

REVIEW ARTICLE

Eye Movement Desensitization and Reprocessing as an Early Intervention for Psychological Distress in Healthcare Professionals during COVID-19: A Systematic Literature Review and Meta-analysis

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Healthcare professionals (HCPs) experienced elevated rates of psychological distress during the COVID-19 pandemic, including symptoms of post-traumatic stress disorder (PTSD), anxiety, and depression. The unprecedented psychological burden on HCPs led to the emerging use of eye movement desensitization and reprocessing (EMDR) as an early psychological intervention during ongoing crisis conditions, rather than solely as a post-trauma treatment. This novel application within a continuous high-stress healthcare context warrants systematic examination. A systematic search of PsycINFO, PsycArticles, PubMed, CINAHL, ScienceDirect, and the Cochrane Library identified 13 studies assessing the use and effectiveness of EMDR for HCPs experiencing COVID-19-related psychological distress. A meta-analysis of PTSD outcomes was conducted using data from eligible studies, alongside a narrative synthesis of anxiety, depression, and other distress-related outcomes. EMDR was associated with clinically meaningful reductions in PTSD, anxiety, depression, and related symptoms of psychological distress. The meta-analysis demonstrated a large and statistically significant reduction in PTSD following EMDR treatment. Considering the low to moderate quality of studies, this review provides tentative evidence for the effectiveness of EMDR for HCPs in the treatment of COVID-19-related psychological distress and suggests its utility as an early intervention in crisis scenarios. Variations in EMDR protocols and delivery methods—used to meet urgent clinical demands—are discussed. Findings offer preliminary support for EMDR as a clinically beneficial and potentially scalable early intervention for HCPs experiencing COVID-19-related psychological distress. Further high-quality research is required to clarify effectiveness, optimize protocol selection, and strengthen the evidence for EMDR's use during ongoing trauma exposure.

Introduction

The COVID-19 pandemic, also known as the SARS-CoV-2 pandemic, significantly affected the mental health of those working on the front lines of healthcare [1–6]. Beginning in December 2019, COVID-19 spread rapidly, resulting in an estimated 14.9 million deaths between January 2020 and December 2021 [7]. The unprecedented challenges placed on healthcare professionals (HCPs), including redeployment, the emotional toll of patient care, a lack of psychological support, staff shortages, quarantine restrictions, imposed isolation from support systems, increased workloads, risk of infection and fear of infecting loved ones, and witnessing colleagues' deaths, led to a surge in psychological distress among HCPs [2,5,8,9].

HCPs faced chronic trauma, witnessing high patient mortality rates and feeling powerless against the virus [10]. The rapid spread had left healthcare services unprepared, significantly heightening the pressure on HCPs [11,12]. As a result, studies

reported high rates of psychological distress in HCPs, including depression, anxiety, stress, burnout, fatigue, insomnia, and post-traumatic stress disorder (PTSD) [3,9,13–20]. In response, interventions such as eye movement desensitization and reprocessing (EMDR) were evaluated to assess their effectiveness in addressing psychological distress among HCPs during COVID-19.

EMDR, developed by Francine Shapiro [21,22], is a trauma-focused psychotherapy based on the adaptive information processing (AIP) model [23]. The AIP model posits that traumatic experiences that are not adequately processed at the time of the event can lead to dysfunctional information processing. These inadequately processed and maladaptively stored memories can result in psychological distress, including PTSD, anxiety, and depression. EMDR uses bilateral stimulation to activate the information processing system, facilitating the reprocessing and adaptive storage of traumatic memories and enabling the formation of new cognitive understandings of events [24]. For HCPs enduring ongoing trauma during COVID-19, there was

Citation: Harrison AM, Lee G, Shergill N. Eye Movement Desensitization and Reprocessing as an Early Intervention for Psychological Distress in Healthcare Professionals during COVID-19: A Systematic Literature Review and Meta-analysis. *J. EMDR. Pract. Res.* 2026;20:Article 0022. <https://doi.org/10.34133/jemdr.0022>

Submitted 28 August 2025
Revised 5 December 2025
Accepted 15 December 2025
Published 5 February 2026

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no post-trauma safety window for proper memory consolidation [25–27], likely preventing this process [28] and leading to COVID-19-related psychological distress.

EMDR was originally designed for PTSD treatment but has since been applied to various psychological conditions, including anxiety and depression [29,30], highlighting its broader efficacy [31]. The effectiveness of EMDR in crisis situations and trauma-related disorders has been well-documented. Studies have demonstrated its efficacy in reducing the symptoms of PTSD, depression, and anxiety among forcibly displaced individuals [32] and Syrian refugees [33]. The National Institute for Health and Care Excellence recommends EMDR for adults experiencing PTSD symptoms [34]. Research also supports EMDR as an early intervention for traumatized professional personnel [26,27]. Findings suggest that EMDR could be a valuable early intervention for HCPs experiencing COVID-19-related psychological distress.

While initially developed for face-to-face delivery [35], EMDR protocols were adapted for online use during the COVID-19 pandemic to comply with infection control and social distancing regulations. This coincided with the increasing use of telehealth interventions, which have shown a varied pattern of outcomes with respect to the effectiveness of interventions offered remotely (e.g., see [36–40]). The online delivery of EMDR exclusively has been less well studied; a recent systematic review by Lenferink et al. [41] identified only one study assessing the feasibility of a combined online cognitive behavioral therapy (CBT) and EMDR for treating PTSD in adults, using an open-trial design. Results indicated significantly reduced psychological distress between pre-treatment and follow-up [42].

Aims of the systematic literature review

There is a consensus in the literature that HCPs were at increased risk of psychological distress during COVID-19. EMDR emerged as a promising early psychological intervention for COVID-19-related psychological distress in HCPs, although the methods of delivery varied between studies, warranting systematic evaluation. This review aims to systematically evaluate the use and effectiveness of EMDR for COVID-19-related psychological distress in HCPs, understand what EMDR protocols and delivery methods were used, and evaluate the quality of the research. The term psychological distress was intentionally employed as an umbrella construct to reflect the spectrum of emotional and functional impairments experienced by HCPs during the COVID-19 crisis. In the context of this review, it encompasses both clinical syndromes (e.g., PTSD, depression, and anxiety) and occupational stress outcomes (e.g., burnout and sleep disturbance). This conceptual breadth aligns with research indicating that distress among HCPs during the pandemic often presented as interrelated symptom clusters rather than discrete disorders [43]. Accordingly, using “psychological distress” as an inclusion criterion provides a theoretically coherent lens for examining EMDR’s impact as a transdiagnostic intervention, with EMDR’s mechanisms—targeting maladaptively stored memories, emotional dysregulation, and autonomic hyperarousal—mapping onto multiple domains of distress.

Materials and Methods

Registration

This systematic literature review has been registered with the International Prospective Register of Systematic Reviews (PROSPERO): CRD42024521427.

Search strategy

The search strategy followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines [44]. Six electronic databases were searched: PsycINFO, PsycArticles, Medline, CINAHL, ScienceDirect, and the Cochrane Library. An initial scoping search informed the development of search terms. Based on these findings, “psychological distress” was used as an umbrella term. For the purposes of this review, psychological distress was defined as a broad, multidimensional construct encompassing the emotional, cognitive, and physiological symptoms of mental strain experienced in response to crisis-related stressors. This operational definition allowed all acute or chronic stress responses documented among HCPs during the COVID-19 pandemic to be included in the review. To ensure comprehensive coverage, a thesaurus was used to identify additional relevant terms. HCPs were defined according to the International Standard Classification of Occupations (ISCO) [45–48], including all roles involved in the diagnosis, treatment, prevention, and care of physical or psychological health. Categories of HCPs were drawn from ISCO classifications and supplemented by professional groups identified in the scoping search. Searches were limited to the period from 2019 (onset of the COVID-19 pandemic) to 2024 October 26. Gray literature was searched via EThOS to reduce publication bias, and the reference lists of included studies were manually screened for additional eligible studies. Search terms were grouped into 4 key concepts: (a) EMDR, (b) HCPs, (c) COVID-19, and (d) psychological distress (see the Supplementary Materials). Titles and abstracts were screened; full-text articles were then assessed for inclusion based on the predefined criteria.

