Heterogeneous sample	4	197	WL/UC	PTSD symptoms (clinician-rated or self-report)	g	-1.26	-2.01	-0.51	0.001	0.79	>	low
		2	137	Active control (CBT)	PTSD symptoms (clinician-rated or self-report)	g	0.37	0.03	0.71	0.031	0.0	>	low
Kitchiner 2019	Active duty and ex-serving military personnel	4	92	WL/UC	PTSD symptoms (clinician-rated or self-report)	SMD	-0.83	-1.75	0.1	0.08	0.76	=	Very low
Lewis 2020	Heterogeneous sample	11	415	WL/UC	PTSD symptoms (clinician-rated or self-report)	SMD	-1.23	-1.69	-0.76	UR	UR	>	low
		10	387	Active control (TFCBT)	PTSD symptoms (clinician-rated or self-report)	SMD	-0.17	-0.55	0.21	UR	UR	=	low
		4	117	Active control (REL)	PTSD symptoms (clinician-rated or self-report)	SMD	-0.23	-0.59	0.14	UR	UR	=	Very low
Mavranouzouli 2020	Heterogeneous sample	11	260	Inactive control (WL)	PTSD symptoms (clinician-rated or self-report)	SMD	-2.07	-2.7	-1.44	UR	UR	>	UR
Mavranouzouli 2020	Heterogeneous sample	41	121	Inactive control (WL)	PTSD symptoms (clinician-rated or self-report)follow up 1-4months	SMD	-1.12	-1.94	-0.27	UR	UR	>	UR
Purgato 2018	people affected by humanitarian crises in (LMICs)	2	99	Inactive control (WL)	PTSD symptoms (clinician-rated or self-report)	SMD	-2.01	-2.5	-1.52	<0.00001	0.0	>	UR
Rasines-Laudes 2023	Heterogeneous sample	5	222	Inactive control (WL)	PTSD symptoms (clinician-rated self report)	g	0.67	0.13	1.22	0.02	UR	>	UR
		7		Active control (TFCBT)	PTSD symptoms (clinician-rated or self-report)	g	0.09	-0.34	0.75	0.67	UR	=	UR
Roberts 2019	Heterogeneous sample on recent trauma (>3months)	4	84	WL/UC	PTSD symptoms (clinician-rated or self-report)	SMD	-2.5	-4.25	-0.75	<0,00001	0.88	>	Very low
Simpson 2025	Heterogeneous sample	6	298	Active control (TFCBT)	PTSD symptoms (self report)	SMD	0.46	-0.4	1.41	UR	UR	=	UR
		7	358	Active control (TFCBT)	PTSD symptoms (clinicial-rated)	SMD	0.15	-0.17	0.54	UR	UR	=	UR
		14	586	WL/UC	PTSD symptoms (self-report)	SMD	1.86	1.18	2.58	UR	UR	>	UR
Thompson 2018	Refugees and asylum seekers	2	92	Active control (STA)	PTSD symptoms (clinician-rated or self-report)	SMD	-0.29	-0.94	0.37	>0,05	0.45	=	Very low
		2	127	Inactive control (WL)	PTSD symptoms (clinician-rated or self-report)	SMD	-1.48	-1.88	-1.09	<0,05	0.0	>	low
Torres 2024	Heterogeneous sample on recent trauma (>3months)	7	206	Active and inactive control	PTSD symptoms (clinician-rated or self-report)	g	-2.53	-4.04	-1.02	UR	0.94	>	UR
Turrini 2021	Refugees and asylum seekers	5	268	Inactive control (WL)	PTSD symptoms (clinician-rated or self-report)	SMD	-1.3	-2.4	-0.2	0.008	0.788	>	low
Turrini 2025	Asylum seekers, refugees, and other migrant populations	2	127	Inactive control (WL)	PTSD symptoms (clinician-rated or self-report)	SMD	-1.78	-2.71	-0.86	UR	0.0	>	Very low
		2	94	Active control (ST)	PTSD symptoms (clinician-rated or self-report)	SMD	-0.26	-1.26	0.74	UR	0.0	=	Very low
		5		Active control (UC)	PTSD symptoms (clinician-rated or self-report)	SMD	-0.66	-1.24	-0.08	UR	UR	>	Very Low
Villegas 2026	Heterogeneous sample	11	630	Inactive control (WL)	PTSD symptoms (clinician-rated or self-report)	SMD	-1.19	-1.7	-0.68	<0,00001	0.87	>	low
		3	247		PTSD symptoms (clinician-rated or self-report)(Follow-up at 1 to 6 months)	SMD	-0.88	-1.62	-0.13	UR	UR	>	Very low

