EMDR Therapy for Posttraumatic Stress Disorder Symptoms in Adult Inpatient Mental Health Settings: A Systematic Review

Rebecca Phillips
Cathryn Pinto
Pamela McSherry
Tess Maguire
University of Southampton, Southampton, Hants, England

Most research evaluating eye movement desensitization and reprocessing (EMDR) therapy has taken place in community settings, leaving the impact for service users within inpatient environments less clear. This systematic review sought to identify, summarize, and critically evaluate studies that investigated the impact of EMDR on symptoms of posttraumatic stress disorder (PTSD) within adult inpatient mental health settings. Seven databases were systematically searched to identify published and unpublished articles eligible for inclusion. Eleven studies, published between 1995 and 2020 were included within this review. All studies showed that EMDR improved PTSD symptoms, across a variety of study populations. However, these findings are limited by the (a) preponderance of case study designs (preventing causal attribution); (b) provision of synchronous treatments; (c) poor methodological quality; and (d) high heterogeneity across studies. Prior research has shown EMDR's effectiveness and safety for vulnerable populations. Whilst the evidence is beginning to support its use with those experiencing PTSD symptoms within adult inpatient settings, it is premature to strongly recommend it as a routine intervention. Future research within this area is recommended.

Keywords: eye movement desensitization and reprocessing (EMDR); posttraumatic stress disorder (PTSD); inpatient; systematic review

Inpatient settings belong to patients experiencing the most severe difficulties, including psychosis and bipolar disorder (White et al., 2014). The prevalence of posttraumatic stress disorder (PTSD) within this patient group is also high relative to the general population (Grubaugh et al., 2012). Inpatient admissions aim to be as brief as possible in order to enable the service user to return to their own environment as soon as it is safe and reasonable to do so. During an admission, the service user will often receive a full multidisciplinary approach to care that will include professionals such as psychology, occupational therapy, nursing, and psychiatry. Although the service user may be able to access individual and/or group psychological therapy during their stay, the brief and unpredictable length of many inpatient admissions naturally limits the number of possible therapy sessions (Paterson et al., 2018). Given the combination of complexity in service users' presentation and sometimes short period of admission, adaptions are often required to deliver effective therapy within inpatient mental health settings (Wood et al., 2019). This often involves flexible short ad hoc therapy sessions and a creative approach to engagement and intervention (Small et al., 2018). It is also important to note, however, that inpatient mental health settings themselves are not uniform in the therapeutic interventions they offer, with the availability and

 http://dx.doi.org/10.1891/EMDR-D-21-00022

delivery of psychological therapy in particular, often varying significantly across settings (Ghahramanlou-Holloway et al., 2012).

Trauma-Focused Psychological Interventions Within Inpatient Mental Health Settings

There is evidence that some psychological interventions for trauma have been found to be effective in inpatient mental health settings. A naturalistic, multisite design study found that trauma-focused cognitive behavioral therapy can be delivered routinely and effectively within inpatient settings (Herzog et al., 2021). Further to this, a recent systematic review exploring acute inpatient mental health settings found that psychological therapy was associated with reduced readmissions, depression, and anxiety (Paterson et al., 2018). Inpatient settings are often centered around a predominantly medical model of care, yet it is clear that the support and involvement of the wider multi-disciplinary team is important when providing psychological trauma-focused interventions (Kerfoot et al., 2012) which have been deemed inappropriate without this support in place (Small et al., 2018). Barriers are also present that make delivering psychological therapies in inpatient settings challenging. Concerns have been raised when delivering psychological interventions to inpatients that the high level of distress during a time of crisis may prevent service users from meaningfully engaging in therapy, leading it to be less effective (Evlat et al., 2021). This is further compounded by evidence suggesting that a common fear among therapists is that service users' distress will intensify during trauma therapy, which could increase the individual's risk (van Minnen et al., 2010). Moreover, the often restrictive inpatient environment, although variable, can be experienced as an unsafe setting for the patient themselves in which to share their difficulties (Schizophrenia Commission, 2012). However, findings have also revealed service users are dissatisfied with their inpatient experience, largely because of the lack of psychology provision (Wood & Alsawy, 2016).

Eye Movement Desensitization and Reprocessing Therapy

Eye movement desensitization and reprocessing (EMDR) is a trauma-focused psychotherapy developed by Francine Shapiro (Shapiro, 1989). The National Institute for Health and Care Excellence (NICE, 2018) has recommended the intervention for adults experiencing symptoms of PTSD unrelated to combat trauma. The intervention has also been demonstrated as effective for PTSD in multiple meta-analyses (Chen et al., 2018; Khan et al., 2018; Lewis et al., 2020; Mavranezouli et al., 2020). EMDR follows an eight-phase protocol guided by the adaptive information processing (AIP) model. This model proposes that traumatic experiences may be inadequately processed at the time of the incident(s), resulting in dysfunctional information processing which in turn may lead to symptoms of PTSD (Shapiro, 2001). The therapy, using the technique of bilateral stimulation, is designed to activate the information processing system. This is thought to allow traumatic memories to be processed and stored adaptively, enabling new learning to occur, thereby reducing distress and forming new cognitive understandings of the event(s) (Solomon & Shapiro, 2008).

EMDR and Severe Mental Health Difficulties

Over time, the application of EMDR has extended beyond PTSD to support those experiencing trauma-related symptoms with comorbid severe mental difficulties (Valiente-Gómez et al., 2017). Within a recent systematic review, it was concluded that the intervention appears feasible and safe for individuals experiencing psychosis (Adams et al., 2020). The potential role of EMDR as an intervention for affective disorders has also been highlighted, with research suggesting EMDR may be a useful adjunctive approach for bipolar disorder and major depressive disorder, particularly when other interventions have been ineffective (Perlini et al., 2020).

EMDR in Inpatient Mental Health Settings

Within recent research examining the prevalence of PTSD experienced by patients accessing psychiatric inpatients units, it has been found that the majority (65.7%) had high scores on the Abbreviated PTSD Checklist (PCL-C), indicating a high likelihood of PTSD (Nowlin & Brown, 2019). For this reason, it is important that effective trauma interventions, which can be implemented to support those in inpatient mental health settings, are developed. It appears however that the vast majority of research investigating the effectiveness of EMDR for those experiencing PTSD has been based in outpatient mental health settings. The evidence base for its use in inpatient mental health settings is therefore less clear. Inpatient mental health settings differ significantly from outpatient settings as they predominately provide time limited support for people experiencing acute mental health difficulties that cannot be managed within the community for a multitude of reasons, most often related to risk to either self or others (Turel et al., 2019).

Aims of Systematic Review

The primary aim of this paper is to undertake a systematic review of the impact of EMDR on symptoms of PTSD in adult inpatient mental health settings. There is solid evidence to suggest EMDR is effective with PTSD populations. As discussed, research within outpatient settings has demonstrated that EMDR is safe and effective with vulnerable clients such as those with psychosis, bipolar disorder and complex PTSD, as well as other comorbidities. Exploring the use of EMDR with this population of individuals and within adult inpatient mental health settings would have significant implications in determining the appropriateness of the intervention. This would also help to address caution relating to whether this intervention is feasible, or could lead to an increase in distress at a time when service users are already vulnerable. A secondary aim is to review the quality of current research within this area, in order to reflect on the credibility of the findings from papers identified. The researchers sought to answer the question:

Does EMDR improve symptoms of PTSD for populations accessing adult inpatient mental health settings?

Methods

This systematic review was conducted in line with the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guidelines (Moher et al., 2009).

Search Strategy

In order to identify relevant studies, systematic searches took place in the following electronic databases: PsycINFO, MEDLINE/PubMed, CINAHL, EMBASE, Web of Science, and the Cochrane library. Further to this, in order to address any potential publication bias, the gray literature was also searched via OpenGrey. No year range was specified and the final database searches were completed in October 2020. The search terms used captured (a) the intervention "EMDR", (b) "PTSD"). Search terms within each set were carried out specifically for titles and abstracts of papers and were linked with the Boolean operator "OR" for each set and the operator "AND." Reference lists within relevant papers were subsequently searched to identify any additional studies that may have been eligible for inclusion. Other search terms were initially piloted, including using variations of the word "inpatient" alongside "EMDR" to capture relevant papers. However, combining these elements in the search strategy significantly restricted the number of papers identified, resulting in relevant references being missed.

Eligibility Criteria

The main inclusion/exclusion criteria to determine studies eligible to be included within the review is outlined in Table 1.