Eligibility criteria

Studies were included if they evaluated the effectiveness of EMDR for HCPs experiencing psychological distress related to the COVID-19 pandemic. Eligible studies used at least one validated quantitative measure of psychological distress (e.g., Beck Depression Inventory-II [BDI-II]; [49]) to assess change from pre- to post-intervention. This inclusive approach was adopted to capture the multifaceted impact of COVID-19-related distress and to reflect how EMDR was applied clinically as a flexible intervention targeting a range of stress-related symptoms rather than a single diagnostic category.

Both individual and group EMDR interventions were considered, including those delivered online or in person. Randomized controlled trials (RCTs) were not required for inclusion, as many studies employed pre–post cohort designs due to ethical concerns associated with withholding psychological support from HCPs during the pandemic. Studies were excluded if they were not published in English or if EMDR was combined with other interventions and the unique effect of EMDR could not be isolated. Related interventions, e.g., the flash technique, were excluded if they could not be reliably compared.

Inclusion criteria

- The study used a design that measures the effectiveness of EMDR for HCPs using a measure of psychological distress to observe change.
- The EMDR intervention was applied for COVID-19-related psychological distress.
- The EMDR target memory related to working during the COVID-19 pandemic.

- Participants were HCPs working during the COVID-19 pandemic.
- The full text was available in English.

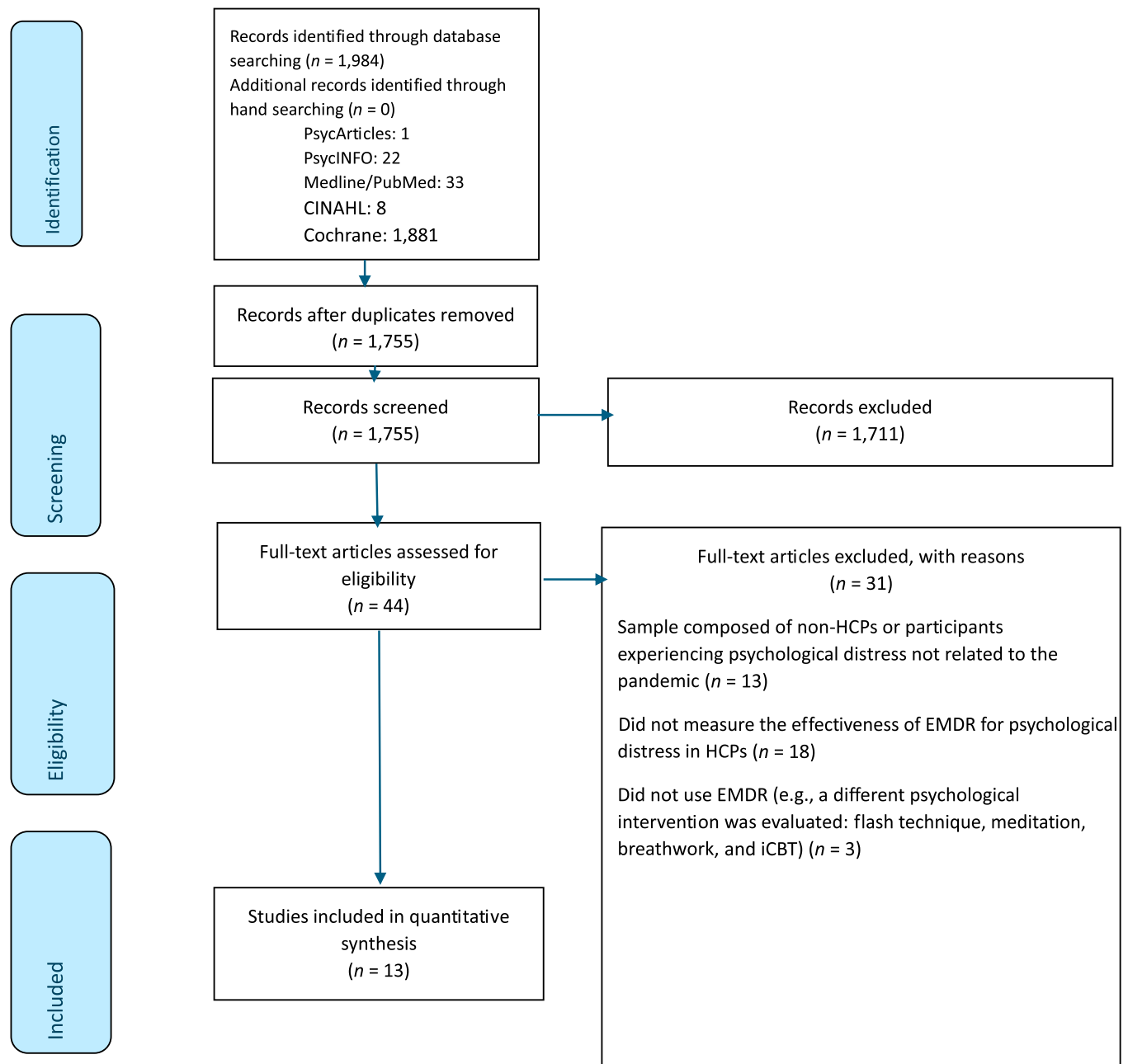
Study selection and data extraction

In line with PRISMA guidelines [44], Fig. 1 shows the study selection and exclusion process. The first author conducted the main search, and references were collated using the Zotero software. All duplicates were removed, and remaining articles were screened by their title and abstract and assessed for eligibility in

line with the inclusion criteria. The remaining papers underwent full screening and were assessed for eligibility; 13 studies were included in the final sample. No additional papers were identified via hand searches. To reduce bias, data extraction was completed prior to the quality appraisal. The studies were heterogeneous in design, and therefore, the extracted data were tabulated.

Analytic approach and quality appraisal

All studies were appraised for methodological quality using the Effective Public Health Practice Project (EPHPP) Quality Assessment Tool for Quantitative Studies [50]. The EPHPP has



Note: PRISMA flowchart (Page et al., 2021)

Fig. 1. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flowchart. HCPs, healthcare professionals; EMDR, eye movement desensitization and reprocessing; iCBT, Internet-based cognitive behavioral therapy. NOTE: PRISMA flowchart ([44]).

been highlighted as an effective tool for systematic reviews and has been found to have adequate content and construct validity [50] and adequate interrater reliability [51]. Two reviewers assessed studies independently; discrepancies were resolved by consensus. The EPHPP evaluates 8 domains—selection bias, study design, confounders, blinding, data collection methods, withdrawals/dropouts, intervention integrity, and analysis—yielding a global rating of strong, moderate, or weak. To ensure transparency, quality ratings were not used to exclude studies, as doing so risked omitting valuable contextual data given the small number of available studies on EMDR for HCPs during the COVID-19 pandemic. Instead, quality ratings were used analytically to interpret the strength of evidence, contextualize findings, and assess the potential influence of methodological bias. The tool was chosen for its applicability to varied designs (RCTs, pre-post, and observational) and its established validity and reliability [50,51].

A narrative synthesis was undertaken for all studies to accommodate heterogeneity in EMDR protocols, study designs, and outcome measures [52]. The EPHPP ratings supported critical appraisal within this synthesis. In line with guidance on conducting narrative analysis [52], data were summarized and synthesized, allowing for similarities and differences to be identified (see Tables 1 and 2).

Quantitative pooling was feasible only for PTSD outcomes, as these were consistently measured across studies using the Impact of Event Scale-Revised (IES-R), PTSD Checklist for DSM-5 (PCL-5), or International Trauma Questionnaire (ITQ). Studies assessing anxiety, depression, or other constructs (e.g., Generalized Anxiety Disorder 7-item Scale [GAD-7], BDI-II, Hospital Anxiety and Depression Scale [HADS], and Emotions Thermometer [ET]) used highly variable instruments and reporting formats, precluding meta-analytic synthesis; their results were therefore summarized descriptively. The effect sizes for these domains were summarized descriptively to provide an overview of direction and magnitude of change.

For the PTSD subset, a random-effects meta-analysis (DerSimonian-Laird method) was conducted using pre-post means and standard deviations. Standardized mean change scores (Hedges' g) were calculated for within-subject designs, assuming a pre-post correlation ($r = 0.50$) and applying Hedges' small-sample correction. (Analyses were also repeated using assumed correlations of $r = 0.2$ and $r = 0.8$. However, as this did not change the overall interpretation of findings, they are not reported hereafter.) The study by Sağaltıcı et al. [53] was excluded from quantitative synthesis as standard deviations were only reported as a range in the original paper.