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Table 1 (continued)

Study	Sample characteristics	k	n	Control	Outcome	PTSD symptoms (clinician-rated or self-report)	d	Effect_size	Effect_value	CI_low	CI_high	p_value	i2_value	EMDR...	GRADE
Yunitri 2023	Heterogeneous sample	12		Inactive control					-1.37	-1.74	-1	UR	UR	>	high

Notes: ET=Exposure Therapy;k=Number of Studies; LMICs= low- and middle-income countries; n=Sample Size; OT=Other Therapies; REL=Relaxation Therapy; SM=Stress Management; ST= Supportive Therapy; STA= Stabilization TFCBT= Trauma-Focus Cognitive Behavior Therapy; UC=Usual Care; WL= Waitlist

two reviews (8.7%) disclosed the funding sources of the included primary studies (Item 10). A detailed AMSTAR 2 assessment for each individual review is presented in Table 2.

Overlap calculation

A total of 228 primary publications were included in the overlap calculation (including duplicates). Applying the formula (see below) to calculate the CCA, the degree of overlap between reviews was CCA=2.5%, which indicates a slight level of overlap. However, the low overlap applies to the analysable subset of reviews and may underestimate the true extent of redundancy in the broader review literature. In addition, it is important to highlight that 9 of the 22 reviews were excluded from the overlap calculation. These 9 reviews did not clearly specify which clinical trials were included in the meta-analyses of interest (Bisson et al., 2007; Bradley et al., 2005; Davidson et al., 2001; Hoppen et al., 2023; Lewis et al., 2020; Mavranezouli et al., 2020; Rasines-Laudes et al., 2023; Thompson et al., 2018; Yunitri et al., 2023). On the other hand, two reviews were partially included in the overlap calculation because they did not report references in all included meta-analyses (Cusack et al., 2016; Ehring et al., 2014). Supplementary File 3 shows evidence matrix.

$$CCA = \frac{N - r}{rc - r} = \frac{90 - 69}{897 - 69} = \frac{21}{828} = 0.025 = 2.5\%$$

Note: N is the total number of included publications (including duplicates) in the included meta-analyses (the sum of all checked boxes in the citation matrix, as shown in Supplementary File 3). Furthermore, r is the number of randomized clinical trials without accounting for duplicates. Finally, c is the number of systematic reviews included in the evidence matrix (k = 13). CCA = corrected covered area.

Effects of EMDR on PTSD symptoms

Overall, the effectiveness of EMDR across meta-analyses varied significantly depending on the nature of the comparator. When EMDR was compared to inactive controls, EMDR may be superior to reduce PTSD symptoms. Conversely, when contrasted with active, gold-standard trauma-focused treatments (such as trauma-focused cognitive behavioural therapy or exposure therapy), this advantage dissipates. In these instances, the evidence indicates comparable clinical efficacy, as the majority of meta-analyses reported no statistically significant between groups. In summary, while EMDR may be superior to the absence of treatment, its effectiveness is comparable—and not superior—to that of other specialized first-line psychological interventions. However, the certainty of evidence was not high in most comparisons.

Follow-up data are presented in Table 1 rather than in the main text, as most meta-analyses reporting GRADE certainty did not specify the duration of the follow-up period.