TABLE 1. Inclusion/Exclusion Criteria Used in the Screening Process

Inclusion	Exclusion
Published and unpublished studies with any design.	Conference posters, abstracts, reviews, and proposals.
Participants 18 years and over.	Participants under 18 years.
A measure of PTSD symptoms	Studies that did not measure symptoms of PTSD.
Studies examining the impact of EMDR on symptoms of PTSD within inpatient mental health settings (a facility that a service user is residing in whilst they receive an intervention specifically for mental illness).	Studies whereby service users accessed support in inpatient settings, where the main focus of intervention was not related to mental health (including physical general hospitals, nursing homes, prisons).
Studies using the EMDR intervention alongside treatment as usual (TAU)	Studies where EMDR was combined with other interventions that would not be considered TAU (e.g., trauma focused yoga)
Studies where EMDR commenced within an inpatient setting (including studies where the intervention was continued on an outpatient basis).	Studies where EMDR started on an outpatient basis.
Studies available in the English Language	Studies unavailable in the English Language

Inpatient mental health services vary significantly for different populations of service users and across countries comprising of different health care systems. However, as this area of research is novel any inpatient mental health setting was considered (including but not exclusive to acute mental health units or forensic secure units). Studies in which service users resided at a mental health facility for reasons of study practicality were excluded, as service users within these studies may not necessarily require the conditions of care provided in inpatient mental health settings. Furthermore, studies comprised of service users with comorbid presentations (e.g., depression, psychosis, and personality disorder) were included within this review, in order to capture presentations of severe mental health difficulties that are commonly found in inpatient mental health settings. Studies in which participants received both EMDR and another trauma intervention, such as prolonged exposure were excluded, because a reduction in PTSD symptoms could not be primarily attributed to EMDR therapy.

Study Selection and Data Extraction

In line with PRISMA guidance (Moher et al., 2009), the study selection and exclusion process is highlighted in Figure 1. The first author completed the main search, references were collated using an EndNote software package and duplicate articles were removed. All of the remaining articles were screened by their title and abstract against the exclusion and inclusion criteria to determine whether each paper was eligible to include within the review. After excluding papers that were deemed unsuitable, the full-text versions of the remaining papers were sourced and further screened using the eligibility criteria.

When queries surrounding the eligibility of studies arose following this process, these were attended to and resolved through discussion between the first author and the research team. A second independent rater screened 10% of the identified article titles and abstracts in order to assess reliability of the screening process: there was a substantial agreement between raters at screening ($\kappa = .738$, McHugh, 2012).

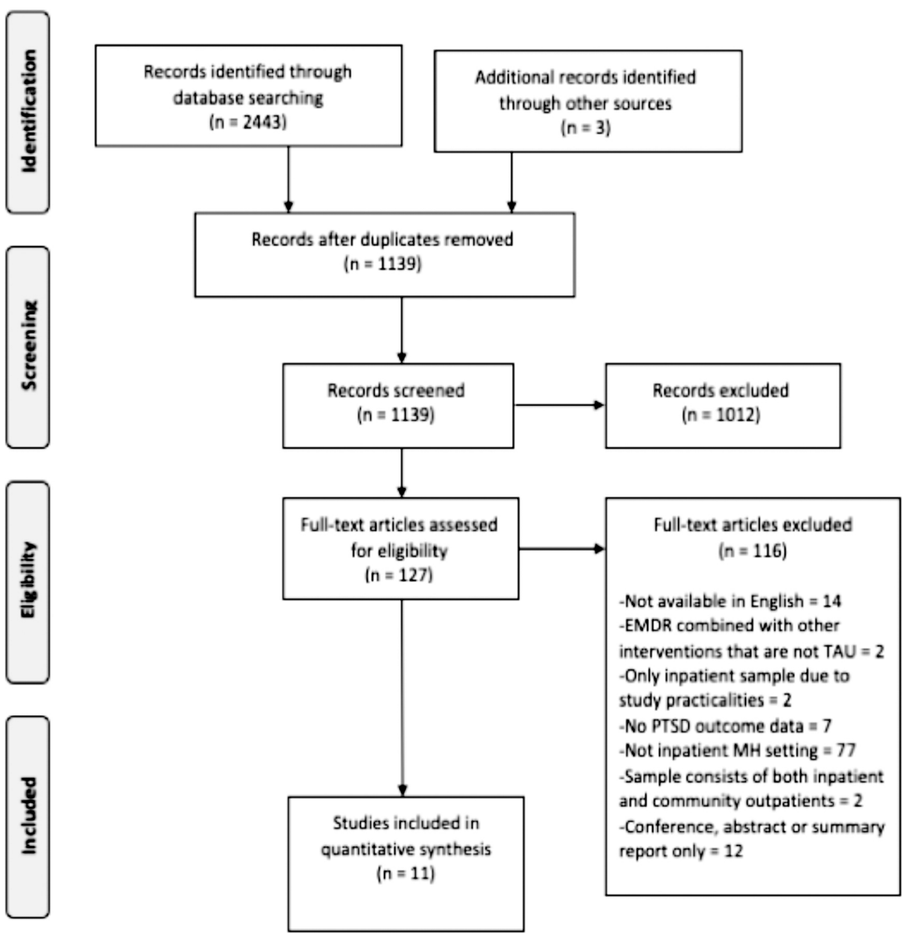

Figure 1 PRISMA flow diagram of systematic search.

TABLE 2. EMDR Intervention Detailed in Studies Included

Study authors	Summary of EMDR intervention	Frequency of sessions	Duration of sessions	Number of EMDR sessions in inpatient mental health setting
Ahmadi et al. (2015)	Individual sessions of EMDR therapy in line with the standard EMDR protocol.	Not stated	Not stated	Not stated
Cerone (2001)	Individual EMDR sessions using the standard protocol.	Once per week	90 minutes	Up to 2 sessions
Fleurkens et al. (2018)	Individual sessions in which the Dutch translation of the manualized standard 8 phase protocol was used. This protocol was followed without adaptions. To prepare the patient for EMDR, a presession focusing on organization, emotional regulation skills took place. During the course of EMDR, two further appointments took place focusing on trauma-related stressors and to structure day-time activities.	Not stated	Not stated	12 sessions
Köhler et al. (2017)	Individual EMDR sessions in line with standard protocol.	Two to three individual sessions a week (over 4 weeks)	90–100 minutes	Not stated
Kratzer et al. (2017)	Individual sessions took place. Case conceptualization and intervention followed EMDR guidelines for psychosis. Standard EMDR was used to process traumatic memories of sexual abuse in childhood. The goal of reducing psychotic symptoms was targeted by processing hallucinations.	Over a course of 12 weeks	100-minute sessions	10 sessions
Oh and Kim (2014)	Individual sessions of EMDR therapy. Sessions started after 4 weeks of admission for patient 1 and 1 week of admission for patient 2.	Once per week	Not stated	Patients had between 9 and 10 sessions
Proudlock and Peris (2020)	Individual sessions in which the standard protocol was used EMDR continued until patients rated their subjective units of distress (SUDS) as 1.	Two to three sessions a week	90 minutes	Patients had between 2 and 32 sessions of EMDR and the majority required less than 12 ($n = 46$, $M = 8$)

(*Continued*)

TABLE 2. EMDR Intervention Detailed in Studies Included (Continued)

Study authors	Summary of EMDR intervention	Frequency of sessions	Duration of sessions	Number of EMDR sessions in inpatient mental health setting
Rogers et al. (1999)	Individual session of EMDR in line with standard protocol.	A single session of EMDR	60–90 minutes	Not stated
Silver et al. (1995),	Individual sessions of EMDR.	Not stated	Not stated	Not stated
Yaşar et al. (2018)	Individual sessions in which the standard EMDR protocol was used starting on 24th day of inpatient stay.	8 days between sessions	Not stated	1 session
Zimmermann et al. (2007)	Individual sessions of EMDR, manualized intervention in line with the standard protocol.	Twice a week	Not stated	Not stated
		Average length of the intervention was 68 (range: 7-221 days) days for all patients		

Disagreements at full text stage were due to uncertainties surrounding whether to include papers with a combat-PTSD study sample. This was discussed until a consensus was reached by the full research team and following assessment of eligibility against the criteria, it was agreed to include such studies. Data extracted from all eligible studies included the author, the number of participants in each study, sample characteristics, diagnoses, age, gender, mental health setting, intervention or control condition (if applicable), PTSD measure used, and main findings. Further information was also tabulated (see Table 2) regarding the details of the EMDR interventions provided in studies, including a summary of the EMDR intervention, frequency, duration, and number of sessions. Where missing data occurred, attempts were made to contact the primary authors to obtain this information. All extracted data was tabulated and following this assessed for heterogeneity.

Quality Assessment

The Effective Public Health Practice Project tool (EPHPP; Thomas et al., 2004) was used in order to assess the quality of studies that were included within the review, allowing the findings to be evaluated critically. The EPHPP tool was chosen for this systematic review as it is suitable for various kinds of research design (e.g., nonrandomized studies and observational studies), whilst providing a framework to aid the assessment of quality. This tool is highlighted as appropriate for use with systematic reviews investigating effectiveness (Deeks et al., 2003). The EPHPP also has been found to have adequate content and construct validity (Thomas et al., 2004), as well as having adequate inter-rater reliability (Armijo-Olivo et al., 2010).