Heterogeneity was quantified using τ^2 , Cochran's Q , and I^2 statistics, interpreted according to Cochrane thresholds (25%, 50%, and 75%). To examine the potential influence of methodological quality on the robustness of the meta-analytic findings, a sensitivity analysis was conducted for the PTSD outcomes. Specifically, a subgroup analysis of PTSD effect sizes (derived from the IES-R, PCL-5, and ITQ measures) was done, based on methodological quality from the EPHPP. This allowed evaluation of whether the pooled effect size was driven by lower-quality studies. Publication bias was assessed via funnel-plot inspection and Egger's regression test.

Results

Overview of studies

Thirteen studies published between 2019 and 2024 met the inclusion criteria, evaluating EMDR as an intervention for

HCPs experiencing COVID-19-related psychological distress. A total of 1,602 HCPs were included, with sample sizes ranging from 11 to 744 participants. Most studies were conducted in Italy ($n = 6$), followed by Turkey ($n = 2$), and one each in Egypt, Ireland, Canada, Mexico, and France.

The majority employed a pre-post uncontrolled design ($n = 6$), with additional designs including RCTs ($n = 3$), pre-post pilot studies ($n = 2$), a retrospective observational study with a waitlist control ($n = 1$), and a randomized study comparing EMDR to trauma-focused cognitive behavioral therapy (TF-CBT; $n = 1$). All studies used at least one standardized measure of psychological distress, although outcome measures varied. Due to the global nature of the research, several of the measures were translated and validated into languages such as Italian, Spanish, and Turkish. Various EMDR protocols and delivery formats were used. Most interventions were delivered online or via telehealth ($n = 10$) due to social restrictions and isolation measures, 2 were in person, and 1 used a hybrid approach. Group-based delivery was more common ($n = 8$), and 7 distinct EMDR protocols were identified. Interventions ranged from 1 to 8 sessions, with session durations between 60 and 134 min. See Tables 1 and 2 for study and intervention details.

Quality appraisal

Quality ratings were assigned to each of the studies included in the systematic review using the EPHPP. Eight of the 13 studies were rated as weak; the remaining 5 studies were rated as moderate. See Table 3 for all ratings. The included studies evidence that EMDR is effective for COVID-19-related psychological distress in HCPs; however, the overall quality of research is weak to moderate; thus, only tentative conclusions may be drawn.

Sample and recruitment

The participants of most studies [54–61] were voluntary or recruitment took place via spontaneous sampling, which indicates a level of self-selection bias. For other studies, participants were recruited via physician referrals [62], via requests from a sample of HCPs who had self-referred to an outpatient psychiatric clinic due to symptoms they had developed related to working in the pandemic [53], or from contact with managers who had requested psychological support from the EMDR Europe Association for their staff members during COVID-19 [63]. Self-selecting participants lead to the possibility of bias and ambiguity, and the sample may not be fully representative of the general population of HCPs. Two studies [64,65] did not detail the recruitment method.

A range of HCPs were recruited across all studies. In line with the EPHPP, more highly rated studies included those with larger sample sizes that recruited a range of HCPs [56–58,60,64], meaning the results are more likely to be generalizable. Several studies, including pilot studies [53,55,62,63,65], had sample sizes of less than 45. Smaller samples, including those that were limited to only one category of HCP, can limit the generalizability of the findings and reduce statistical power. There was a higher proportion of female participants compared to male participants in most studies ($n = 11$), which may present as a confounding factor. It was not possible to ascertain the gender split in the remaining studies [$n = 2$; 57, 62].

Study design

Traditional control groups were not used in any of the studies. Belvedere et al. [55] pointed out ethical concerns with withholding

Table 1. Table of characteristics

Author	Country	Sample (n)	Participants	Design	Outcome measures	Follow-up	Main findings
El-Abbassy et al. [54]	Egypt	100	Nurses	Quasi-experimental Pre-post	CIAS, SDS, SQS	Not reported	EMDR significantly reduced anxiety, depression, and sleep quality.
Belvedere et al. [55]	Italy	43	HCPs (nurses and doctors)	Cohort	ET, IES-R, PTG-I	6 months	EMDR significantly reduced PTSD symptoms, with values dropping below the clinical PTSD risk threshold. Significant decreases in anxiety and depression.
Faretta et al. [63]	Italy	11	HCPs	Pre-post Pilot Uncontrolled	IES-R, ET	9 months	EMDR improved PTSD symptoms, with significant reductions in intrusiveness, avoidance, and hyperarousal scores. Participants reported substantial improvements in stress, anxiety, and sleep.
Faretta et al. [64]	Italy	122	HCPs (nurses)	Pre-post Uncontrolled	IES-R, ET	No follow-up	EMDR significantly reduced PTSD symptoms—significant improvements found in intrusiveness and avoidance, but not for hyperarousal.
Farrell et al. [56]	Ireland, UK, Northern Ireland, USA, Canada, New Zealand, Australia, Greece, Turkey	95	Frontline health and social care workers, emergency/first responders	RCT, delayed (1-month) treatment intervention (control) versus an active group	ITQ, GAD-7, PHQ-9, MIES, EQ-5D, SUD, ACE, BCE	1, 3, and 6 months	For both the delayed- and immediate-treatment groups, significant improvements in PTSD, anxiety, and depression from pre- to post-intervention and at each follow-up point were observed.
Fernandez et al. [57]	Italy	744	HCPs (doctors, nurses, nonmedical HCPs, intensive care support staff, psychologists)	Pre-post Uncontrolled Comparison groups (nontreated groups were offered debriefing space with a psychologist)	IES-R, ET	No follow-up	Treated subjects showed marked improvement over nontreated subjects, indicating a stronger effect of EMDR compared to debriefing with a psychologist. Significant reductions in PTSD symptoms across all subscales (avoidance, intrusiveness, and hyperarousal), stress, anxiety, mood, anger, sleep, and need for help.
Fogliato et al. [58]	Italy	150	HCPs	Retrospective observational study	IES-R, PTG-I	No follow-up	EMDR significantly reduced symptoms across all IES-R subscales (avoidance, intrusiveness, and hyperarousal) and total scores. HCPs treated in the first wave maintained improvements into the second wave, demonstrating resilience and less vulnerability.
Moench and Billsten [59]	Canada	34	HCPs (mental health clinicians)	Controlled randomized trial, with pre-post comparison of immediate-treatment and waitlist conditions	GSE, DASS-21	1 week	Both immediate- and delayed-treatment conditions showed significant decreases in depression, anxiety, and stress and significant increases in general self-efficacy.

(Continued)

Table 1. (Continued)

Author	Country	Sample (n)	Participants	Design	Outcome measures	Follow-up	Main findings
Pérez et al. [60]	Mexico	80	HCPs (nurses, doctors)	Two-arm longitudinal multisite randomized control trial, using waitlist/delayed-treatment control group	PCL-5, HADS, SPRINT	90 d	Significant reductions in PTSD, anxiety, and depression post-EMDR with continued symptom reduction observed at 90-d follow-up.
Perri et al. [62]	Italy	38	Individuals requiring support with trauma associated with quarantine, isolation, or work in COVID-19 hospital wards	Randomized Pre-post Comparison between EMDR R-TEP and TF-CBT	PCL-5, STAI-Y1, BDI-II	1 month	Both EMDR and TF-CBT were equally effective in reducing trauma-related symptoms when administered online. Both treatments resulted in significant reductions in PTSD, anxiety, and depression symptoms.
Sağaltıcı et al. [53]	Turkey	14	HCPs (physicians, nurses, HCPs, nonmedical staff)	Pre-post Uncontrolled Pilot	BAI, BDI, IES-R, MBI	1 month	EMDR significantly reduced PTSD symptoms (intrusion and hyperarousal significantly improved; the avoidance subscale showed no significant change), anxiety, and depression. For burnout, although emotional exhaustion improved, depersonalization and personal accomplishment did not show significant changes.
Tarquino et al. [65]	France	17	HCPs (nurses)	Pre-post Uncontrolled	HADS, SUDS	1 week	EMDR significantly reduced anxiety, depression, and SUD after 24 h, which remained stable after 1 week. Fear of going to work and fear for safety also decreased, although less significantly.
Yurtsever et al. [61]	Turkey	154	"At-risk groups" (include individuals working with coronavirus patients and frontline professionals)	Pre-post 1 x 3 design	IES-R (adapted to Turkish)	1 month	EMDR reduced PTSD symptoms across all groups, with frontline professionals experiencing the most significant and sustained reductions. Frontline professionals showed significant decreases in PTSD scores from pretest to posttest and follow-up.

