



## Short communication

## PTSD treatment in times of COVID-19: A systematic review of the effects of online EMDR

L.I.M. Lenferink<sup>a,b,\*</sup>, K. Meyerbröker<sup>a,c</sup>, P.A. Boelen<sup>a,d</sup><sup>a</sup> Department of Clinical Psychology, Utrecht University, Utrecht, Netherlands<sup>b</sup> Department of Clinical Psychology and Experimental Psychopathology, University of Groningen, Groningen, Netherlands<sup>c</sup> Altrecht Academic Anxiety Centre, Utrecht, Netherlands<sup>d</sup> ARQ National Psychotrauma Centre, Diemen, Netherlands

## ARTICLE INFO

## Keywords:

Internet

Emdr

Ptsd

## ABSTRACT

COVID-19 affects many societies by measures as “social distancing”, forcing mental health care professionals to deliver treatments online or via telephone. In this context, online Eye Movement Desensitization and Reprocessing (EMDR) is an emerging treatment for patients with Posttraumatic Stress Disorder (PTSD). We performed a systematic review of studies investigating online EMDR for PTSD. Only one trial was identified. That uncontrolled open trial showed promising results. There is an urgent need to further examine the effects of online EMDR for PTSD, before its wider dissemination is warranted. Remotely delivered cognitive behavioural therapy seems the preferred PTSD-treatment in times of COVID-19.

Eye Movement Desensitization and Reprocessing (EMDR) is a psychological treatment developed by Shapiro (1989) to reduce intrusive traumatic memories, which are hallmark symptoms of Posttraumatic Stress Disorder (PTSD; APA, 2013). Systematic reviews and meta-analyses showed that EMDR effectively reduces PTSD symptoms (e.g., Cuijpers et al., 2020). EMDR is included in PTSD treatment guidelines, together with trauma-focused cognitive behavioural therapy (CBT), as the treatments of choice (e.g., NICE, 2018). The rationale behind EMDR is that, when focusing on traumatic memories while simultaneously making eye movements (e.g., by following therapists' finger movements), the intensity and emotionality of traumatic memories is reduced. How EMDR works is still, however, debated (McNally, 2013).

The effects of EMDR have been researched in patients with other mental health problems than PTSD. For instance, randomized controlled trials (RCTs) examined the effects of EMDR, alone as well as combined with CBT or Cognitive Therapy (CT), for anxiety disorders (Horst et al., 2017) and mood disorders (Gauhar, 2016). Recent reviews pointed to a lack of evidence for EMDR as treatment for disorders other than PTSD (Cuijpers et al., 2020; Meyerbröker et al., 2019).

During the COVID-19 pandemic, the need for evidence-based online PTSD treatments is urgent. Social distancing measures that have been implemented in many countries to reduce the spread of COVID-19, force clinicians to deliver treatment via audio/videocall, e-mail, or internet. Continuing distant-delivered treatment during the pandemic is

pivotal because psychiatric patients seem more vulnerable to experience worsening of symptoms after the COVID-19 outbreak compared with people without psychiatric complaints (Hao et al., 2020).

A meta-analysis examining effects of distant-delivered PTSD treatment showed that all 19 RCTs that were included evaluated interventions based on CBT (Olthuis et al., 2016). It was concluded that distant-delivered CBT is significantly more effective in reducing PTSD compared with waitlist controls, yielding moderate pre- to posttreatment effect size differences. Two other meta-analyses evaluating internet-delivered CBT for PTSD found similar results (Lewis et al., 2019; Sijbrandij et al., 2016) with therapist-guided treatments lasting more than eight sessions yielding the strongest effects (Sijbrandij et al., 2016). However, Lewis et al. (2019) noted that the effects of internet-delivered CBT for PTSD should be considered with caution because of the very low quality of the evidence.

Altogether, the effects of internet-delivered CBT for PTSD are promising. We were curious to what extent similar evidence is available supporting the use of internet-delivered EMDR for PTSD. Therefore, we reviewed the literature for clinical trials examining the effects of online EMDR for PTSD.

Specifically, a systematic search was conducted in PubMed, PsycInfo, Embase, the Cochrane Register of Trials, and Web of Science on April 28, 2020 to search for clinical trials evaluating internet-delivered EMDR for PTSD using the following search string: “Online” OR

\* Corresponding author. Department of Clinical Psychology, Utrecht University, Utrecht, the Netherlands and Department of Clinical Psychology & Experimental Psychopathology, University of Groningen; Groningen, the Netherlands

E-mail address: [l.i.m.lenferink@uu.nl](mailto:l.i.m.lenferink@uu.nl) (L.I.M. Lenferink).

<https://doi.org/10.1016/j.psychres.2020.113438>

Received 15 May 2020; Received in revised form 28 August 2020; Accepted 29 August 2020

Available online 31 August 2020

0165-1781/ © 2020 The Authors. Published by Elsevier B.V. This is an open access article under the CC BY license

(<http://creativecommons.org/licenses/by/4.0/>).