The EPHPP provides a clear framework for assessing eight domains of quality: (A) selection bias, (B) study design, (C) confounders, (D) blinding, (E) data collection methods, (F) withdrawals and drop-outs, (G) intervention integrity, (H) analysis. In accordance with the tool, components A-F were assessed against a criteria and assigned a rating of strong, moderate or weak. Components G-H were then assessed but no rating was assigned. A final global rating for each of the eleven papers based on the quality scores was then assigned to the research based on the component ratings (Thomas et al., 2004).

Each paper was rated with regards to its quality by the first author. A second independent rater then also assessed the quality of all studies. Inter-rater reliability showed that there was a good level of agreement amongst the raters ($\kappa = .785$; McHugh, 2012). Disagreements in ratings were firstly discussed between the author and second rater, if consensus could not be reached then further discussion took place with the research team.

Analysis Strategy

A narrative synthesis was performed with the extracted data alongside the quality appraisal of selected studies. This approach was chosen because studies were heterogenous when considered together, varying with regard to design, inpatient mental health setting, participant sample, outcome measures of PTSD, and evaluated study quality. As the small number of available research studies included were diverse, with the identified research assessed as low quality, a meta-analysis approach was not considered appropriate (Higgins & Green, 2008).

Results

Overview of Studies

The studies included within this review ($k = 11$) were written between 1995 and 2020, and evaluated EMDR for those experiencing PTSD symptoms in inpatient mental health settings. The majority of studies were conducted in United States ($k = 3$) and Germany ($k = 3$), with the remaining in Iran ($k = 1$), the United Kingdom ($k = 1$), Netherlands ($k = 1$), Turkey ($k = 1$), and The Republic of Korea ($k = 1$). All studies took place in inpatient mental health settings ($k = 11$), with the majority taking place in specialist PTSD inpatient mental health settings, specifically for the military ($k = 6$). A couple of studies took place in psychiatric inpatient settings ($k = 2$). One took place in a forensic inpatient mental health setting ($k = 1$) and another in a psycho-traumatology inpatient setting ($k = 1$). The final study took place in an acute inpatient setting ($k = 1$), with a proportion of the sample accessing crisis resolution and home treatment teams (CRHTTs). Table 3 provides a summary of the included studies.

Study Samples

A total of 327 adult participants were included in this review, with at least 191 receiving EMDR therapy and 131 participating within the control or comparator groups. However, this is an estimate and exact numbers could not be calculated, this is because in one study the number of participants in study groups was not provided (Rogers et al., 1999). Most studies ($k = 6$) included majority male samples and the mean age of participants within the studies ranged from 28 to 53 years. Sample sizes ranged from 1 to 96 participants. All studies included individuals experiencing symptoms of PTSD ($k = 11$), with the majority of studies including individuals with varied and comorbid diagnoses associated with severe mental health difficulties ($k = 7$), including bipolar disorder, psychosis and personality disorde however, four studies excluded those experiencing comorbid presentations ($k = 4$).

Study Designs

The studies included consisted of a program evaluation: pretest–posttest design ($k = 1$), a single case multiple component cross over design ($k = 1$), a case study design ($k = 2$), case reports ($k = 2$), a retrospective quasi-experimental effectiveness study using a pre- and postdesign ($k = 2$), a nonrandomized, exploratory pretest–posttest design ($k = 1$), a randomized pre- and posttest design ($k = 1$), and a randomized control trial (RCT) was also included ($k = 1$). Comparator or control groups were implemented in some studies, this included interventions involving rapid eye movement (Ahmadi et al., 2015), no eye movement (Cerone, 2001), exposure (Rogers et al., 1999), biofeedback (Silver et al., 1995), and relaxation (Silver et al., 1995; Zimmermann et al., 2007).

Additional Treatment

Due to the nature of inpatient mental health settings, in all of the studies EMDR was used in tandem with treatment as usual (TAU). This often involved access to 24-hour care from trained mental health staff. The type of usual treatments varied, and included psychotrophic medication (Kratzer et al., 2017; Oh & Kim, 2014; Proudlock & Peris, 2020; Rogers et al., 1999; Yaşar et al., 2018), group therapies, mindfulness, and individual psychotherapy (Kratzer et al., 2017).

EMDR Therapy

Further information on the application of EMDR therapy within the 11 studies included is presented in Table 2. The majority state they were guided by the eight-phase EMDR protocol when working with patients. The number of EMDR sessions recorded in studies ranged from 1 to 32. However, many did not provide this information ($k = 5$). Regarding follow up sessions, a single study reported that EMDR was started on an inpatient basis and continued on an outpatient basis ($k = 1$). Within the studies recording the frequency of sessions, this tended to vary, ranging from two times a week to once every 8 days. The recorded duration of EMDR sessions was between 60 and 100 minutes. However, it must be noted that a number of studies did not provide substantial information regarding details of the application of EMDR.

TABLE 3. Summary of Studies included within the Review

Study authors Country	Mental health setting	Population, mean age, Years Gender	Study design and *n*	Study groups	PTSD measure/s	Main findings
Ahmadi et al. (2015)	Inpatient hospital of Bushehr, Iran.	Military servicemen experiencing PTSD	RCT ($n = 33$)	EMDR ($n = 11$), REM Desensitization ($n = 11$) and control group ($n = 12$)	Mississippi Scale for Combatrelated PTSD	REM and EMDR were found to be comparable in improving symptoms of PTSD ($p = .098$). However, REM led to a significantly greater reduction in intrusive thoughts than EMDR ($p = .03$).
Iran						Comparisons revealed that symptoms of depression as measured by the Mississippi scale were more responsive to EMDR than REM ($p = .03$)
		37 years				The EMDR group also showed a greater improvement in overall symptoms of PTSD than the control group ($p < .001$), as well as all other subscales of the Mississippi PTSD apart from intrusive thoughts ($p = .43$)
		100% male				
Cerone (2001)	Inpatient Center at Coatesville Veterans Administration Medical Center	Vietnam War and Persian Gulf War Veterans experiencing PTSD	A single-case multiple component cross-over design ($n = 7$)	EMDR and NEM analog ($n = 7$)	CAPS-SX, IES	EMDR resulted in a statistically significant decrease in PTSD symptomology as measured by pre and post-EMDR scores on the CAPSSX ($p < .002$).

(*Continued*)

TABLE 3. Summary of Studies included within the Review (Continued)

Study authors Country	Mental health setting	Population, mean age, Years Gender	Study design and *n*	Study groups	PTSD measure/s	Main findings
						EMDR also resulted in a statistically significant decrease in PTSD symptomology as shown on the participants overall post- intervention IES scores ($p < .004$).
		38 years 86% male, 14% female.				
Fleurkens et al. (2018) Netherlands	Inpatient center for forensic psychiatry	A 35- year old male experiencing Narcissistic PD, borderline antisocial features and PTSD.	Case Study ($n = 1$)	EMDR and TAU ($n = 1$)	CAPS-IV, PSS-SR and PTCI	The CAPS-IV score was lower at assessment post-EMDR (94 to 15) and reduced further (15 to 9) at 8-month FU (90% improvement FU vs. baseline). The PSS-SR score was lower at assessment post-EMDR (37 to 3) and reduced further (3 to 0) at 8-month FU (100% improvement FU vs. baseline). PTCI score was lower at assessment post- EMDR (152 to 46) and increased (46 to 50) from assessment to 8-month FU (86% improvement FU vs. baseline).

(*Continued*)

TABLE 3. Summary of Studies included within the Review (Continued)

Study authors Country	Mental health setting	Population, mean age, Years Gender	Study design and *n*	Study groups	PTSD measure/s	Main findings
Köhler et al. (2017)	Inpatient setting at Germany's Center for Military Mental Health.	German soldiers experiencing PTSD. Other comorbidities included substance use disorders, affective or mood disorders, PD, psychosis.	A retrospective quasiexperimental effectiveness study using a pre and post design	EMDR ($n = 78$), wait-list control (18)	German version of the PDS	The EMDR intervention group experienced a marked drop across all PTSD symptoms ($F(1,94) = 11.818$, $p < 0.01$).
Germany						Those in the EMDR group who had PDS score equal to the control group scored lower on the PDS scale following the intervention ($p < .001$). The observed effect size was $d = 0.77$; 95% confidence interval (CI) = 0.51 to 1.36. Changes in scores for clinical relevance revealed that 50% of respondents in the EMDR group ($n = 39$) achieved reliable change. Of these nearly all ($n = 37$) showed clinically significant improvement. No worsening in PTSD symptoms was found in the control group.
		32 years 92% males, 8% females				

(*Continued*)

TABLE 3. Summary of Studies included within the Review (Continued)

Study authors Country	Mental health setting	Population, mean age, Years Gender	Study design and *n*	Study groups	PTSD measure/s	Main findings
Kratzer et al. (2017)	Inpatient clinic for psycho-traumatology	The sample consisted of a	Case report ($n = 1$)	EMDR and TAU ($n = 1$)	IES-R	The IES score for intrusions stayed relatively stable from first assessment to discharge (from 31/35 to 29/35) but decreased significantly 6 months post-discharge (4/35; improvement of 2.6 *SD*).
Germany		53-year-old female experiencing				
		PTSD and schizotypal personality disorder				Avoidance symptoms reduced from pre to post EMDR (22/40-15/40) and this was maintained at 6-month FU (12/40; improvement of 1.1 *SD*).
						Hyperarousal decreased significantly, too (from 26/35 to 19/35 to 5/35; improvement of 1.9 *SD*).
						The improvements reflected reliable and clinically significant change.
Oh and Kim (2014)	A closed psychiatric inpatient ward, Hanyang University Guri Hospital in Gyeonggido – patients under involuntary admission	Two patients experiencing Bipolar disorder with comorbid PTSD	Case report ($n = 2$)	EMDR and TAU ($n = 2$)	CAPS	The CAPS score for patient 1 before EMDR (52 mild symptoms of PTSD) reduced postintervention (7 complete resolution of PTSD). This patient's remission in symptoms continued through to outpatient support.