CIAS, COVID-19 Induced Anxiety Scale; SDS, Zung Self-Rating Depression Scale [77]; SQS, Sleep Quality Scale [78]; ET, Emotions Thermometer [79]; IES-R, Impact of Event Scale-Revised [80]; PTG-I, Post-Traumatic Growth Inventory [81]; PTSD, post-traumatic stress disorder; RCT, randomized controlled trial; ITQ, International Trauma Questionnaire [82]; GAD-7, Generalized Anxiety Disorder 7-item Scale [83]; PHQ-9, Patient Health Questionnaire-9 [84]; MIES, Moral Injury Events Scale [85]; EQ-5D, EuroQol-5 Dimension [86]; SUD, Subjective Units of Distress, ACE, Adverse Childhood Experiences [87]; BCE, Benevolent Childhood Experiences [88]; GSE, General Self-Efficacy Scale [89]; DASS-21, Depression, Anxiety, and Stress Scale-21 [90]; PCL-5, PTSD Checklist for DSM-5 [91]; HADS, Hospital Anxiety and Depression Scale [92]; SPRINT, Short PTSD Rating Interview Scale [93]; EMDR R-TEP, EMDR Recent Traumatic Episode Protocol; TF-CBT, trauma-focused cognitive behavioral therapy; STAI-Y1, State-Trait Anxiety Inventory Form Y-1 [94]; BDI, Beck Depression Inventory [49]; BAI, Beck Anxiety Inventory [95]; MBI, Maslach Burnout Inventory [96]; SUDS, Subjective Units of Distress Scale [97]; HCP, Healthcare Professionals

Table 2. EMDR protocols and delivery methods

Study authors	EMDR protocol	Number of sessions	Duration of sessions	Frequency of sessions	Delivery method	Bilateral stimulation	Group or individual
El-Abbassy et al. [54]	EMDR	3–8	1.5 h	2 sessions per week	Online	Finger movements back and forth	Group
Belvedere et al. [55]	Brief EMDR intervention adapted to COVID-19, based on the EMDR-IGTP	3	Not detailed	1 session per week	In person	Butterfly hug	Group
Faretta et al. [63]	EMDR-IGTP	5	1–1.5 h	Not detailed	Online	Butterfly hug	Group
Faretta et al. [64]	EMDR-IGTP	3–5	Not detailed	Not detailed	Online	Butterfly hug	Group
Farrell et al. [56]	EMDR G-TEP as VGTEP	4	2 h	4 sessions per week	Online	Not detailed	Group
Fernandez et al. [57]	EMDR-IGTP	3	1–1.5 h 2 h	1 session per week	Combination	Butterfly hug	Group
Fogliato et al. [58]	EMDR-IGTP	3	1.5 h	3 sessions in 1 month	In person	Butterfly hug	Group
Moench and Billsten [59]	STEP	1	1.5 h	1 session	Online	Visually following self-directed finger movements back and forth on worksheet while listening to bilateral beats	Individual
Pérez et al. [60]	EMDR-IGTP-OTS-R	4	1–1.5 h	4 sessions per week	Online	Butterfly hug	Group
Perri et al. [62]	EMDR R-TEP	7	Not detailed	2 sessions per week	Online	Butterfly hug	Individual
Sağaltıcı et al. [53]	EMDR R-TEP	5	1.5 h	2 sessions per week	Online	Not detailed	Individual
Tarquino et al. [65]	URG-EMDR	1	2 h 14 min	1 session delivered within 72 h of critical incident	Online	Butterfly hug	Not detailed
Yurtsever et al. [61]	EMDR R-TEP	5	Not detailed	1 session per day, consecutive days	Online	Not detailed	Individual

EMDR, eye movement desensitization reprocessing, full 8-phase protocol; EMDR-IGTP, EMDR Integrative Group Treatment Protocol; EMDR G-TEP, EMDR Group Traumatic Episode Protocol; STEP, The Self-Care Traumatic Episode EMDR protocol; VGTEP, videoconference psychotherapy; EMDR-IGTP-OTS-R, EMDR Integrative Group Treatment Protocol for Ongoing Traumatic Stress Remote; EMDR R-TEP, EMDR Recent Traumatic Episode Protocol; URG-EMDR, Urgent EMDR protocol

psychological support to staff experiencing ongoing trauma and while working in highly distressing environments such as the COVID-19 pandemic. However, 5 studies used an alternative control method. Of these, 3 were RCTs using delayed or waitlist

control groups [56,59,60] and 1 was a pre–post design utilizing delayed control [57]. One study [62] utilized a comparator group, in which 19 participants received TF-CBT. These studies were rated more highly by the EPHPP for study design. According to

Table 3. Quality appraisal of included studies using the EPHPP. Table headings A to F represent scores for (A) selection bias, (B) study design, (C) confounders, (D) blinding, (E) data collection methods, and (F) withdrawals and dropouts. The total score is the global rating according to the EPHPP.

Paper	A	B	C	D	E	F	Total
El-Abbassy et al. [54]	M	M	W	W	S	M	W
Belvedere et al. [55]	W	M	S	M	S	S	M
Faretta et al. [63]	M	M	W	W	S	W	W
Faretta et al. [64]	M	M	W	W	S	S	W
Farrell et al. [56]	M	S	W	M	S	S	M
Fernandez et al. [57]	S	M	W	M	S	S	M
Fogliato et al. [58]	M	M	W	W	S	W	W
Moench and Billsten [59]	M	S	W	M	S	S	M
Pérez et al. [60]	M	S	W	S	S	S	M
Perri et al. [62]	M	M	W	W	S	W	W
Sağaltıcı et al. [53]	M	M	W	W	S	S	W
Tarquino et al. [65]	W	M	W	W	S	W	W
Yurtsever et al. [61]	M	M	W	W	S	W	W

EPHPP, Effective Public Health Practice Project; W, weak; M, moderate; S, strong

the EPHPP, the pre–post cohort studies were rated as weak for design due to the lack of a control group, which limits their ability to attribute positive results to the EMDR intervention alone.

Outcome and follow-up measures

All studies were rated as strong for their data collection methods; all studies used at least one validated outcome measure that, according to existing validation studies, had been measured as valid and reliable. Some studies that used more than one measure of psychological distress used idiosyncratic or bespoke measures to support results. Follow-up measures were completed by most of the studies ($n = 9$), which presents as an additional strength. However, the follow-up periods varied greatly and made comparisons between studies difficult.

Data analysis and reporting

The studies all provided clear descriptions of their statistical analyses, and most studies reported their results clearly, e.g., presenting the changes in pre–post score graphically. Generally, few studies reported confidence intervals (CIs) for test statistics and effect sizes were not reported consistently. The lack of CIs means that the direction and strength of the effect of the EMDR intervention cannot be ascertained, meaning limited conclusions can be drawn regarding the clinical relevance of the finding. For all studies, the statistical analysis used was appropriate for the study design and data type. Most studies provided sufficient interpretation of their findings and acknowledged the methodological limitations of their designs. Clear reporting enabled means, standard deviations, and significance levels to be collated and effect size to be calculated. Across studies, these domains consistently showed statistically significant pre–post improvements with medium to large reported effects (see Table 4).

Effectiveness of EMDR for PTSD symptoms

Across 10 studies, EMDR was consistently associated with statistically significant reductions in post-traumatic stress symptoms among HCPs during the COVID-19 pandemic. Effect sizes were consistent in direction and ranged from small to very large, with all but one study [64] reporting large pre–post improvements, indicating substantial clinical and practical significance (see Table 4).

Most studies using the IES-R demonstrated large reductions in PTSD severity [53,55,57,58,61,63]. In several studies, the post-treatment scores on the IES-R fell below the clinical cutoff (>33), suggesting a return to nonclinical symptom levels. Improvements were typically sustained at 1- to 9-month follow-up, although 3 studies lacked long-term data. Subscale analyses indicated consistent reductions across intrusion, avoidance, and hyperarousal domains.