Effects of EMDR in comparison to waitlist/usual care/inactive control

GRADE: high evidence

One meta-analysis found EMDR was more effective than inactive control in reducing PTSD symptoms post-intervention: d -1.37 (-1.74 -1) (Yunitri et al., 2023).

GRADE: low evidence

Six meta-analyses found EMDR may be more effective than inactive control in reducing PTSD symptoms: SMD -1.08 (70% CI -1.83 -0.33) (Cusack et al., 2016); Hedgesg -1.26 (79% CI -2.01 -0.51) (Karatzias et al., 2019); SMD -1.23 (-1.69 -0.76) (Lewis et al., 2020); SMD -1.48 (0% CI -1.88 -1.09) (Thompson et al., 2018); SMD -1.3 (79% CI -2.4 -0.2) (Turrini et al., 2021); SMD -1.19 (87% CI -1.7 -0.68) (Villegas et al., 2026).

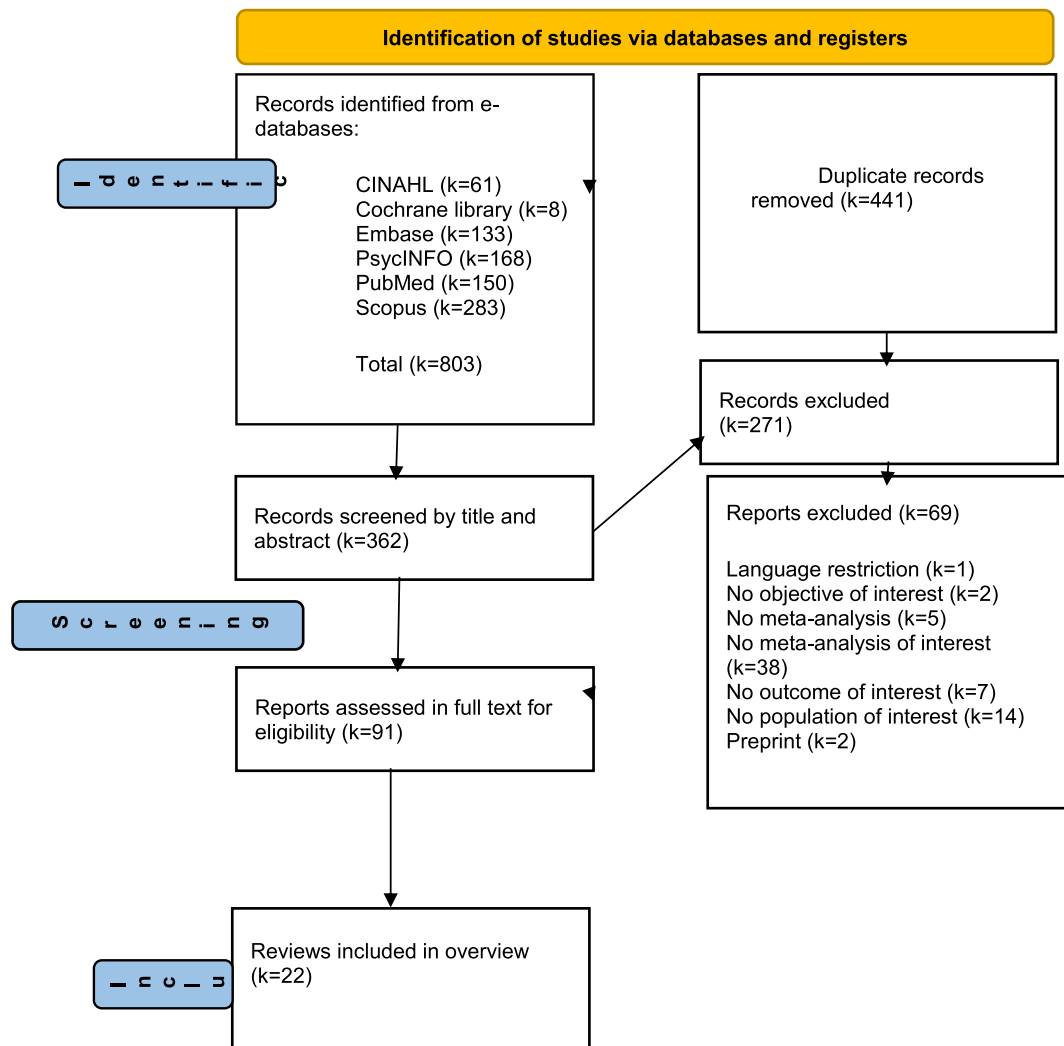


Fig. 1. PRISMA flow chart.