(*Continued*)

TABLE 3. Summary of Studies included within the Review (Continued)

Study authors Country	Mental health setting	Population, mean age, Years Gender	Study design and *n*	Study groups	PTSD measure/s	Main findings
Republic of Korea						
		32 years				The CAPS score for patient 2 before EMDR (67 moderate symptoms of PTSD) reduced post-EMDR (18 complete remission). This patient retained this therapeutic gain during 1-year of follow-up.
		100% female				
Proudlock and Peris (2020)	Acute inpatient mental health wards or CRHTT	Sample had a variety of primary diagnoses—PTSD, depression, anxiety, EUPD, complicated greif, bipolar disorder.	Nonrandomized, exploratory pre-test posttest design ($n = 57$)	EMDR and TAU ($n = 57$)	IES-R	The average post-EMDR IES-*R* score was lower than the average baseline IES-R score (21.95 and 63.12). This difference was found to be statistically significant ($t = 13.507$, $df = 37$, $p < .001$). In addition to this, the magnitude of the differences in means (mean different = 41.16, 95% CI:47.33 to 34.98) was found to be large ($d = 2.77$).
United Kingdom						
		35 years				
		51% male, 49% female				
Rogers et al. (1999)	Inpatient setting at the Veterans Administration Medical Center, Coatesville	Vietnam War Veterans undergoing therapy for combat-related PTSD.	Randomized pretest—posttest design ($n = 12$)	EMDR or Exposure	IES	There was a reduction in symptoms of PTSD as indicated by the IES from pre-intervention ($M = 36.3$, $SD = 6.8$) to post-intervention ($M = 29.8$, $SD = 10.4$) in the EMDR group.

TABLE 3. Summary of Studies included within the Review (Continued)

Study authors Country	Mental health setting	Population, mean age, Years Gender	Study design and *n*	Study groups	PTSD measure/s	Main findings
United States		50 years				A reduction in symptoms of PTSD was also indicated by the IES from pre-intervention ($M = 41$, $SD = 7.5$) to post-intervention ($M = 39.6$, $SD = 6.6$) in the exposure group.
		Gender not stated				The EMDR group revealed a trend of greater improvement $F(1, 9) = 3.314$, $p < .10$, in comparison to the exposure group.
						The EMDR group and exposure group both showed a significant decrease in symptoms of intrusions; $F(1,9) = 14.543$, $p < .004$, with no differentiation between groups. However, for both groups no difference was present on symptoms of avoidance.
Silver et al. (1995)	Inpatient PTSD Program of Veterans Administration Medical Center, Coatesville	Vietnam war veterans experiencing PTSD	Program evaluation: pretest—posttest design ($n = 83$)	EMDR ($n = 13$), Relaxation ($n = 9$), Biofeedback ($n = 6$) or control group ($n = 55$)	PRF	EMDR veterans were found to be less symptomatic of PTSD than the control group across all variables of the PRF and generally at a statistically significant level.

(*Continued*)

TABLE 3. Summary of Studies included within the Review (Continued)

Study authors Country	Mental health setting	Population, mean age, Years Gender	Study design and *n*	Study groups	PTSD measure/s	Main findings
United States						Comparisons showed that the EMDR group improved more on the PRF than the relaxation group in all variables except depression, with significant ($p < .05$) improvements occurring for anxiety and isolation.
		46 years				
		Gender not stated				The EMDR group also improved more than the biofeedback group on every variable of the PRF, with a statistically significant improvement seen in anxiety ($p = .0026$), isolation ($p = .0076$), intrusive thoughts ($p = .0176$), flashbacks ($p = .0176$) and nightmares ($p = .0115$). Depression nearly reached a statistically significant improvement ($p = .0542$).
Yaşar et al. (2018)	Inpatient - Istanbul Haydarpaşa Numune Training and Research Hospital	A 43-year- old female experiencing paranoid schizophrenia with comorbid PTSD	Case study ($n = 1$)	EMDR and TAU ($n = 1$)	CAPS and IES-R	CAPS scores significantly declined from before EMDR therapy compared to after the intervention (96 to 12).

(*Continued*)

TABLE 3. Summary of Studies included within the Review (Continued)

Study authors Country	Mental health setting	Population, mean age, Years Gender	Study design and *n*	Study groups	PTSD measure/s	Main findings
Turkey						There was also significant decline in scores on the IES-R from before EMDR therapy compared to after (53 to15).
Zimmermann et al. (2007) Germany	Inpatient setting at the Center for Psycho-traumatology of the German included design with 25.8 (mild level of trauma) compared to 36.1 Armed Forces Hospital in Hamburg -	German soldiers experiencing PTSD. Comorbidities included: moderate depression, adjustment disorder, mixed dissociative disorder, APD, BPD, histrionic personality disorder.	Retrospective quasiexperimental pre and postdesign with long-term FU ($n = 34$)	EMDR ($n = 20$) or TAU and relaxation training ($n = 14$)	IES and PTSS-10	After an average post-intervention period of 29 months, the EMDR intervention group showed lower total stress scores on the IES and the PTSS-10. The mean IES score was 25.8 (mild level of trauma) compared to 36.1 (moderate level of trauma) pre-intervention. A 30.5% reduction in stress levels was found. A comparison of the PTSS-10 scores showed that stress symptoms changed from increased stress sensitivity (26.4) to a subclinical level, with stress levels reducing by 35.1%.

(*Continued*)

TABLE 3. Summary of Studies included within the Review (Continued)

Study authors Country	Mental health setting	Population, mean age, Years Gender	Study design and *n*	Study groups	PTSD measure/s	Main findings
		28 years				In the EMDR group the IES score before and 29 months after the intervention significantly decreased ($p = .028$), the comparison groups score did not. There were no significant changes in the PTSS-10 scores.
		91% male and 8% female				Long-term outcome was also related to whether the individual had witness death during the traumatic experience. At 29 month FU, the IES scores for patients who had witnessed death ($n = 14$) increased by 2.3 (from 33.35 to 35.6). In the control group of patients where death was not involved in the traumatic events ($n = 13$), the IES scores decreased by 11.5 (from 33.4-21.9).

Note. APD = Antisocial Personality Disorder; BPD = Borderline Personality Disorder; CAPS = The Clinician-Administered PTSD scale (Blake et al., 1990); CAPS-IV = The Clinician Administered PTSD Scale for DSM-IV (Blake et al., 1995); CAPS-SX = The Clinician-Administered PTSD Scale One Week Symptom Status Version (Blake et al., 1995); CRHTT = Crisis Resolution and Home Treatment Team; EMDR = Eye Movement Desensitization and Reprocessing; EUPD = Emotionally Unstable Personality Disorder; FU = Follow-up; IES = Impact of Events Scale (Horowitz et al., 1979); IES-R = Impact of Event Scale Revised (Weiss, 2004); NEM = Non- Eye Movement; PD = Personality Disorder; PDS = Post-traumatic Diagnostic Scale (Foa et al., 1997); PRF = Problem Report Form (Silver et al., 1995); PSS-SR = Post-traumatic Stress Disorder Symptom Scale – Self Report version (Foa et al., 1993);PTCI = Post-traumatic Cognitions Inventory (Foa et al., 1999); PTSD = Post-traumatic Stress Disorder; PTSS-10 = Post-traumatic Stress Scale– 10 (Weisæth & Mehlum, 1993); RCT = Randomized Controlled trial; REM = Rapid Eye Movement, TAU = Treatment as usual