Studies using the PCL-5 [60,62] and ITQ [56] reported similarly large posttreatment effects, again with post-EMDR scores below diagnostic thresholds. These findings suggest a sustained reduction in trauma symptoms across both DSM-5 and ICD-11 frameworks.

Although nontreatment control groups were absent from studies, several implemented other types of comparison groups. Fernandez et al. [57] found that EMDR produced greater IES-R reductions than a group receiving only psychological debriefing. Pérez et al. [60] used a delayed-treatment design, showing that PTSD symptoms worsened during the wait period but decreased sharply after EMDR—highlighting the importance of early intervention to minimize the impact of chronic trauma and prevent the worsening of PTSD symptoms. Perri et al. [62] compared online EMDR with online TF-CBT, finding both equally effective in reducing PTSD symptoms. Yurtsever et al. [61] examined differential effects across participant subgroups, reporting that frontline HCPs experienced the most pronounced and sustained benefits, suggesting that EMDR may be particularly efficacious for those facing trauma exposure while working within crisis situations.

A random-effects meta-analysis of 11 independent PTSD effects from 9 studies (total $N = 1,367$) demonstrated a large and statistically significant reduction in post-traumatic stress symptoms following EMDR treatment, Hedges' $g = -1.31$, 95% CI $[-1.57, -1.063]$, $P < 0.001$. However, substantial heterogeneity was observed ($I^2 = 88\%$; 95% CI $[81.4\%; 92.9\%]$), likely reflecting variation in study design, EMDR protocols, and sample characteristics.

A sensitivity analysis based on methodological quality (moderate vs. weak) on the EPHPP suggested that effects were comparable between weak- and moderate-quality studies ($\chi^2 = 0.7$, $P = 0.40$). The funnel plot indicated asymmetry, with smaller studies tending to report larger effects; Egger's test (intercept = -2.99 , $P = 0.029$) suggested potential publication bias.

Overall, the meta-analysis indicates that EMDR produced clinically meaningful and statistically reliable reductions in PTSD symptoms among HCPs during the COVID-19 pandemic (see Fig. 2 for the forest plot and Fig. S1).

Effectiveness of EMDR on anxiety and depression

Across studies, EMDR produced consistent and clinically meaningful reductions in anxiety and depression among HCPs during the COVID-19 pandemic, despite considerable variation in outcome measures, protocols, and study designs. Improvements were evident across all major psychometric instruments,

Table 4. Means and standard deviations of pre- and post-EMDR scores with significance levels and effect sizes. Cohen's guidelines for Cohen's $d = 0.20, 0.50,$ and 0.80 are used to interpret effect sizes as small, medium, or large, respectively.

Study	Measures	Pre-EMDR M (SD)	Post-EMDR M (SD)	Significance	Effect size (Cohen's d)
El-Abbassy et al. [54]	CIAS	Not reported	Not reported	$P < 0.0001$	ND
	SDS	Not reported	Not reported	$P < 0.0001$	ND
	SQS	Not reported	Not reported	$P < 0.02$	ND
Belvedere et al. [55]	IES-R (total)	42.37 (15.83)	24.12 (18.53)	$P < 0.001$	1.10
	ET				
	Stress	5.71 (2.36)	2.35 (1.73)	$P < 0.001$	1.62
	Anxiety	5.51 (2.64)	2.14 (1.78)	$P < 0.001$	1.50
	Mood	4.55 (2.75)	1.56 (2.03)	$P < 0.001$	1.24
	Anger	5.05 (2.82)	2.07 (2.25)	$P < 0.001$	1.17
	Sleep	5.15 (2.96)	1.81 (2.35)	$P < 0.001$	1.25
	Help	5.10 (2.57)	1.95 (1.85)	$P < 0.001$	1.41
	PTG-I	Not reported	78.88 (23.04)	Not reported	ND
Faretta et al. [63]	IES-R (total)	37.55 (4.18)	18.36 (3.09)	$P < 0.0000$	5.22
	ET				
	Stress	7.36 (2.73)	3.64 (3.29)	$P < 0.0000$	1.23
	Anxiety	6.73 (3.52)	3.64 (3.61)	$P < 0.0003$	0.87
	Mood	4.09 (3.62)	2.27 (3.29)	$P < 0.005$	0.53
	Anger	5.36 (4.30)	2.09 (2.39)	$P < 0.001$	0.94
	Sleep	7.91 (2.43)	3.91 (3.48)	$P < 0.0000$	1.33
	Help	7.09 (2.51)	3.36 (3.64)	$P < 0.001$	1.19
	PTG-I	Not reported	78.88 (23.04)	Not reported	ND
Faretta et al. [64]	IES-R (total)	32.71 (16.87)	21.24 (16.29)	$P < 0.0001$	0.44
	ET				
	Stress	5.36 (2.62)	4.02 (2.54)	$P < 0.0001$	0.52
	Anxiety	4.62 (3.12)	3.15 (2.73)	$P < 0.0001$	0.50
	Mood	3.03 (2.77)	2.10 (2.39)	$P = 0.0002$	0.36
	Anger	3.69 (3.13)	2.39 (2.38)	$P < 0.0001$	0.47
	Sleep	3.92 (3.39)	2.34 (2.64)	$P < 0.0001$	0.52
	Help	4.04 (2.81)	2.26 (2.25)	$P < 0.0001$	0.70
	PTG-I	Not reported	78.88 (23.04)	Not reported	ND
Farrell et al. [56]	ITQ	36.8 (14.8)	21.2 (15.1)	$P < 0.0001$	1.04
	GAD-7	11.2 (4.91)	6.49 (4.73)	$P < 0.0001$	0.977
	PHQ-9	11.7 (5.58)	6.64 (5.79)	$P < 0.0001$	0.89
	MIES	Not reported	Not reported	Not reported	ND
	EQ-5D	65.02 (17.99)	Not reported	$P < 0.001$	ND
	SUD	Not reported	Not reported	$P < 0.0001$	ND
Fernandez et al. [57]	IES-R (total)	39.13 (17.62)	21.63 (17.61)	$P < 0.001$	0.99
	ET				
	Stress	5.27 (2.59)	3.22 (2.27)	$P < 0.001$	0.84
	Anxiety	4.42(2.83)	2.47 (2.13)	$P < 0.001$	0.78
	Mood	3.51 (2.78)	1.95 (2.10)	$P < 0.001$	0.63
	Anger	4.04 (3.10)	2.43 (2.32)	$P < 0.001$	0.59
	Sleep	4.36 (3.21)	2.49 (2.69)	$P < 0.001$	0.63
	Help	3.79 (2.70)	2.33 (2.25)	$P < 0.001$	0.59

(Continued)

Table 4. (Continued)