GRADE: very low evidence

Four meta-analyses found EMDR may be more effective than inactive control in reducing PTSD symptoms: SMD -1.17 (84% CI -2.04 -0.3) (Bisson et al., 2013); SMD -2.5 (88% CI -4.25 -0.75) (Roberts et al., 2019); SMD -1.78 (0%CI -2.71 -0.86) (Turrini et al., 2025); SMD -0.66 (-1.24 -0.08) (Turrini et al., 2025). On the other hand, one meta-analysis found no differences between groups: SMD -0.83 (76%CI -1.75 0.1) (Kitchiner et al., 2019).

Effects of EMDR in comparison to trauma-focused cognitive behaviour therapy**GRADE: low evidence**

One meta-analysis found no difference between groups: SMD -0.17 (-0.55 0.21) (Lewis et al., 2020).

Effects of EMDR in comparison to trauma-focused cognitive behavior therapy**GRADE: very low evidence**

One meta-analysis found no difference between groups: SMD -0.03 (64%CI -0.43 0.38) (Bisson et al., 2013).

Effects of EMDR in comparison to cognitive behavior therapy**GRADE: low evidence**

One meta-analysis found EMDR may be more effective than trauma-focused cognitive behavioural therapy in reducing PTSD: Hedgesg 0.37 (0%CI 0.03 0.71) (Karatzias et al., 2019).

Effects of EMDR in comparison to cognitive behavior therapy**GRADE: very low evidence**

One meta-analysis found no difference between groups: SMD -0.35 (0%CI -0.9 0.19) (Bisson et al., 2013).

Effects of EMDR in comparison to relaxation therapy**GRADE: very low evidence**

One meta-analysis found no differences between groups: SMD -0.23 (-0.59 0.14) (Lewis et al., 2020).

Effects of EMDR in comparison to supportive therapy**GRADE: very low evidence**

One meta-analysis found no differences between groups: SMD -0.26 (0%CI -1.26 0.74) (Turrini et al., 2025).

Table 2

The methodological quality of systematic reviews (AMSTAR-2).

Systematic review	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Bisson et al. 2007																
Bisson et al. 2013																
Bradley et al. 2005																
Chen et al. 2015																
Cusack et al. 2016																
Davidson et al. 2001																
Ehring et al. 2014																
Hoppen et al. 2023																
Karatzias et al. 2019																
Kitchiner et al. 2019																
Lewis et al. 2020																
Mavranzouli et al. 2020																
Purgato et al. 2018																
Rasines-Laudes and Serrano-Pintado 2023																
Roberts et al. 2019																
Simpson et al. 2025																
Thompson et al. 2018																
Torres-Gimenez et al. 2024																
Turrini et al. 2021																
Turrini et al. 2025																
Villegas et al. 2026																
Yunitri et al. 2023																

Note: Answers: red color: No, yellow color: Partially yes, green color: Yes.

Items: AMSTAR 1: Did the research questions and inclusion criteria for the review include the components of PICO? AMSTAR 2: Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol? AMSTAR 3: Did the review authors explain their election of the study designs for inclusion in the review? AMSTAR 4: Did the review authors use a comprehensive literature search strategy? AMSTAR 5: Did the review authors perform study selection in duplicate? AMSTAR 6: Did the review authors perform data extraction in duplicate? AMSTAR 7: Did the review authors provide a list of excluded studies and justify the exclusions? AMSTAR 8: Did the review authors describe the included studies in adequate detail? AMSTAR 9: Did the review authors use a satisfactory technique for assessing the risk of bias in individual studies that were included in the review? AMSTAR 10: Did the review authors report on the sources of funding for the studies included in the review? AMSTAR 11: If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results? AMSTAR 12: If meta-analysis was performed, did the review authors assess the potential impact of risk of bias in individual studies on the results of the meta-analysis or other evidence synthesis? AMSTAR 13: Did the review authors account for risk of bias in individual studies when interpreting/ discussing the results of the review? AMSTAR 14: Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? AMSTAR 15: If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review? AMSTAR 16: Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review?