Outcome Measures

In accordance with our inclusion criteria, all studies included within the review obtained at least one measure of PTSD symptoms (k = 11), this comprised of patient self-report and/or clinician administered measures. The Impact of Events Scale (IES; Horowitz et al., 1979), a self-report measure evaluating subjective distress caused by traumatic events, was the most commonly used outcome measure in the studies included within the review (k = 3). A few studies employed the Impact of Events Scale Revised (IES-R; Weiss, 2004), which includes further items assessing hyperarousal symptoms of PTSD (k = 2). One of the studies used the Posttraumatic Stress Scale – 10 (PTSS-10; Weisæth & Mehlum, 1993), a measure of PTSD symptoms (k = 1). Another study, investigating combat-related PTSD used The Mississippi Scale for combat-related PTSD (M-PTSD; Hyer et al., 1991) outcome measure (k = 1). The Posttraumatic Stress Disorder Symptom Scale—Self Report version (Foa et al., 1993) was also used (k = 1), as was the Posttraumatic Diagnostic Scale (Foa et al., 1997) self-report measure (k = 1). Moreover, The Problem Report Form (PRF; Silver et al., 1995) a measure specifically designed for one of the included studies was employed (k = 1). Another supplementary outcome measure used, included the Posttraumatic Cognitions Inventory (PTCI; Foa et al., 1999), an instrument specifically measuring thoughts related to the traumatic event (k = 1). Variations of the Clinician-Administered PTSD Scale (Blake et al., 1990), a measurement used by a trained clinician to measure symptoms of PTSD, including frequency and severity of symptoms were used in many studies (k = 4).

Study Quality

Quality ratings were assigned to each of the included studies, these are outlined in Table 4. Several of the studies reported that patients were referred for EMDR therapy, this resulted in the majority of samples being rated as "somewhat likely" to be deemed representative of the target population. Studies at a higher risk of selection bias were rated as "weak." Within the studies included, this was mainly the case when participants self-referred/volunteered themselves for the intervention, or a high proportion of participants declined to participate. Case studies and case reports were also rated as "weak" regarding selection bias as therapists/researchers had self-selected the case to report. Furthermore, these studies were also rated as "weak" in study design because no control arm was present.

One of the included controlled studies commented that the assessor had been blinded and therefore this study was rated higher on this domain in comparison to others (Rogers et al., 1999). In all other papers, blinding was not possible or was not reported (Cerone, 2001; Fleurkens et al., 2018; Köhler et al., 2017; Kratzer et al., 2017; Oh & Kim., 2014; Proudlock & Peris, 2020; Silver et al., 1995; Yaşar et al., 2018; Zimmermann et al., 2007). None of the included studies were able to blind the patient to the intervention status and the self-reported PTSD outcomes may have been affected by this, increasing the chance of reported bias.

All studies bar one, achieved a "strong" rating for the method of data collection, as valid and reliable measures were used. However, Silver et al. (1995) employed a measure that was formed based on elements of PTSD the population regarded as important. This measure was shown to have test retest reliability, but was only found to have construct validity for some of the scales of the measure, therefore a "weak" rating on this domain was assigned.

The majority of studies achieved a moderate to strong rating on the withdrawals and drop-outs domain of the EPHPP. The number and reason for withdrawals and drop-outs was often reported. Studies were classified in terms of the proportion of those that completed the study, with only one achieving a "weak" rating as below 60% of patients completed the study (Zimmermann et al., 2007).

In terms of intervention integrity, although this is not formally scored and reported on Table 4 as consistent with EPHPP guidance, nor a contributor to the global rating, none of the studies were considered to have a "strong" rating. This was because there was no measure of intervention consistency. Further to this, EMDR was contaminated with a co-intervention (medication and TAU). Because of this, all outcomes can only be attributed to EMDR and TAU. Without a RCT study comparing EMDR to TAU, it is not possible to ascertain to what extend EMDR contributed to outcomes.

Overall, the global quality ratings assigned to the included papers were generally weak. A weak global rating was assigned to a study when two or more weak ratings were given on each of the six rated domains. Two of the included studies achieved a moderate overall global rating (Ahmadi et al., 2015; Köhler et al., 2017) as they had less weak ratings on individual domains. Consistent with the EPHPP, as no study was without weak ratings, none of the studies were considered as "strong" in quality overall.

TABLE 4. Quality Ratings for Each of the EPHPP Domains

Study	Selection bias	Study design	Confounders	Blinding	Data collection methods	Withdrawals and drop-outs	Global rating
Ahmadi et al. (2015)	S	S	M	W	S	M	M
Cerone (2001)	W	W	W	W	S	S	W
Fleurkens et al. (2018)	W	W	W	W	S	M	W
Köhler et al. (2017)	M	S	M	W	S	M	W
Kratzer et al. (2017)	W	W	W	W	S	M	W
Oh and Kim (2014)	W	W	W	W	S	M	W
Proudlock and Peris (2020)	M	M	W	W	S	S	W
Rogers et al. (1999)	M	S	W	M	S	W	W
Silver et al. (1995)	W	M	W	W	W	M	W
Yaşar et al. (2018)	W	W	W	W	S	M	W
Zimmermann et al. (2007)	W	W	M	W	S	W	W

Note. W = Weak, *M* = Moderate, S = Stron

Study Outcomes

All 11 studies showed that EMDR improved overall symptoms of PTSD when provided in adult inpatient mental health settings, across a variety of study populations and with differences in the way EMDR was applied. In the only RCT included within this review, Ahmadi et al. (2015) found that EMDR significantly improved overall symptoms of PTSD comparatively to the control group (TAU), but not in comparison to the other intervention called "Rapid Eye Movement Desensitization." The only other study involving randomization (Rogers et al., 1999) also found that EMDR improved PTSD symptoms, although in this study, EMDR was superior in comparison to exposure. Furthermore, Proudlock and Peris (2020) revealed clinically significant improvements in symptoms of PTSD using EMDR intervention, with the majority of individuals needing less than 10 sessions. Interestingly, the findings also showed EMDR led to a decrease in readmissions to inpatient care. Furthermore, a promisingly large effect size was revealed. This finding was also echoed by Köhler et al., (2017) in a study exploring the impact of EMDR on symptoms of PTSD, where a medium-to-large effect size was found. Of the studies included within the review, these were rated as marginally better in quality with a lower drop-out rate compared to others.

Other studies, with less robust designs comparatively as rated using the EPHPP quality appraisal tool, also demonstrated that EMDR had a positive impact on symptoms of PTSD within inpatient mental health settings. Cerone (2001) found both improved self-reported and clinician-rated symptoms of PTSD. However, this sample was small, comprising of only seven Vietnam war veterans. Interestingly, Silver et al. (1995) conducted an investigation with a similar population of Vietnam war veterans with a greater number of participants and found EMDR to be more effective in reducing symptoms of PTSD comparatively to relaxation and biofeedback. This provides further support for the effectiveness of the intervention within inpatient settings. Similarly, Zimmermann et al. (2007) also found that EMDR led to a reduction in symptoms of PTSD, unlike relaxation training.

Case series and case reports revealed that EMDR improved symptoms of PTSD as measured using various outcome measures. Within these studies, PTSD symptoms reduced following EMDR and gains were maintained to follow-up. Fleurkens et al.'s (2018) case study on a patient within a forensic inpatient setting, with a diagnosis of Narcissistic Personality Disorder with comorbid PTSD found that symptoms reduced following completion of EMDR and reached complete resolution on the PSS-SR at 8 months follow-up. A similar outcome was revealed by Kratzer et al.,

(2017), investigating the use of EMDR in an inpatient setting for an individual experiencing psychosis and comorbid PTSD. Symptoms of PTSD reduced only slightly following intervention and this again led to a clinically significant reduction in symptoms on IES-R scores at 6-month follow-up. Oh and Kim (2014) also found a reduction in PTSD symptoms in two patients experiencing bipolar disorder with comorbid PTSD. This also resulted in a remission of symptoms as measured using the CAPS, this improvement was maintained at follow-up. Furthermore, Yaşar et al. (2018) investigated the use of EMDR with a patient experiencing psychosis and comorbid PTSD involuntarily hospitalized, it was also found that symptoms of PTSD as measured on the CAPS and IES-R significantly improved, these findings were also maintained at follow-up.

Interestingly, the traumatic memories used as a target for EMDR varied, this included childhood sexual abuse, offense-related imagery and hallucinations. All of the patients within these studies were experiencing comorbid severe mental health difficulties, with the studies having high ecological validity, meaning the findings are representative of real-world clinical practice. However, all were observational in design and lacked an active control/comparator group.