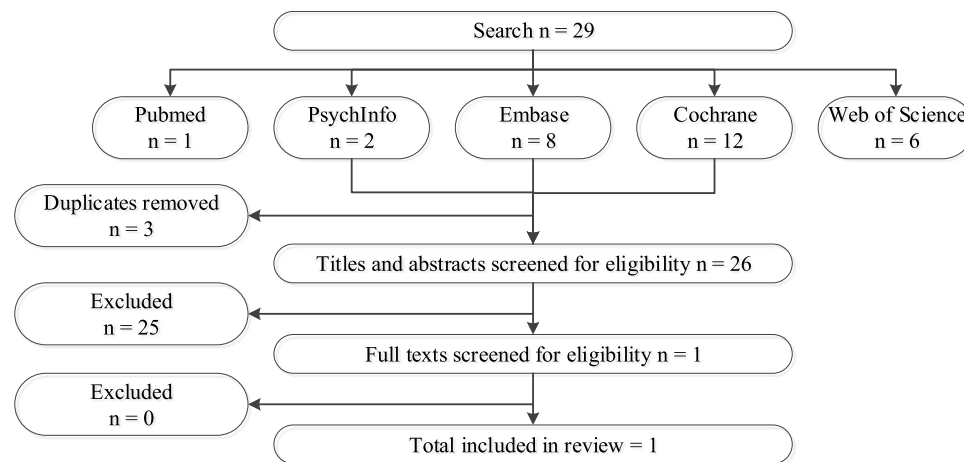


Fig. 1. Flowchart for included studies.

“Internet” OR “Web” OR “Computer” AND “Eye-Movement Desensitization and Reprocessing” OR “eye movement desensitization reprocessing” OR “EMDR” AND “PTSD” OR “posttraumatic stress disorder” OR “post-traumatic stress disorder” OR “posttraumatic stress” OR “post-traumatic stress” AND “Randomized Controlled Trial” OR “Randomised controlled trial” OR “RCT” OR “trial” OR “clinical trial”. All trials evaluating the effects of internet-delivered EMDR for PTSD were included regardless of study design (uncontrolled studies through RCTs) and study sample (children through adults).

Our search resulted in 29 hits (see Fig. 1). After removal of duplicates, studies were screened for eligibility based on their title and abstract. None of these studies met our inclusion criteria, except for one study, the full text of which was screened. This study, performed by Spence et al. (2013), was deemed eligible for inclusion in this review.

This Australian study was an uncontrolled open trial, examining the efficacy of a 6 week intervention, combining internet-delivered CBT with a web-based EMDR tool; details about this tool were not provided. In the first EMDR session, the patient was guided through the procedure by a trained EMDR therapist by telephone. Subsequent EMDR sessions were unguided, however telephone support was available upon request and offered to patients who had not used the self-guided EMDR tool by mid-treatment. Fifteen adult PTSD patients, as confirmed by a clinician-administered interview for PTSD, were included. Prior to treatment and at posttreatment and three months follow-up, severity of symptoms of PTSD was assessed as primary outcome using a clinician administered interview (PTSD Symptom Scale-Interview; Foa et al., 1993) and a self-report measure (PTSD Checklist-Civilian version; Weathers et al., 1993). Intention-to-treat analyses showed that, from pre- to posttreatment, large effect sizes ( $d = 1.25$ , CI 0.44–2.00) were found for reductions in clinician-rated PTSD severity. Self-rated PTSD showed no statistically significant decline. From pre-treatment to follow-up, large effect sizes were found for both PTSD measures ( $d = 1.45$ , CI 0.61–2.21 based on interviews;  $d = 0.99$ , CI 0.18–1.69 based on self-report). Four people dropped out of treatment and three participants reported worsening of self-rated PTSD symptoms post-treatment.

To conclude, this systematic review identified only one trial examining the effects of online EMDR for PTSD in children and adults. That uncontrolled study by Spence et al. (2013) combined internet-delivered CBT and EMDR which successfully reduced clinician-rated, but not self-rated PTSD severity from pre-treatment to post-treatment and both self-rated and clinician-rated PTSD from pre-treatment to follow-up. The study was limited by a lack of a control group (as a result, it cannot be ruled out that the improvements were due to natural recovery) and a small sample. Furthermore, because CBT and EMDR were delivered together, the relative effects of the two interventions is unknown. In addition, no clear description was provided of the web-

based EMDR tool that was used, precluding replication of this study.

After an introduction by a therapist, the EMDR tool used by Spence et al. (2013) was self-guided. This differs from the procedures that we have observed during the pandemic. When using a web-based EMDR tool, usually eye movements are made by following a light ball of a light tube, pulsators in both hands and/or a headphone with bilateral stimulation. Ideally, patient and therapist have a synchronous video-connection, allowing the therapist to tailor taxation of the working memory by bilateral stimulation (e.g., speed of light ball) to the patient's needs. This procedure mimics real-life EMDR the best. In the study of Spence et al. (2013), therapist involvement was minimal. It is, therefore, still unclear if synchronously guided web-based EMDR equals the effects of face-to-face EMDR.