Effects of EMDR in comparison to stabilization

GRADE: very low evidence

One meta-analysis found no differences between groups: SMD -0.29 (45%CI -0.94 0.37) (Thompson et al., 2018).

Discussion

This overview of systematic reviews with meta-analysis aimed to evaluate the pooled effects of EMDR on PTSD symptoms in people with PTSD; to rigorously analyse the methodological quality of the published reviews; and, to quantify the degree of overlap among the meta-analyses.

Overall, the findings suggest that EMDR may reduce PTSD symptoms in comparison to inactive controls such as waitlist or usual care. These findings may support the clinical relevance of EMDR as an effective trauma-focused intervention, which is consistent with previous meta-analyses of psychological treatments for PTSD that also underlined the importance of trauma-focused therapies, including EMDR (Moreno-Alcazar et al., 2017; Wilson et al., 2018). In contrast, when EMDR was compared with active psychological interventions, the results were less consistent. Two meta-analyses found no difference regarding the effectiveness of EMDR and trauma-focused cognitive behavioural therapy (Bisson et al., 2013; Lewis et al., 2020). In addition,

other meta-analyses found that EMDR was not superior to other psychological interventions such as cognitive behavioural therapy and relaxation therapy (Bisson et al. 2013; Lewis et al., 2020). Another one found EMDR shows superior effects than cognitive behavioural therapy (Karatzias et al., 2019). Collectively, these findings suggest that EMDR may be comparable, rather than superior, to other evidence-based psychological interventions. This interpretation is supported by meta-analytic evidence suggesting similar efficacy across trauma-focused interventions (Hudays et al., 2022). Therefore, using EMDR in people with PTSD to manage PTSD symptoms may depend on patient preferences, therapist expertise, and contextual factors rather than clear differences in terms of their effectiveness.

However, the certainty of the evidence across meta-analyses was mainly low and very low, indicating that our results should be interpreted with caution. This uncertainty may be partly explained by the presence of wide confidence intervals and substantial heterogeneity in several meta-analyses. This heterogeneity is clinically relevant because it is likely to reflect both clinical and methodological differences across the included evidence. Clinically, the reviews included diverse trauma profiles, such as single-incident trauma, childhood abuse, war-related trauma, forced displacement, and recent traumatic exposure, as well as heterogeneous populations, including adults, children and adolescents, military personnel, refugees, asylum seekers, and survivors of interpersonal violence. Methodologically, differences in comparator

conditions, PTSD outcome measures, follow-up timing, risk-of-bias profiles, and statistical approaches may also have contributed to variability in the pooled estimates. In addition, variation in EMDR protocols, including number of sessions, treatment format, therapist expertise, fidelity to standard protocols, and whether EMDR was delivered alone or alongside usual care, may further limit direct comparability across studies. Therefore, the pooled estimates should be interpreted as average effects across heterogeneous clinical and methodological contexts, rather than as a uniform treatment effect generalizable to all PTSD populations and settings.

An important contribution of this overview is the evaluation of the methodological quality of the included reviews and the overlap calculation between reviews. Although all reviews adhered to basic PICOS framework, several methodological limitations were identified, particularly in relation to search strategies, reporting of excluded studies, and transparency regarding funding sources. These limitations have been highlighted in previous methodological research on systematic reviews and may affect the reliability of pooled estimates (Shea et al., 2017).