Combat-Related PTSD Study Outcomes

Six studies included within the review employed a military sample experiencing combat-related PTSD. It has been suggested that differences may be present between civilian and combat related trauma, for example, it is not uncommon that veterans may have witnessed multiple deaths, or have been responsible for the death of others, with repeated exposure to this kind of trauma becoming more likely over multiple deployments (Vincenzes, 2013). Moreover, most PTSD interventions are developed for the wider population, with few designed and evaluated specifically for those experiencing combat-related PTSD. As such, psychological intervention recommendations differ, with CBT remaining the main therapy recommended for this subgroup (NICE, 2018). Combat-related PTSD studies evaluating EMDR found that when it was employed within an adult inpatient military mental health environment, a significant improvement in symptoms of PTSD occurred (Ahmadi et al., 2015; Cerone, 2001; Köhler et al., 2017; Rogers et al., 1999; Silver et al., 1995; Zimmermann et al., 2007). This improvement in symptoms appeared to be consistent across studies when measuring overall symptoms of PTSD. However, when considering individual subscales of PTSD within studies, findings were mixed.

Discussion

This review aimed to evaluate the impact of EMDR on symptoms of PTSD in adult inpatient mental health settings. The findings were fairly consistent across studies, with the intervention improving symptoms of overall PTSD as measured on self-report and clinician rated outcome measures. This is a promising, as it is known that psychological interventions are less likely to benefit more severe and chronic difficulties (Cuijpers et al., 2010). The findings have also highlighted that the research into the use of EMDR for adults within inpatient mental health settings is scant, with the majority of studies taking place within a military inpatient setting. However, due limitations of the research and small amount of literature available, we are unable to draw firm conclusions regarding the effectiveness of the intervention within inpatient mental health settings.

The literature appears to negate concerns raised in previous research that psychological interventions, at time when they are already experiencing high levels of distress, may make things worse (Small et al., 2018). Although patients may present with increased vulnerabilities within an inpatient setting, the environment can promote greater safety. This is due to factors, such as the 24-hour presence of trained mental health staff, observations and restrictions. Furthermore, several studies have been conducted investigating EMDR as an intervention for depression in an inpatient setting (e.g., Hase et al., 2015, 2018). No adverse effects were reported when delivering the intervention and it was well tolerated by patients, with hyperarousal hardly being observed within session.

The findings providing the strongest rated quality evidence for the impact of EMDR in improving symptoms of PTSD were from the subset of studies investigating military inpatient mental health settings. However, this research was still considered to be relatively weak. These findings were in line with those from a previous systematic review investigating EMDR and combat-related PTSD in community and/or inpatient settings. Within this review, the research on EMDR inpatient treatment of combat-related trauma was considered weak and it was concluded that evidence did not meet the threshold (Albright & Thyer, 2010) for inpatient therapy to be considered empirically supported for the military population. This supports the recommendations from NICE (2018) stating there is currently not enough evidence for this therapy to be recommended for this subgroup, even when provided within the community. Research exploring the current status of EMDR states that more evidence would be needed within the area

of military trauma, in order for the intervention to be considered in future guidelines for this population (Matthijssen et al., 2020).

Strengths of the Review

This review encompasses a search strategy that is considered broad, the reason for this was to ensure that no relevant literature was missed. The breadth of included studies and broad inclusion criteria that are not restricted to highly controlled studies could mean that this review encompasses studies that are more likely to reflect the real-world clinical application of EMDR. Further to this, the research also includes searches of the grey literature, making the review less susceptible to publication bias.

Limitations of the Review

The Preponderance of Case Study Designs. The review encompasses several case series and case reports ($k = 4$). This approach allows for a detailed analysis of single cases which are representative of real-world clinical practice. However, the inclusion of these studies creates a strong bias, because the case study design allows the authors to select only cases that are successful, whilst other cases that are less successful may not be reported. Another drawback of this design is its inability to attribute causal attributions and provide generalizing conclusions. For example, it cannot be ruled out that symptoms of PTSD may have heightened at the time of admission and naturally declined regardless of the intervention.

Provision of Synchronous Treatments. An important limitation is that the outcomes of the studies cannot directly be attributed to only EMDR therapy, but EMDR and TAU. The possible effects of EMDR were only measured directly measured in a small number of studies using control conditions ($k = 3$).

High Heterogeneity Across Studies. There were several differences between the studies that were examined. Studies varied in terms of design, inpatient sample, inpatient setting, PTSD measure used, and TAU. Mental health systems also vary considerably across countries which makes it difficult to synthesize findings.

One of the studies included comprised of a sample of patients accessing inpatient mental health settings as well as CRHTT (Proudlock & Peris, 2020). The decision was made to include this study as home treatment teams act as the alternative to acute inpatient admissions (Johnson, 2013). CRHTT were designed to support those experiencing acute mental health difficulties to remain in the community and where possible, offer an alternative to the need for an admission to an acute care ward (Werbeloff et al., 2017). It was therefore felt that the sample accessing the CRHTT would closely match those accessing inpatient care. Unfortunately, it cannot be certain that the results from this study are generalizable to an inpatient population, further weakening the strength of this reviews findings.

Poor Methodological Quality. The studies were weak across domains of quality, particularly with regard to selection bias, control of confounders, blinding, and overall global rating. Many of the studies achieved weak ratings for selection bias, meaning that many of the patients consenting to the EMDR intervention may not be representative of the whole inpatient population. Many of the studies also did not report data regarding the patients who declined the intervention, making it difficult to draw robust conclusions.

The studies included within the review are further limited by the lack of clarity and detail included regarding several aspects of the use of EMDR. Within some of the included studies poor methodological reporting/practise is present. Often, the number of patients and how many were allocated to each intervention group was not reported. Further to this, the process of randomization was not outlined. Information was also missing regarding the specific parts of the EMDR protocol used, number of sessions taking place, as well as the frequency and duration of sessions. This makes it difficult to ascertain how therapists have used and adapted EMDR to accommodate for the inpatient mental health setting, information which is necessary to ascertain the impact of EMDR on symptoms of PTSD in inpatient mental health settings.

Future Directions

The positive impact of EMDR found within these studies should encourage more research to be conducted within this area. Larger confirmatory RCTs directly comparing EMDR with other evidenced-based trauma interventions are needed. Control/comparator groups would be important, as only the studies included within this review based in military inpatient mental health settings have used these. This would allow more robust conclusions to be drawn about the use of EMDR for PTSD in adult inpatient mental health settings. Furthermore, in future studies, information should be provided on the description and/or process of adapting EMDR, in order to establish the

possibilities of what is feasible. It is recognized that this presents a methodological and logistical challenge within inpatient settings.

More longitudinal research with a longer follow-up period from inpatient to outpatient care would also be beneficial, this would highlight the longer-term impact of EMDR on symptoms of PTSD initially implemented within an adult inpatient setting. This may also provide more information on whether patients require further support after the inpatient intervention. Further research would also benefit from controlling for other variables that may have an impact on symptoms of PTSD. For example, it may be beneficial to investigate if the number of days the patient has stayed in hospital has impacted on the effectiveness of the intervention, or at what stage in the admission the intervention was provided.

Clinical Implications

This research, although clearly in its infancy, provides promising findings tentatively suggesting it has been possible for EMDR to be used with individuals within various inpatient mental health settings experiencing severe mental health difficulties with some beneficial outcomes for the symptoms of PTSD. This research reveals the lack of publication evaluating EMDR's application within an inpatient setting due to, as such it is not yet possible to recommend this intervention routinely, within clinical practice. Therapists would benefit from using best practices for EMDR when used with this population and should monitor any adverse impact related to the inpatient setting.

Conclusion

This review synthesized research investigating the impact of EMDR on symptoms of PTSD in adults in inpatient mental health settings across 11 studies. The findings were promising, with all studies reporting decreased symptoms of PTSD. However, the strengths of the findings are limited by (a) preponderance of case study designs (preventing causal attribution); (b) provision of synchronous treatments; (c) poor methodological quality; and (d) high heterogeneity across studies. Given the current evidence available, it would therefore be premature to strongly recommend EMDR as an intervention to be routinely delivered within inpatient mental health settings to improve symptoms of PTSD. More research is needed with more robust study designs in order to draw firm conclusions about the effectiveness and safety of this intervention within this context.

References

Adams, R., Ohlsen, S., & Wood, E. (2020). Eye movement desensitization and reprocessing (EMDR) for the treatment of psychosis: A systematic review. *European Journal of Psychotraumatology*, *11*(1), 1711349. https://doi.org/10.18080/20008198.2019.1711349

Ahmadi, K., Hazrati, M., Ahmadizadeh, M., & Noohi, S. (2015). REM desensitization as a new therapeutic method for post-traumatic stress disorder: A randomized controlled trial. *Acta Medica Indonesiana*, *47*(2), 111–119.