Study	Measures	Pre-EMDR <i>M</i> (SD)	Post-EMDR <i>M</i> (SD)	Significance	Effect size (Cohen's <i>d</i>)
Fogliato et al. [58]	IES-R (total)				
	Wave 1	45.65 (15.83)	31.13 (16.21)	$P < 0.001$	0.91
	Wave 2	50.21 (16.99)	34.37 (17.15)	$P < 0.001$	0.93
Moench and Billsten [59]	PTG-I	Not reported	Not reported	Not reported	ND
	GSE	ITG: 33.32 (3.86)	ITG 35.06 (3.70)	$P < 0.05$	-0.46
		DTG: 31.53 (3.76)	DTG: 32.69 (3.36)	$P < 0.01$	-0.33
	DASS-21	ITG: 12.50 (8.42)	ITG: 7.38 (5.35)	$P < 0.01$	0.73
DTG: 14.58 (11.20)		DTG: 8.06 (12.72)	$P < 0.01$	0.54	
Pérez et al. [60]	PCL-5	ITG: 35.85 (6.42)	ITG: 21.22 (5.29)	$P < 0.000$	2.49
		DTG: 35.48 (3.64)	DTG: 23.69 (5.21)	$P < 0.000$	2.62
	HADS:A	ITG: 14.45 (2.63)	ITG: 9.48 (2.48)	$P < 0.000$	1.94
		DTG: 14.15 (2.68)	DTG: 9.89 (1.42)	$P < 0.001$	1.99
	HADS:D	ITG: 12.94 (2.54)	ITG: 7.31 (3.29)	$P < 0.001$	1.92
		DTG: 12.71 (2.58)	DTG: 7.58 (1.81)	$P < 0.001$	2.30
Perri et al. [62]	PCL-5	38.2 (16.7)	18.5 (12.3)	$P < 0.0001$	1.34
	STAI-Y1	47.4 (13.1)	35.8 (14.5)	$P < 0.0001$	0.84
	BDI-II	22.4 (10.5)	10.2 (6.4)	$P < 0.0001$	1.40
Sağaltıcı et al. [53]	IES-R (total)	48.5 (32–61.5)	9.5 (12.25–29.5)	$P < 0.001$	0.81–1.61
	BAI	24 (19.75–32.25)	11.5 (8–20.25)	$P < 0.001$	0.46–0.83
	BDI	20 (15–25.75)	7.5 (3.75–10.25)	$P < 0.001$	0.64–1.14
	MBI				
	EE	32 (24.5–38.25)	23 (17–28.25)	$P = 0.009$	0.27–0.43
	DP	8.5 (6–11.25)	8.5 (5.75–12)	$P = 0.484$	0.04
	PA	31.5 (27–34.5)	32.5 (30.75–36)	$P = 0.662$	-0.03
Tarquinio et al. [65]	HADS:A	16.9 (2.01)	9.1 (2.1)	$P < 0.001$	3.79
	HADS:D	14.9 (2.7)	9.5 (1.5)	$P < 0.001$	2.47
	SUDS	8.2 (1.10)	1.1 (0.85)	$P < 0.001$	7.22
Yurtsever et al. [61]	IES-R (frontline professionals only)	47.92 (11.72)	26.48 (11.97)	$P < 0.0001$	1.81

ND, no data available due to other data (means, SDs, and significance levels) not being reported in the study; CIAS, COVID-19 Induced Anxiety Scale; SDS, Zung Self-Rating Depression Scale; SQS, Sleep Quality Scale; IES-R, Impact of Event Scale-Revised; ET, Emotions Thermometer; PTG-I, Post-Traumatic Growth Inventory; ITQ, International Trauma Questionnaire; GAD-7, Generalized Anxiety Disorder 7-item Scale; PHQ-9, Patient Health Questionnaire-9; MIES, Moral Injury Events Scale; EQ-5D, EuroQol-5 Dimension; SUD, Subjective Units of Distress; ACE, Adverse Childhood Experiences; BCE, Benevolent Childhood Experiences; GSE, General Self-Efficacy Scale; DASS-21, Depression, Anxiety, and Stress Scale-21; PCL-5, PTSD Checklist for DSM-5; HADS, Hospital Anxiety and Depression Scale; SPRINT, Short PTSD Rating Interview Scale; STAI-Y1, State-Trait Anxiety Inventory Form Y-1; BDI, Beck Depression Inventory; BAI, Beck Anxiety Inventory; MBI, Maslach Burnout Inventory; DP, Depersonalization; EE, Emotional Exhaustion; PA, Personal Accomplishment; SUDS, Subjective Units of Distress Scale; ITG, immediate-treatment group; DTG, delayed-treatment group

including GAD-7, Patient Health Questionnaire-9 (PHQ-9), HADS, BDI-II, Beck Anxiety Inventory (BAI), State-Trait Anxiety Inventory Form Y-1 (STAI-Y1), and ET subscales. Effect sizes were typically large, supporting the transdiagnostic efficacy of EMDR in alleviating stress-related emotional symptoms beyond PTSD. Several studies demonstrated that posttreatment scores fell below clinical thresholds for anxiety and depression (e.g., [56,62]), suggesting a return to nonclinical functioning. In studies using GAD-7 and PHQ-9 [56], EMDR was associated with large pre-post reductions. Similarly, Sağaltıcı et al. [53] reported statistically significant decreases on both the BDI and BAI from

pre- to posttreatment and at 1-month follow-up, with effect sizes ranging from small to large. Perri et al. [62] found parallel improvements using STAI-Y1 and BDI-II, indicating reductions in both anxiety and depressive symptoms. Across studies employing the ET, participants consistently reported declines in self-rated anxiety, stress, and mood disturbance following EMDR [55,57,63,64], although only Belvedere et al. [55] completed follow-up measures, making it difficult to determine lasting impact. These results complement the findings from standardized measures and further demonstrate EMDR's broad emotional regulatory impact. Controlled comparisons reinforced these

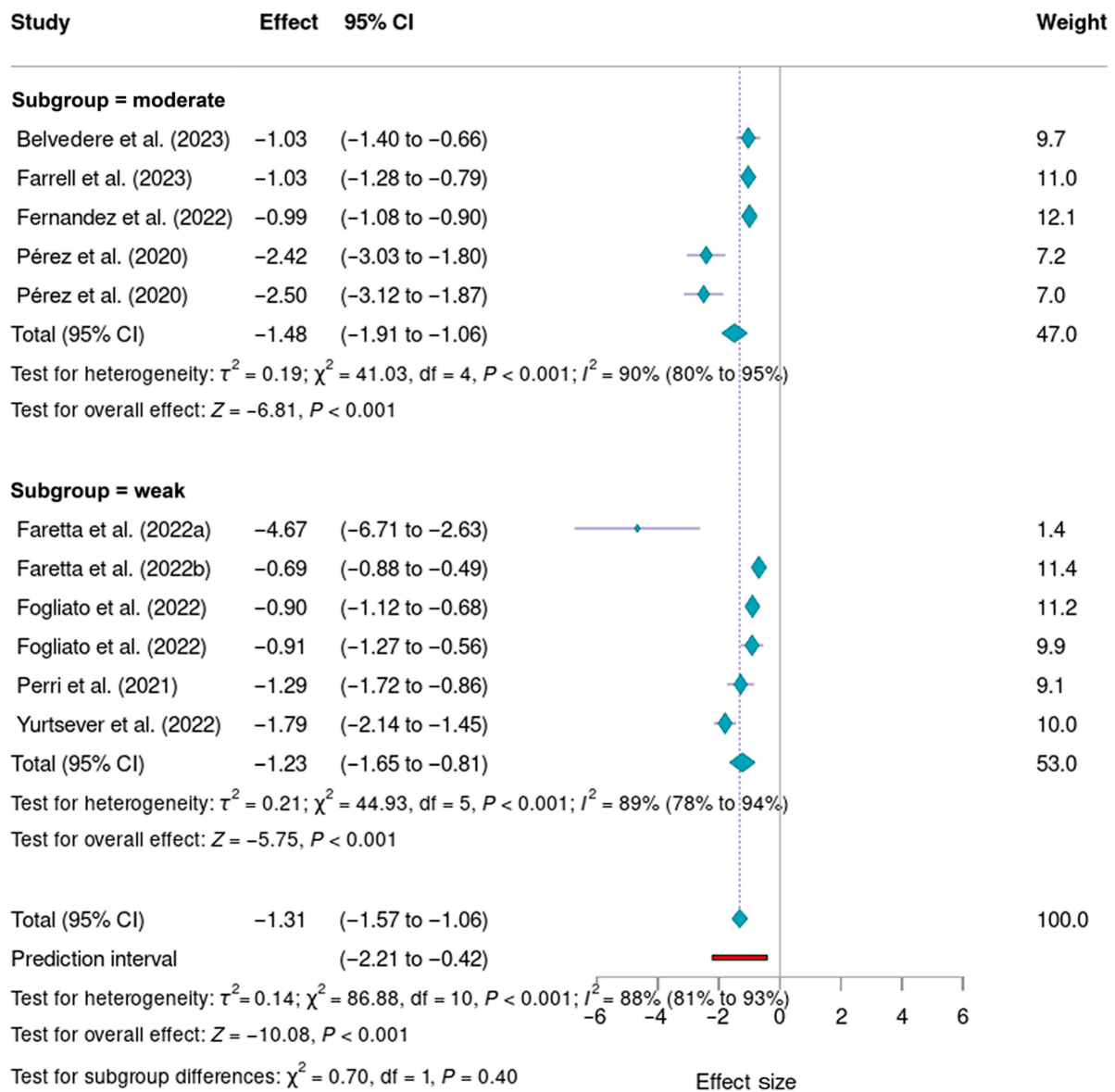


Fig. 2. Forest plot of EMDR effect sizes on PTSD measures. CI, confidence interval; Hedges' *g*, standardized mean change.

conclusions. Pérez et al. [60] observed statistically significant anxiety and depression reductions (HADS) in both immediate- and delayed-treatment groups. Moench and Billsten [59] reported similar trends using Depression, Anxiety, and Stress Scale-21 (DASS-21), although the study sample consisted of EMDR-trained clinicians, which limits generalizability, as these HCPs may have an existing understanding and experience with EMDR practices. Similar constraints are notable in Tarquinio et al. [65], who observed robust decreases in anxiety and depression on the HADS following EMDR sessions conducted with HCPs who were already in therapy with the therapist involved in the study. The researchers pointed out that the target memory in the study is limited to a traumatic memory during the pandemic and was in no way linked to previous therapy. However, this cannot negate the impact of the preexisting therapeutic relationship and EMDR skills, which likely influence the participants experience of the study. Although these samples may have benefited from prior EMDR familiarity or established therapeutic alliances, the

consistent direction and magnitude of effects underscore EMDR's capacity to rapidly alleviate affective distress.