Taken together, there is an urgent need to further examine the effects of internet-delivered EMDR for PTSD, preferably in RCTs that are 1) sufficiently powered, 2) compare EMDR with internet-delivered C(B)T, and 3) evaluate treatment effects of face-to-face EMDR vs. guided online EMDR. Until that time, wider usage and implementation of internet-delivered EMDR seems premature, especially considering that internet-delivered C(B)T is available and has shown promising effects (Sijbrandij et al., 2016). Accordingly, in these times of an increased need for internet-delivered treatments, for us, and others favouring evidence-based over non-evidence based treatments, internet-delivered C(B)T seems to be the preferred treatment to alleviate PTSD.

#### Author statement

LL conceptualized the study, performed the literature search, and wrote drafts of the manuscript. KM and PB co-wrote, reviewed, and edited the manuscript. All authors read and approved the final version of the manuscript.

#### Declaration of Competing Interest

All authors declare that there is no conflict of interest.

#### Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.psychres.2020.113438](https://doi.org/10.1016/j.psychres.2020.113438).

#### References

- American Psychiatric Association, 2013. *Diagnostic and Statistical Manual of Mental Disorders (DSM-5<sup>®</sup>)*. American Psychiatric Association Publishing, Arlington, VA.
- Cuijpers, P., van Veen, S.C., Sijbrandij, M., Yoder, W., Cristea, I.A., 2020. Eye movement desensitization and reprocessing for mental health problems: a systematic review and

- meta-analysis. *Cogn Behav Ther.* <https://doi.org/10.1080/16506073.2019.1703801>.
- 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. *J Trauma Stress* 6 (4), 459–473. <https://doi.org/10.1007/BF00974317>.
- Gauhar, Y.W.M., 2016. The efficacy of EMDR in the treatment of depression. *Journal of EMDR Practice and Research* 10 (2), 59–69. <https://doi.org/10.1891/1933-3196.10.2.59>.
- Hao, F., Tan, W., Jiang, L., Zhang, L., Zhao, X., Zou, Y., Tam, W., 2020. Do psychiatric patients experience more psychiatric symptoms during covid-19 pandemic and lockdown? A case-control study with service and research implications for immunopsychiatry. *Brain Behavior and Immunity.* <https://doi.org/10.1016/j.bbi.2020.04.069>.
- Horst, F., den Ouden, B., Zijlstra, W., de Jongh, A., Lobbstael, J., de Vries, J., 2017. Cognitive behavioral therapy vs. eye movement desensitization and reprocessing for treating panic disorder: a randomized controlled trial. *Frontiers in Psychology*, 8 1409.
- Lewis, C., Roberts, N.P., Simon, N., Bethell, A., Bisson, J.I., 2019. Internet-delivered cognitive behavioural therapy for post-traumatic stress disorder: systematic review and meta-analysis. *Acta Psychiatr Scand* 140 (6), 508–521. <https://doi.org/10.1111/acps.13079>.
- McNally, R.J., 2013. *The evolving conceptualization and treatment of PTSD: a very brief history.* *Trauma Psychology Newsletter.* Fall 2013, 7–11.
- Meyerbröker, K., Emmelkamp, P., Merckx, M., 2019. Effectiviteit van EMDR bij andere stoornissen en problemen dan PTSS: een literatuuroverzicht. *Gedragstherapie* 52 (3).
- National Institute for Health Care Excellence (NICE) (2018). *Post-traumatic stress disorder.* Accessed on April 28 via: <https://www.nice.org.uk/guidance/ng116/chapter/Recommendations>.
- Olthuis, J.V., Wozney, L., Asmundson, G.J.G., Cramm, H., Lingley-Pottie, P., McGrath, P.J., 2016. Distance-delivered interventions for PTSD: a systematic review and meta-analysis. *Journal of Anxiety Disorders*, 44 9–26. <https://doi.org/10.1016/j.janxdis.2016.09.010>.
- 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/\(ISSN\)1573-6598](https://doi.org/10.1002/(ISSN)1573-6598).
- Sijbrandij, M., Kunovski, I., Cuijpers, P., 2016. Effectiveness of Internet-delivered cognitive behavioral therapy for posttraumatic stress disorder: a systematic review and meta-analysis. *Depress Anxiety* 33 (9), 783–791. <https://doi.org/10.1002/da.22533>.
- Spence, J., Titov, N., Johnston, L., Dear, B.F., Wootton, B., Terides, M., Zou, J., 2013. Internet-delivered eye movement desensitization and reprocessing (iEMDR): an open trial. *F1000research*, 2. <https://doi.org/10.12688/f1000research.2-79.v1>. 79–79.
- Weathers, F.W., Litz, B.T., Herman, D.S., Huska, J.A., Keane, T.M., 1993. *The PTSD Checklist (PCL): reliability, validity, and diagnostic utility.* In: Annual Conference of the International Society for Traumatic Stress Studies. San Antonio: Texas.