Albright, D. L., & Thyer, B. (2010). Does EMDR reduce post-traumatic stress disorder symptomatology in combat veterans? *Behavioral Interventions: Theory & Practice in Residential & Community-Based Clinical Programs*, *25*(1), 1–19. https://doi.org/10.1002/bin.295

Armijo-Olivo, S., Stiles, C. R., Hagen, N. A., Biondo, P. D., & Cummings, C. G. (2010). Assessment of study quality for systematic reviews: A comparison of the Cochrane collaboration risk of bias tool and the effective public health practice project quality assessment tool: Methodological research. *Journal of Evaluation in Clinical Practice*, *18*(1), 12–18. https://doi.org/10.1111/l.1365-2753.2010.01516.x

Blake, D. D., Weathers, F. W., Nagy, L. M., Kaloupek, D. G., Gusman, F. D., Charney, D. S., & Keane, T. M. (1995). The development of a clinician-administered PTSD scale. *Journal of Traumatic Stress*, *8*(1), 75–90. https://doi.org/10.1002/jts.2490080106

Blake, D. D., Weathers, F. W., Nagy, L. M., Kaloupek, D. G., Klauminzer, G., Charney, D., & Keane, T. (1990). *Clinician-administered PTSD scale (CAPS)*. National Center for PTSD, Behavioral Sciences Division.

Cerone, M. R. (2001). *Eye movement desensitization and reprocessing in the psychological treatment of combat-related guilt: A study of the effects of eye movements. (Doctoral dissertation). ProQuest Dissertations and Theses database*. (UMI No.9990310)

Chen, R., Gillespie, A., Zhao, Y., Xi, Y., Ren, Y., & McLean, L. (2018). The efficacy of eye movement desensitization and reprocessing in children and adults who have experienced complex childhood trauma: A systematic review of randomized controlled trials. *Frontiers in Psychology*, *9*, 534. https://doi.org/10.3389/fpsyg.2018.00534

Cuijpers, P., Smit, F., Bohlmeijer, E. T., Hollon, S. D., & Andersson, G. (2010). Is the efficacy of cognitive behaviour therapy and other psychological treatments for adult depression overestimated? A meta-analytic study of publication bias. *The British Journal of Psychiatry*, *196*, 173−178. https://doi.org/10.1016/j.cpr.2011.01.002

Deeks, J. J., Dinnes, J., D'Amico, R., Sowden, A. J., Sakarovitch, C., Song, F., & Altman, D. G. (2003). Evaluating non-randomised intervention studies. *Health Technology Assessment*, *72*(27). https://doi.org/10.3310/hta7270

Evlat, G., Wood, L., & Glover, N. (2021). A systematic review of the implementation of psychological therapies in acute mental health inpatient settings. *Clinical Psychology & Psychotherapy*, 1–13. https://doi.org/10.1002/cpp.2600

Fleurkens, P., Hendriks, L., & van Minnen, A. (2018). Eye movement desensitization and reprocessing (EMDR) in a forensic patient with posttraumatic stress disorder (PTSD) resulting from homicide: A case study. *The Journal of Forensic Psychiatry & Psychology*, *29*(6), 901–913. https://doi.org/10.1080/14789949.2018.1459786

Foa, E. B., Cashman, L., Jaycox, L., & Perry, K. (1997). The validation of a self-report measure of posttraumatic stress disorder: The posttraumatic diagnostic scale. *Psychological Assessment*, *9*, 445–451. https://doi.org/10.1037/1040-3590.9.4.445

Foa, E. B., Ehlers, A., Clark, D. M., Tolin, D. F., & Orsillo, S. M. (1999). The posttraumatic cognitions inventory (PTCI): Development and validation. *Psychological Assessment*, *11*, 303–314. https://doi.org/10.1037/1040-3590.11.3.303

Foa, E. B., Riggs, D. S., Dancu, C. V., & Rothbaum, B. O. (1993). Reliability and validity of a brief instrument for assessing post-traumatic stress disorder. *Journal of Traumatic Stress*, *6*(4), 459–473. https://doi.org/10.1002/jts.2490060405

Ghahramanlou-Holloway, M., Cox, D. W., & Greene, F. N. (2012). Post-admission cognitive therapy: A brief intervention for psychiatric inpatients admitted after a suicide attempt. *Cognitive and Behavioral Practice*, *19*(2), 233–244. https://doi.org/10.1016/j.cbpra.2010.11.006

Grubaugh, A. L., Tuerk, P. W., Egede, L. E., & Frueh, B. C. (2012). Perceptions of PTSD research participation among patients with severe mental illness. *Psychiatry Research*, *200*(2–3), 1071–1073. https://doi.org/10.1016/j.psychres.2012.07.039

Hase, M., Balmaceda, U. M., Hase, A., Lehnung, M., Tumani, V., Huchzermeier, C., & Hofmann, A. (2015). Eye movement desensitization and reprocessing (EMDR) therapy in the treatment of depression: A matched pairs study in an inpatient setting. *Brain and Behavior*, *5*(6), e00342. https://doi.org/10.1002/brb3.342

Hase, M., Plagge, J., Hase, A., Braas, R., Ostacoli, L., Hofmann, A., & Huchzermeier, C. (2018). Eye movement desensitization and reprocessing versus treatment as usual in the treatment of depression: A randomized-controlled trial. *Frontiers in Psychology*, *9*, 1384. https://doi.org/10.3389/fpsyg.2018.01384

Herzog, P., Voderholzer, U., Gärtner, T., Osen, B., Svitak, M., Doerr, R., & Brakemeier, E. L. (2021). Predictors of outcome during inpatient psychotherapy for posttraumatic stress disorder: A single-treatment, multi-site, practice-based study. *Psychotherapy Research*, *31*(4), 468–482. https://doi.org/10.1080/10503307.2020.1802081

Higgins, J. P. T., & Green, S. (2008). *Cochrane handbook for systematic reviews of interventions* (Vol. 5). Wiley Online Library.

Horowitz, M., Wilner, N., & Alvarez, W. (1979). Impact of event scale: A measure of subjective stress. *Psychosomatic Medicine*, *41*(3), 209–218. https://doi.org/10/1097/00006842-1979050000-00004

Hyer, L., Davis, H., Boudewyns, P., & Woods, M. G. (1991). A short form of the Mississippi scale for combat-related PTSD. *Journal of Clinical Psychology*, *47*(4), 510–518.

Johnson, S. (2013). Crisis resolution and home treatment teams: an evolving model. *Advances in Psychiatric Treatment*, *19*(2), 115–123. https://doi.org/10.1192/apt.bp.107.004192

Kerfoot, G., Bamford, Z., & Jones, S. A. (2012). Evaluation of psychological provision into an acute inpatient unit. *Mental Health Review Journal*, *17*(1), 26–38. https://doi.org/10.1108/13619321211231798

Khan, A. M., Dar, S., Ahmed, R., Bachu, R., Adnan, M., & Kotapati, V. P. (2018). Cognitive behavioral therapy versus eye movement desensitization and reprocessing in patients with post-traumatic stress disorder: Systematic review and meta-analysis of randomized clinical trials. *Cureus*, *10*(9), e3250. https://doi.org/10.7759/cureus.3250

Köhler, K., Eggert, P., Lorenz, S., Herr, K., Willmund, G., Zimmermann, P., & Alliger-Horn, C. (2017). Effectiveness of eye movement desensitization and reprocessing in German Armed Forces soldiers with post-traumatic stress disorder under routine inpatient care conditions. *Military Medicine*, *182*(5–6), e1672–e1680. https://doi.org/10.17205/MILMED-D-16-00307

Kratzer, L., Heinz, P., & Schennach, R. (2017). Significant improvement of posttraumatic stress disorder and psychotic symptoms after inpatient eye movement desensitization and reprocessing treatment: A case report with 6-month follow-up. *Indian Journal of Psychiatry*, *59*(3), 389. https://doi.org/10.4103/psychiatry.indianjpsychiatry_318_16

Lewis, C., Roberts, N. P., Andrew, M., Starling, E., & Bisson, J. I. (2020). Psychological therapies for post-traumatic stress disorder in adults: Systematic review and meta-analysis. *European Journal of Psychotraumatology*, *11*(1), 1729633. https://doi.org/10.1080/20008198.2020.1729633

Matthijssen, S. J., Lee, C. W., de Roos, C., Barron, I. G., Jarero, I., Shapiro, E., & de Jongh, A. (2020). The current status of EMDR therapy, specific target areas, and goals for the future. *Journal of EMDR Practice and Research*, *14*(4), 241–284. https://doi.org/10.1891/EMDR-D-20-00039

Mavranezouli, I., Megnin-Viggars, O., Daly, C., Dias, S., Welton, N. J., Stockton, S., & Pilling, S. (2020). Psychological treatments for post-traumatic stress disorder in adults: A network meta-analysis. *Psychological Medicine*, *50*(4), 542–555. https://doi.org/10.1017/s0033291720000070

McHugh, M. L. (2012). Interrater reliability: The kappa statistic. *Biochemia Medica: Biochemia Medica*, *22*(3), 276–282. https://doi.org/10.11613/bm.2012.031

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *Annals*

of Internal Medicine, *151*(4), 264–269. https://doi.org/10.7326/0003-4819-151-4-200908180-00135

National Institute for Health and Care Excellence. (2014). *Psychosis and schizophrenia in adults: Prevention and management.. NICE*. http://www.nice.org.uk/guida nce/cg178/evidence/cg178-psychosis-and-schizophrenia-in-adults-full-guideline3 *CG178*

National Institute for Health and Care Excellence. (2018). *Post-traumatic stress disorder (NICE guideline NG116)*. https://www.nice.org.uk/guidance/ ng116

Nowlin, R. B., & Brown, S. K. (2019). Recognizing and treating trauma in the inpatient psychiatric setting. *Psychiatric Times*, *36*(4), 13–14.