Taken together, the evidence indicates that EMDR not only reduces trauma-specific symptoms but also provides relief from anxiety and depressive symptoms, often reaching nonclinical levels and maintaining gains over time. These findings align with EMDR's theorized mechanisms of action—AIP and physiological down-regulation—which support its application as a broad-spectrum intervention for crisis-related psychological distress.

Effectiveness of EMDR on other COVID-19 psychological symptoms

Beyond its well-documented impact on PTSD, anxiety, and depression, EMDR was also associated with improvements across a range of secondary psychological outcomes relevant to the COVID-19 context, including sleep quality, occupational burnout, stress regulation, fear responses, and post-traumatic growth. Although these constructs were typically assessed by

single studies and conclusions are therefore limited, the direction of effects was consistently positive, suggesting that EMDR exerts broader emotional and functional benefits for HCPs under crisis conditions.

Improvements in sleep quality were reported by El-Abbassy et al. [54] and Faretta et al. [63]. Stress regulation and emotional stability improved in studies using the ET [55,57,63,64], indicating a generalized decline in stress, anxiety, mood, anger, sleep, and need for help. Similarly, self-efficacy increased following EMDR in Moench and Billsten's study [59], aligning with theories that EMDR enhances adaptive coping by restoring a sense of control over traumatic memories and work-related stressors. Occupational outcomes were also positively influenced. Sağaltıcı et al. [53] found statistically significant reductions in emotional exhaustion, a core dimension of burnout, although the depersonalization and personal accomplishment subscales of the Maslach Burnout Inventory (MBI) remained unchanged. These results suggest that EMDR may target the emotional depletion associated with chronic trauma exposure, even if the professional identity-related aspects of burnout are less responsive.

EMDR's preventive and resilience-enhancing effects were further supported by studies examining fear and post-traumatic growth. Tarquinio et al. [65] reported reductions in fear of infection and fear of returning to work following EMDR, while Belvedere et al. [55] observed statistically significant increases in post-traumatic growth, although gains diminished slightly at follow-up. Overall, these findings indicate that EMDR's benefits extend beyond symptom relief to encompass restoration of adaptive functioning and resilience in crisis-exposed HCPs. While these results should be interpreted cautiously given the limited number of studies per construct, they collectively suggest that EMDR functions as a comprehensive, emotion-regulation-based intervention capable of addressing multiple domains of COVID-19-related psychological distress.

EMDR as an early intervention

Across studies, various remote EMDR protocols were implemented, all demonstrating reductions in psychological distress among HCPs, with most reporting sustained benefits at follow-up. Although findings should be interpreted cautiously due to the generally low methodological quality of studies, the collective evidence supports EMDR's potential as a rapid-response intervention during ongoing crises.

Unlike traditional EMDR, which is typically delivered post-trauma, all interventions in this review occurred concurrently with the traumatic context of the COVID-19 pandemic, targeting HCPs exposed to continuous stressors. This adaptation suggests that EMDR can effectively provide immediate relief and may help prevent the progression of chronic trauma symptoms even while exposure persists, suggesting its utility as a rapid-response early psychological intervention. In Moench and Billsten [59], the single-session EMDR Self-Care Traumatic Episode Protocol (STEP) significantly reduced anxiety and depression, underscoring EMDR's potential efficiency in acute crisis care, although it requires testing in larger and more diverse populations of HCPs to increase generalizability. Fogliato et al. [58] found that PTSD symptoms were more severe during the second pandemic wave compared to the first, which was attributed to cumulative stress, yet EMDR significantly reduced symptoms in both groups and sustained improvements across waves, highlighting its role in fostering resilience under prolonged stress. Similarly, Fernandez et al. [57] observed that only 3% of EMDR-treated participants

experienced symptom worsening after 12 weeks, compared to 20% of nontreated participants, demonstrating EMDR's potential to provide immediate psychological relief and prevent the worsening of distress. Taken together, these findings indicate that EMDR is both feasible and clinically beneficial for frontline HCPs during crisis conditions, offering a scalable, time-efficient means of mitigating distress and supporting continued workforce functioning during public health emergencies.

Discussion

This systematic literature review and meta-analysis evaluated the use and effectiveness of EMDR for HCPs experiencing COVID-19-related psychological distress. Findings consistently indicated that EMDR reduced PTSD, anxiety, and depression symptoms among HCPs, supporting its promise as an early psychological intervention in crisis contexts.

Different EMDR protocols were used across studies, including standard, online, group-based, and crisis-specific formats such as Recent Traumatic Episode Protocol (R-TEP) and STEP. While it would be of clinical interest to understand the relative effectiveness of each of these protocols, the heterogeneity in methods, use of different outcome measures, and small numbers of studies meant that it was not possible to determine which protocol was the most effective for this population. However, the collective findings are in line with the wider evidence base demonstrating EMDR's efficacy in trauma-related conditions [32,66–70] and extend this to frontline healthcare settings under chronic stress exposure.

A key theoretical implication of the current review concerns how EMDR functions under conditions of ongoing rather than post-event trauma exposure. Traditionally, EMDR has been conceptualized within Shapiro's AIP model, which posits that psychological distress arises when traumatic experiences are maladaptively stored and isolated from adaptive memory networks [23,35]. EMDR facilitates reconsolidation through bilateral stimulation, enabling integration and the reduction of affective disturbance [23,35]. During the COVID-19 crisis, however, HCPs were continually exposed to continuous, cumulative stressors [71,72]. In such contexts, EMDR may operate not only as a trauma-resolution intervention but also as a real-time affect-regulation and resilience-enhancement mechanism. By engaging working memory and parasympathetic regulation through bilateral stimulation, EMDR may prevent the maladaptive encoding of traumatic experiences and promote adaptive coping even as exposure continues. EMDR may allow HCPs to process traumatic material in "real time", thereby preventing the consolidation of maladaptive traumatic memories. This adaptation extends the AIP model beyond its traditional post-event framework, highlighting EMDR's potential as an early intervention for continuous traumatic stress rather than solely a post-trauma treatment.

Recent evidence further substantiates this mechanism; EMDR administered during ongoing traumatic exposure has been shown to significantly reduce distress and disrupt the consolidation of maladaptive memories, demonstrating that EMDR can operate effectively as an early, stabilizing, and preventative intervention rather than solely a post-trauma treatment [73,74]. Similarly, Palen et al. [75] found that brief, virtually delivered EMDR Group Traumatic Episode Protocol (G-TEP) sessions significantly reduced PTSD and depression symptoms among Ukrainian clinicians exposed to continuous wartime trauma.

These findings mirror those of the present review, supporting the use of EMDR as a real-time intervention that enhances affect regulation and adaptive processing even in the absence of post-traumatic safety. Together, these studies extend the AIP model to encompass contexts of chronic stress, illustrating that EMDR may not only facilitate retrospective trauma resolution but also function as an early stabilizing mechanism that prevents the accumulation and consolidation of traumatic stress in healthcare and humanitarian crises.