On the other hand, the degree of overlap between reviews was classified as slight, suggesting that redundancy across reviews is limited (Pieper et al., 2014). However, this result should be interpreted cautiously, as a substantial number of reviews was not included in the overlap analysis due to incomplete reporting of primary studies. This lack of transparency represents a critical gap in the current evidence and highlights the need to develop much more robust evidence syntheses.

Limitations

The findings of this overview should be interpreted in light of several limitations. First, the results are inherently dependent on the reporting quality of the included systematic reviews. Second, while the decision to include only meta-analyses of randomized controlled trials (RCTs) enhances internal validity, it may restrict the generalizability of the findings to routine clinical practice. Furthermore, this overview focused exclusively on PTSD symptoms, excluding clinically outcomes such as depression, anxiety, or functional outcomes that are frequently reported in PTSD research (Lewis et al., 2020). In terms of study selection, language restrictions and the inclusion of only peer-reviewed publications may have introduced publication and selection biases. In this context, the initial search process was not fully duplicated which may have increased the risk of selection bias. Regarding overlap, it is important to underline that redundancy across reviews may still influence interpretation despite the low analysable overlap and the incomplete overlap estimation. Finally, the indirect nature of quality judgments about primary trials because the overview does not directly reappraise the primary trials themselves. The language exclusion criterion was applied to documents not written in Spanish or English in order to ensure full comprehension, comparability of results, and reproducibility of the selection process. This restriction may have limited the retrieval of relevant evidence in other languages.

Clinical implications

Despite these limitations and the low/very low certainty of evidence, this overview provides a comprehensive synthesis of the current evidence on this topic and has important clinical implications. Our results suggest that EMDR may be a relevant intervention to reduce PTSD symptoms in people with PTSD disorders when compared to inactive controls, which is aligned with current clinical practice guidelines (Department of Veterans Affairs and Department of Defense, 2023; National Institute for Health and Care Excellence, 2018; World Health Organization, 2013).

On the other hand, clinicians should be aware that current meta-analyses that have reported the certainty of evidence (GRADE assessment) show the lack of superiority of EMDR over other active psychological interventions. Following a clinical perspective, the absence of a

clear hierarchy of effectiveness among first-line psychological interventions suggests that decision-making must be individualized by taking various factors into account. Consequently, it is suggested that the choice between EMDR and other psychological interventions such as trauma-focused cognitive behavioural therapy should be fundamentally based on the patient's idiosyncrasies and symptomatology, the therapist's level of expertise and familiarity with both treatment modalities, and the specific care context. This pragmatic and flexible approach ensures that the intervention is optimally tailored to the unique circumstances and resources of each case, thereby maintaining the expected standard of effectiveness. However, we cannot categorically recommend the use of these interventions regarding the results analyzed in this overview due to all methodological limitations that have been thorough the study.

Future research

Future research should focus on improving the methodological quality of systematic reviews, ensuring transparent reporting of included studies (e.g., using the Template for Intervention Description and Replication checklist (Hoffmann, 2014)), and exploring potential moderators of treatment effectiveness, such as trauma etiology, patient characteristics, and treatment delivery formats. Additionally, more high-quality meta-analyses comparing EMDR with active controls and assessing long-term outcomes are needed to strengthen the current evidence and guide clinical decision-making.

Conclusion

EMDR may be a therapeutic option for managing PTSD symptoms in individuals with PTSD, especially when compared with inactive controls. However, we encourage readers to be cautious with the results presented in this overview due to methodological problems in the reviews analyzed, as well as the low and very low certainty of the evidence found in most of meta-analyses.

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No extra data are available.

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Miguel Arriazu-Domínguez: Writing – original draft, Visualization, Data curation, Conceptualization. **Javier Martínez-Calderon:** Writing – review & editing, Supervision, Project administration, Methodology, Conceptualization. **Javier Matias-Soto:** Visualization, Data curation. **Francisco Javier Cano-García:** Writing – review & editing, Supervision, Methodology, Data curation, Conceptualization.

Declaration of competing interest

The authors declare that there are no conflicts of interest.

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Supplementary materials

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