Oh, D., & Kim, D. (2014). Eye movement desensitization and reprocessing for posttraumatic stress disorder in bipolar disorder. *Psychiatry Investigation*, *11*(3), 340. https://doi.org/10.4306/pi.2014.11.3.340

Paterson, C., Karatzias, T., Dickson, A., Harper, S., Dougall, N., & Hutton, P. (2018). Psychological therapy for inpatients receiving acute mental health care: A systematic review and meta-analysis of controlled trials. *British Journal of Clinical Psychology*, *57*(4), 453–472. https://doi.org/10.1111/bjc.12182

Perlini, C., Donisi, V., Rossetti, M. G., Moltrasio, C., Bellani, M., & Brambilla, P. (2020). The potential role of EMDR on trauma in affective disorders: A narrative review. *Journal of Affective Disorders*, *269*, 1–11. https://doi.org/10.1016/k.jad.2020.03.001

Proudlock, S., & Peris, J. (2020). Using EMDR therapy with patients in an acute mental health crisis. *BMC Psychiatry*, *20*(1), 14. https://doi.org/10.1186/s12888-019-2426-7

Rogers, S., Silver, S. M., Goss, J., Obenchain, J., Willis, A., & Whitney, R. L. (1999). A single session, group study of exposure and eye movement desensitization and reprocessing in treating posttraumatic stress disorder among Vietnam War veterans: Preliminary data. *Journal of Anxiety Disorders*, *13*(1–2), 119–130. https://doi.org/10.1016/S0887-6185(98)00043-7

Schizophrenia Commission. (2012). *The abandoned illness: A report from the schizophrenia commission*. https://www.rethink.org/media/514093/TSC_main_report_14_nov.pdf

Shapiro, F. (1989). Efficacy of the eye movement desensitization procedure in the treatment of traumatic memories. *Journal of Traumatic Stress*, *2*, 199–223. https://doi.org/10.1002/jts.2490020207

Shapiro, F. (2001). *Eye movement desensitization and reprocessing: Basic principles, protocols, and procedures* (2nd ed.). Guilford Press.

Silver, S. M., Brooks, A., & Obenchain, J. (1995). Treatment of Vietnam War veterans with PTSD: A comparison of eye movement desensitization and reprocessing, biofeedback, and relaxation training. *Journal of Traumatic Stress*, *8*(2), 337–342. https://doi.org/10.1002/jts.2490080212

Small, C., Pistrang, N., Huddy, V., & Williams, C. (2018). Individual psychological therapy in an acute inpatient setting: Service user and psychologist perspectives. *Psychology and Psychotherapy: Theory, Research and Practice*, *91*(4), 417–433. https://doi.org/10.1111/papt.121269

Solomon, R. M., & Shapiro, F. (2008). EMDR and the adaptive information processing modelpotential mechanisms of change. *Journal of EMDR practice and Research*, *2*(4), 315–325. https://doi.org/1891/1933-3196.2.4.315

Thomas, B. H., Ciliska, D., Dobbins, M., & Micucci, S. (2004). A process for systematically reviewing the literature: Providing the research evidence for public health nursing interventions. *Worldviews on Evidence-Based Nursing*, *1*(3), 176–184. https://doi.org/10.1111/j.1524-475X.2004.04005.x

Turel, M., Siglag, M., & Grinshpoon, A. (2019). *Clinical psychology in the mental health inpatient setting: International perspectives*. Routledge.

Valiente-Gómez, A., Moreno-Alcázar, A., Treen, D., Cedrón, C., Colom, F., Perez, V., & Amann, B. L. (2017). EMDR beyond PTSD: A systematic literature review. *Frontiers in Psychology*, *8*, 1668. https://doi.org/10.3389/fpsyg.2017.01668

van Minnen, A., Hendriks, I., & Olff, M. (2010). When do trauma experts choose exposure therapy for PTSD patients? A controlled study of therapist and patient factors. *Behaviour Research and Therapy*, *48*(4), 312–320. https://doi.org/10.1016/j.brat.2009.12.003

Vincenzes, K. A. (2013). Comparison of civilian trauma and combat trauma. *Vistas Online*, *45*, 1–8. https://www.counseling.org/docs/default-source/vistas/comparison-of-civilian-trauma-and-combat-trauma.pdf?sfvrsn=8

Weisæth, L., & Mehlum, L. (1993). *Mennesker, traumer og kriser*. *Universitetsforlaget*.

Weiss, D. S. (2004). The impact of event scale – revised. In J. P. Wilson & T. M. Keane (Eds.), *Assessing psychological trauma and PTSD* (2nd ed., pp. 168–189). Guilford Press.

Werbeloff, N., Chang, C. K., Broadbent, M., Hayes, J. F., Stewart, R., & Osborn, D. P. (2017). Admission to acute mental health services after contact with crisis resolution and home treatment teams: An investigation in two large mental health-care providers. *The Lancet Psychiatry*, *4*(1), 49–56. https://doi.org/10.1016/S2215-0366(16)30416-3

White, J., Gutacker, N., Jacobs, R., & Mason, A. (2014). Hospital admissions for severe mental illness in England: Changes in equity of utilisation at the small area level between 2006 and 2010. *Social Science & Medicine*, *120*, 243–251. https://doi.org/10.1016/j.soscimed.2015.09.036

Wood, L., & Alsawy, S. (2016). Patient experiences of psychiatric inpatient care: A systematic review of qualitative evidence. *Journal of Psychiatric Intensive Care*, *12*(1), 35–43. https://doi.org/10/20299/jpi.2016.001

Wood, L., Williams, C., Billings, J., & Johnson, S. (2019). Psychologists' perspectives on the implementation of psychological therapy for psychosis in the acute psychiatric inpatient setting. *Qualitative Health Research*, *29*(14), 2048–2056. https://doi.org/10.1177/1049732319843499

Yaşar, A. B., Kiraz, S., Usta, D., Abamor, A. E., Zengin Eroğlu, M., & Kavakci, Ö. (2018). Eye movement desensitization and reprocessing (EMDR) therapy on a patient with schizophrenia and clinical effects: A case study. *Turkish Journal of Psychiatry*, *29*(2), 138–142. https://doi.org/10.5080/u18328

Zimmermann, P., Biesold, K. H., Barre, K., & Lanczik, M. (2007). Long-term course of post-traumatic stress disorder (PTSD) in German soldiers: Effects of inpatient eye movement desensitization and reprocessing therapy and specific trauma characteristics in patients with non-combat-related PTSD. *Military Medicine*, *172*(5), 456–460. https://doi.org/10.7205/MILMED.172.5.456

Disclosure. The authors have no relevant financial interest or affiliations with any commercial interests related to the subjects discussed within this article.

Funding. The author(s) received no specific grant or financial support for the research, authorship, and/or publication of this article.

Correspondence regarding this article should be directed to Rebecca Phillips, Trainee Clinical Psychologist, Shackleton Building (Building 44), University of Southampton, Faculty of Environmental and Life Sciences, Highfield Campus, Southampton, Hants, England SO17 1BJ. E-mail: rep1u18@soton.ac.uk

Query

Q1 : page 6 AU: Tables have been renumbered in order to maintain sequential order. Please confirm.

Q2 : page 21 AU: Please provide page range for Deeks et al. (2003).

Q3 : page 22 AU: Please provide volume number for Evlat et al. (2021).

Q4 : page 23 AU: National Institute for Health and Care Excellence (2014) is not cited in the text. Please provide text citation or remove from the reference list.

Q5 : page 24 ***AU: Please confirm the accuracy of the Disclosure statement.***

Q6 : page 24 AU: Please confirm the accuracy of the Funding statement.

Query

Q1 : page 6 AU: Tables have been renumbered in order to maintain sequential order. Please confirm.
Q2 : page 21 AU: Please provide page range for Deeks et al. (2003).
Q3 : page 22 AU: Please provide volume number for Evlat et al. (2021).
Q4 : page 23 AU: National Institute for Health and Care Excellence (2014) is not cited in the text. Please provide text citation or remove from the reference list.
Q5 : page 24 ***AU: Please confirm the accuracy of the Disclosure statement.***
Q6 : page 24 AU: Please confirm the accuracy of the Funding statement.