The need for prompt psychological intervention during the pandemic meant that many of the studies evaluated in this review used online and group EMDR protocol; these are also cost- and time-effective delivery options. The predominance of these protocols during the pandemic demonstrates EMDR's adaptability to crisis delivery formats and extends the current understanding of EMDR's mechanisms by demonstrating that its core processes—bilateral stimulation, dual attention, and adaptive information integration—can operate effectively beyond the traditional dyadic format. Both online and group EMDR protocols preserved the essential therapeutic elements of EMDR despite reduced nonverbal cues and provided relational containment and affect regulation. Overall, the findings suggest that EMDR is a flexible and scalable intervention capable of supporting frontline professionals under chronic and cumulative stress. Its effectiveness when delivered remotely or in groups, together with its grounding in the AIP model, underscores its potential as both a therapeutic and a preventative approach to psychological distress in healthcare and other high-risk occupational settings.

Limitations of the review

The low quality of studies included in the review is a limitation, with the emergency nature of the pandemic a possible factor in constraining research rigor. For example, studies were limited in study design options due to ethical concerns about withholding psychological support for HCPs, who required it in such traumatic circumstances. None of the studies were rated as strong, with common limitations including small, self-selected samples, absence of control groups, absence of follow-up assessments, and reliance on self-report data. These factors limit causal inference and may inflate observed effects through expectancy or regression to the mean. The lack of control groups means that it is challenging to isolate the intervention effect from the effect of confounding variables or unrelated factors and difficult to determine the true effect of the intervention. Although all included studies were assessed for risk of bias using the EPHPP tool, the quantitative analyses of heterogeneity and publication bias were limited to the PTSD outcomes, as these were the only measures consistently reported across an adequate number of studies. There was high heterogeneity across studies, with differences in design, samples, EMDR protocols, and outcome measures used, which meant that it was not possible to determine which EMDR protocols specifically were the most effective. On the other hand, the convergence of positive findings across diverse contexts and designs provides compelling preliminary support for EMDR's clinical utility in healthcare crises, although conclusions should be regarded as tentative rather than confirmatory.

Strengths of the review

The review encompasses a broad search strategy to ensure that no relevant literature was missed, and although none was identified,

gray literature was searched to limit publication bias. Using the clearly defined inclusion criteria, the present review is the first to collate research exclusively examining the use of EMDR for HCPs during the COVID-19 pandemic and results may be applied to use with HCPs in future crisis situations. The majority of studies excluded participants if they were receiving other psychological support, meaning there is a reduced risk of results being attributed to synchronous treatment. Integrating the AIP framework with these contextual adaptations allows a more nuanced interpretation of EMDR's role during the COVID-19 pandemic. EMDR may serve not only as a treatment for established PTSD but as a preventative, resilience-oriented intervention capable of interrupting the trajectory of traumatic stress in its earliest stages. The theoretical implications extend to understanding how EMDR fosters both individual and collective regulation under chronic stress conditions, offering a model for rapid psychological support in future healthcare or humanitarian crises.

Clinical implications

This review, although situation specific, provides promising results for the use of EMDR for HCPs as an early psychological intervention in crisis scenarios. In all studies, EMDR improved the symptoms of psychological distress, including PTSD, anxiety and depression, with scores falling below clinical cutoffs in some studies. Results tentatively show that EMDR is effective when delivered online and when delivered as a group intervention. These delivery methods enabled staff members who were isolated by social restrictions and infection control measures to continue to access psychological support, reaching a higher number of HCPs than would have been possible when facilitating in-person 1:1 EMDR sessions. Notably, 2 studies used only one EMDR session and still showed positive results, suggesting that EMDR is time- and cost-effective, which is particularly useful in situations where there is an immediate need for a psychological intervention. However, online or group EMDR protocols in which the participant must self-administer bilateral stimulation can raise concerns related to the correct and consistent application of the technique [76]. This is a clinical consideration that needs to be addressed moving forward. In addition, the convergence of results across multiple weak designs nonetheless provides preliminary support warranting further investigation through more rigorous trials.

Conclusion

There was a high prevalence of psychological distress among HCPs during the pandemic. The present review synthesized research that investigated the use and effectiveness of EMDR for HCPs experiencing psychological distress during the COVID-19 pandemic. Taken together, the studies tentatively support the use of EMDR as an effective early intervention for improving psychological distress in HCPs during the pandemic and may extend to other ongoing trauma situations. The use of different EMDR protocols and delivery methods indicate its adaptability, effectiveness in group and online settings, and potential as an early intervention therapy, making it a valuable tool in addressing mental health challenges, especially in crisis situations. Collectively, these adaptations demonstrate EMDR's theoretical flexibility and confirm that its mechanism of change extends beyond trauma resolution to real-time emotional stabilization and resilience-building, particularly in high-stress occupational contexts such as healthcare crises. However, the strengths of the

findings are limited by several methodological limitations including limited use of control groups and heterogeneity between studies. The findings should be interpreted as indicative rather than definitive, reflecting the limitations of the available evidence base. Future research should employ longitudinal, controlled designs to clarify the mechanisms through which EMDR fosters resilience and to determine which protocol variants are the most effective for ongoing trauma exposure.

Ethical Approval

This study is a systematic review and meta-analysis and did not involve human or animal participants or collect primary data; therefore, ethical approval was not required.

Acknowledgments

The authors declare that there are no additional individuals or organizations to acknowledge.

Funding: The authors acknowledge that they did not receive funding for this work.

Author contributions: A.M.H. conceived the study, designed the review methodology, and conducted the literature searches. A.M.H. screened all records, performed critical appraisal, carried out data extraction and synthesis, calculated effect sizes, conducted the meta-analysis, and wrote the manuscript. G.L. supervised the project, provided methodological and design expertise, contributed to data analysis including the meta-analysis, and assisted in revising and redrafting the manuscript. N.S. performed critical appraisal of included studies, provided supervisory input, and contributed to manuscript revision.

Competing interests: The authors declare that they have no competing interests.

Data Availability

Data sharing is not applicable to this article as no datasets were generated or analyzed during the current study.

Supplementary Materials

Table S1. Search terms

Table S2. PTSD scores

Fig. S1. Funnel plot

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Eye Movement Desensitization and Reprocessing as an Early Intervention for Psychological Distress in Healthcare Professionals during COVID-19: A Systematic Literature Review and Meta-analysis

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Citation: Harrison A, Lee G, Shergill N. Eye Movement Desensitization and Reprocessing as an Early Intervention for Psychological Distress in Healthcare Professionals during COVID-19: A Systematic Literature Review and Meta-analysis. *J EMDR Pract Res.* 2026;**20**:0022. DOI: 10.34133/jemdr.0022

Healthcare professionals (HCPs) experienced elevated rates of psychological distress during the COVID-19 pandemic, including symptoms of post-traumatic stress disorder (PTSD), anxiety, and depression. The unprecedented psychological burden on HCPs led to the emerging use of eye movement desensitization and reprocessing (EMDR) as an early psychological intervention during ongoing crisis conditions, rather than solely as a post-trauma treatment. This novel application within a continuous high-stress healthcare context warrants systematic examination. A systematic search of PsycINFO, PsycArticles, PubMed, CINAHL, ScienceDirect, and the Cochrane Library identified 13 studies assessing the use and effectiveness of EMDR for HCPs experiencing COVID-19-related psychological distress. A meta-analysis of PTSD outcomes was conducted using data from eligible studies, alongside a narrative synthesis of anxiety, depression, and other distress-related outcomes. EMDR was associated with clinically meaningful reductions in PTSD, anxiety, depression, and related symptoms of psychological distress. The meta-analysis demonstrated a large and statistically significant reduction in PTSD following EMDR treatment. Considering the low to moderate quality of studies, this review provides tentative evidence for the effectiveness of EMDR for HCPs in the treatment of COVID-19-related psychological distress and suggests its utility as an early intervention in crisis scenarios. Variations in EMDR protocols and delivery methods—used to meet urgent clinical demands—are discussed. Findings offer preliminary support for EMDR as a clinically beneficial and potentially scalable early intervention for HCPs experiencing COVID-19-related psychological distress. Further high-quality research is required to clarify effectiveness, optimize protocol selection, and strengthen the evidence for EMDR's use during ongoing trauma exposure.

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Journal of EMDR Practice and Research (ISSN 1933-320X) is published by the American Association for the Advancement of Science. 1200 New York Avenue NW, Washington, DC 20005.

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